

# The Transformation of the World

-----The Entry of Online Gaming Industry in China

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## **Abstract**

As a new branch of e-business, the online gaming industry has attracted much attention from the online operating organisations. Some of them intend to share a piece of this “cake”.

Therefore, by drawing demographical profile of the Chinese online game (2D or 3D virtual community) users through quantitative approaches, such as distributing the questionnaire online would help the forthcoming companies to understand the current situation of the online game market. In addition, through interviews with game users, the research would discover some popular marketing strategies as the favourable selection of the forthcoming companies.

Furthermore, the research would reveal the facing challenges in the Chinese online gaming industry as a precaution for the forthcoming online game hosting companies. The studies were developed from enterprises’ point of view by interviewing the experts in this industry, to understand common issues faced by virtual gaming hosting companies, including the challenges of the online games infrastructure and the game operation.

Finally, based on the findings and analysis of the research, the social and business impact should attract attention of the online gaming hosting companies. Knowing the impact of online games on business would help companies finding many new approaches (i.e. virtual game as new media for advertising, virtual economy management) to gain profits from virtual games. Understanding the social impacts (i.e. physical and psychological effects on the users, social ethical standards affected by virtual game) of the games would further shape the games into healthier development and render the games more acceptable by the public.

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## Chapter I Introduction

### Virtual background

In 2008, the Internet users over the whole world amount to 360,985,492, which means an increase of 305.5% of the online population compared to 2000 ([www.internetworldstats.com](http://www.internetworldstats.com)). The concept of cyber world is accepted by more and more people, as the development of World Wide Web.

Today, some companies have been making profits through the Internet by supporting various new online services (Coulson-Thomas, 2006). Especially the online gaming industry it has been given plenty of attention by online operating companies. The companies invest their capital on the virtual communities or MMOGs (Massive Multi-players online games) environment building and using various marketing strategies to attract online population to join their virtual environment and live there (Economist, 2007).

The concept of the virtual world was defined by Mayer & Crowley, (2006) as “sophisticated pieces of software that enable their users to project an identity into a generated three-dimensional reality through the use of advanced computer graphics and—through the eyes of this digital persona or avatar—interact with other players and wander through this computer-generated reality.” The avatar is a two or three-dimensional character which represents players to interact with the game environment and other individual players. These representations of players are controlled by local keyboard commands and mouse-driven interface (Gnume, 2005).

Most virtual online games request the players to download a client’s application to the local work station via broadband, which will enable users to enter a new reality created by digital technology. In this world all other characters are created by someone else from all over the world. In this virtual world people get familiar with one another as much as they might do in the real world, even if they may never have chance to see each other face to face (Rosedale, 2007).

“Virtual reality is a technology which allows a user to interact with a computer-simulated environment, which can be similar to the real world or significantly differ from reality” (Ferry, et al, 2008). The game users pick up their favourite avatars and through the Internet interact with other thousands or even millions of other participants. The interactions among different avatars which are controlled by different individuals are quite similar to those in the real world. Lin (2008) noted in his report, that one of the major differences is that people communicate with each other ‘behind’ their virtual identity, *i.e.* using their created character, in the light of the fact that they might never see each other physically. On a personal level, the virtual resident may become a close friend no matter where the “virtual friend” is from.

Castronova (2001) noted that the following three features should be present in order to create a virtual world or VW:

**Interactivity:** the virtual world is built in a remote server, and can be accessed from many other work stations at the same time. The command inputs of one person can affect decisions and commands of many other users. .

**Persistence:** the virtual world program server has to keep running 24/7. It must save data of all the avatars’ situations and the ownership of the virtual items.

**Physicality:** the user access to the virtual world must be via an interface which simulates a new physical world in their workstations.

## **1.2 Massive Multiplayer Online Role Playing Games (MMORPG)**

MMORPG is the most representative and attractive amongst all kinds of online games. Contemporaneously it is the most controversial (as will be explained below). It has become almost a synonym for online games and most of the subsequent changes of other online games originated from MMORPG. Such kind of games normally have a certain story or fiction, in which players are required to exchange items, cooperate, execute particular tasks and gain virtual currency, goods, equipment, etc.. Also in fights against monsters players may gain experience credits applicable for upgrades, which will further give the avatar the abilities needed to defeat greater monsters but also access to better equipment. Overall, the

content of the game runs in a simple model: blindly killing monsters to upgrade and upgrading to kill greater monsters this simple process includes more complicate tasks involving transactions between users, establishment of sub-communities to attack or defeat another and so on. It sounds tedious, but analysis has shown that, simulations of human society such as in virtual games, that interaction between players makes life in the game very vivid and human demonstrated. In fact, some players cannot distinguish between virtual life and reality.

MMORPG is the fastest growing kind of online gaming, and it is one the most favourite games of Chinese teenagers and young people. However it also has most impacts on our society. MMORPGs commonly include an exciting plot, complex various tasks, exquisite images and beautiful music. The game emphasizes the interaction between people and the creation of a virtual reality. Every character in the virtual world is controlled by the individual users from physical reality. The characteristics of human nature were fully displayed in the game. So as a product the game has a durable life circle.

In the game each player starts at the same level at first but they are able to improve their level and abilities through different aspects such as completing a task or working out. In this process players may choose to explore the virtual world on their own, however they have to spend more time and energy to do this; players can also choose to be taught by a veteran player, this can be a short path to grow better and faster in the virtual world. In the game, people need to engage transactions with honest man or crook; player need to have their virtual social activities, they might encounter good-mannered people or rough persons, they may even encounter bandits to snatch away their virtual properties. The virtual world lacks any legal constrictions, and thus is a lawless society, where survival is determined by the fittest players.

### **1.3 Research purposes**

Nowadays, the concept of virtual community and virtual world has been accepted by more and more people. Meanwhile, the online game hosting company, also called virtual environment hosting companies suddenly have caused concern by other organisations and

society at large. As a new branch of e-business, the online gaming industry's distinct profits have attracted many "pure clicking" companies to share a piece of the cake.

However, research will reveal the internal challenges of existing online game hosting companies as a precaution for the organisations which tend to set up online game service, and help them define demography of the game users and current popular marketing strategies.

Furthermore, the research will reveal the impacts of the online game on our society and on the business, to direct the forthcoming companies to develop healthier games and make better profit.

## **1.4 Research Questions**

Who are the main type of users it will target and which group of customer is the most profitable. What kinds of strategy are used by current companies to attract and maintain their customer?

What are the challenges which online gaming companies are currently facing? This question will have particular focus on two aspects such as technology and security management.

How can online gaming company explore more opportunities to help their game gain more profit from virtual world and eschew from negative consequences from the society?

## **1.5 Dissertation Approaches**

The secondary research will collect information worldwide, by using the online data base and physical library. The primary research would like to take the Chinese online gaming industry as a studying example to represent the whole world.

To locate game users among Chinese online population, 665 questionnaires were distributed via Internet directly to users. The research tries to keep the demography of the questionnaire audiences close to the demography of Chinese online population which has been published

by CNNIC (Chinese National Network Information Centre). Then, the subscribers of the online game will be distinguished from general game users for further analysis. By selecting the interviewees from the questionnaire audiences and cases study, many popular marketing strategies were found.

The secondary research examined the challenges which are online game hosting companies are faced with. The research will be developed from the inside of companies. Three interviews were arranged, one former employee, and two current employees from three different online game hosting companies.

Finally, the impacts the online games were shown in various aspects, based on the challenges of the game hosting companies and the marketing strategies, the open question results of the questionnaires, the features of the online games. Eventually, the results would be combined with the secondary research findings, and the recommendations would be given to ensure the online games more profitable and healthier.

## **1.6 Chapters Review**

To have an understanding of the online gaming industry, Chapter II will review the history of online gaming at first, further the research will try to define the common challenges which online game hosting companies are confronted with from a management aspect, and technological aspect which included network selection and security issues. Then, much information was found about customer relationship, management and approaches of profit generation in the online gaming industry. Those would enforce the understanding of challenges from the management level. According to the literature, the chapter will argue the impact from three angles such as social, business and political.

Chapter III clearly describes the selection and application of the research approaches. The secondary research was finished by depending on the online database and library. The demography of the questionnaires' audience was defined during the secondary research. On the other hand, qualitative approaches were applied to study the facing challenges and to discover current marketing strategies in this industry; the quantitative approach such as questionnaire was used to describe the feature of the common game users' body and Fee-

Paying-Game users' body, also a dynamic website was built for distributing the questionnaires and collecting results online. Although the research method was designed with a lot of consideration, one must still be aware of some of its limitations.

The findings will be divided into three parts in Chapter IV, questionnaire interpreters, interviews by enterprises and by customers, and case finding by first hand participated in the virtual communities. By using the questionnaires, the demography of the Internet user and game user will be roughly described. Finally, the first hand participating experience will give more information about a particular Chinese online community. Three interviewees represented different departments of different online game developing and hosting companies, and five game users were picked to represent different online games.

In Chapter V, by analysing the questionnaire, the games-using group and Fee-Paying-Games-using group will be uncovered and the feature of the groups will be illustrated by figures. Then, the common marketing strategies are concluded via interviews with selected game users and participating experiences of the author. Secondly, it will discuss from a companies' point of view the challenging issues by going through the virtual environment building process, for example, infrastructures upgrading or software building and network selection. Furthermore, many hot issues while the virtual games are operated, for instance, security concerns and piracy servers, will be discussed.

Based on the discussion of secondary and primary research results, Chapter VI will draw a conclusion about existing companies faced with challenges and provide some appropriate suggestions to the companies which are going to join this industry. Moreover, the targeting audiences and virtual reality impacts will be revealed to help the company find better profit channel and make the game more acceptable by the public at large. Finally, the limitation of the results of the research and future research directions would be declared.

## **1.7 Limitations of Research**

Because the online gaming industry only took off recently and has had a great impact on to the public during this decade, not many formal research results have been yet published,

particularly as regards research carried out by companies. A majority of companies would like to keep their failed cases hidden from competitors.

The industry has been developed rapidly, although some information only published a few years ago already seems out of date. For example, McFarlane (2005) claims two network structures were broadly used in the industry, whereas three network structures were confirmed in the primary research. Similarly, the results of this research should not be concerned chronically.

The personal scope of internal staff should be made aware. Most of the results from them were quite related to their working fields, and the scope was relatively narrow. Fortunately, they all came from different companies and different departments. In order to follow the confidential policy, they did not want to talk deeply, especially, about technology and making strategy. Particularly, the differences of attitude between currently employee and former employee should be concerned.

Although, the research defined some challenge from different stages, there must be many more challenge have not been covered from game building to operation. Also each company will have the unique features and situations. Before a company decides to join the online gaming industry much more research need to be done.

## **1.8 Contributions of Study**

The research filled a blank in the Chinese online gaming industry study. Also by discovering the existing challenges with which online gaming companies' are faced, their marketing strategies gave the organisations the trend to develop precautions and suggestions for virtual gaming services. Moreover, the research roughly pictured of online game users, which not only indicated profitable customer groups for the late coming companies, but could also be a cornerstone for other future researches. To ensure the companies have a healthier development and better profits, the research will reinforce the understanding of impacts on the business and society of virtual games to the online gaming companies.

## Chapter II Literature Review

### 2.1 Development of Virtual Worlds

The history of virtual games started in the 70s when the Multi User Dungeons (MUDs) were created. The definition MMOG firstly appeared in the game “Meridian 59” which was created in 1996, wherein 250 players were enabled to play simultaneously over the Internet (Hofer, 2005).

The virtual game became popular and increasingly developed only in this decade. Through the computer and the Internet, users engage in virtual reality locations. As the technology further developed, the creation of the virtual environment became more and more reliable and the quality of the virtual environment made a further step, shown in the improved quality of graphics and speed of the data exchanging (Ferry, et al, 2008).

Taking one of the popular online communities “Second Life” as an example, which was launched in 2003, took off in a relatively long period of five years, but nonetheless had attracted more than 8 million residents to live in the virtual environment, and the number of ‘virtual residents’ keeps growing up day by day (Meredith, 2007). The co-founder Fisher (2007) claimed that they would increase their number of users over ten times, i.e. the number of users might reach up to 10 million by the end of 2007.

From business aspect, McKenna (2005) pointed out that the online gaming industry had generated profit of \$1.09 billion in the Asian market in 2004. On the other hand, according to the research of [www.screendigest.com](http://www.screendigest.com), (carried out outside the Asian market) the revenue of MMOG had also reached \$1 billion ([www.screendigest.com](http://www.screendigest.com), 2007).

Even the traditional game producing companies (such as Xbox & Play station) do not only rely on the individual game creations, they started to extend their game products to the online networks. Sderstrm, (2008) described uniting game users together and putting them into special communities over the network to generate more income, for example, by selling the digital product via the communities.

Fisher (2007) also noted “we have no idea what crazy, wonderful, exciting and useful ideas they’ll come up with and implement in Second Life next year.” It means the virtual community as a new product will have a significant development in the future. The virtual world is going to be the ideal place for people to develop their social lives, according to Gartner, who predicted that there will be 80%, or about 250 million Internet users who will join the virtual world through the online communities and MMOG by 2010 (Schifrin & Matthew, 2007). MMOG’s market has great development potential. Someone believes that the development of the online gaming industry so far is only a cape of the iceberg (Eneman 2003, Yee 2001).

## **2.2 Marketing Strategies:**

### **2.2.1 Profit generation:**

As a new media channel for advertising, the Internet has gained a lot of popularity. The organisations put multi-media advertisements on WebPages, such as literal information, photographs, flash, even videos, or sending the emails to someone directly. Currently, the online advertising has become one of major revenues of the online operating companies who are running the website is profit orientated (Lin, C., 2008).

Although advertising is one of the main revenues for profit orientated websites, some online communities hosting companies try to eschew using advertisement, and fall back on services charges collected by which user’s privileges are bestowed. An example of such MMOG is the online community “Club Penguin” where young age users are able to create their own characters and interact with others. “Club Penguin” was launched at the beginning of 2005 and until August of the same year, their community amounted to 12 million users and almost 6% of them were paying subscribers. (Merrifield, 2008).

Besides, the main income from subscriptions of the membership services, the profits from the virtual items or the virtual currency purchase and In-game advertising also attracted companies’ positive attention ([www.screendigest.com](http://www.screendigest.com), 2007). The virtual communities just create a new channel to distribute advertisement inside the cyber world. In the UK one of the virtual worlds has been created and hosted by country largest school reward scheme, and it is

targeting on 11 to 14-year-old children. In this community users can alert their friends by SMS when they are online. The site also supports users online chatting, multi-playing etc functions. The founder claims that it is also a new opportunity for advertisers. They are allowed to put multi-media advertisement in high streets of the virtual world to promote others' brands (Laurence & Richard, 2008).

The research of Rosedale (2007) showed that there are three main ways for virtual environment operating companies to gain profits: the first is selling virtual items and properties. Secondly, charge for maintain the properties and also the charge commission fees on the FOREX (foreign currency exchange) transactions.

Micro-transaction is an approach used by virtual environment hosting company to gain profit. The concepts of micro-transactions is based on encouraging the virtual world of users and inviting them to purchase their personal components of the virtual games, for example, new privilege levels, unique avatar's attributes, better weapons and helmets, background colours and music. In other words, each virtual avatar can be costumed by its owner to be unique (Zackariasson & Wilson, 2005). For game developers, all virtual items are only a small chunk of script code which is available to be passed on from one player to another (Rosedale, 2007). The virtual items are not only traded inside of virtual environment, but also are sold on eBay for real money (Zackariasson & Wilson, 2005).

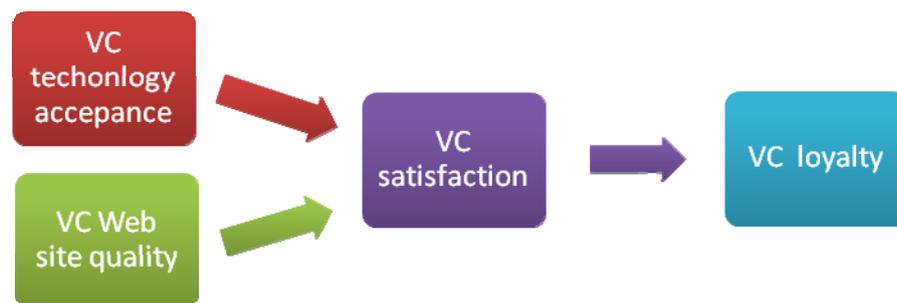
Based on the latest study, some virtual residents can make more than \$30,000 real cash a year by trading virtual items such as virtual houses, virtual clothes in "Second Life". Moreover, all players spend almost \$1.5 million on the games every day. Meanwhile, a good many of off-line companies are trying to build up properties and develop their brand awareness in the virtual communities (Meredith, 2007). S

### **2.2.2 Customer relationship management (CRM)**

Zackariasson & Wilson, (2005) proposed the concept that to throw a new MMOG onto the market and it can attract more than 200 players in the first nine months, it should be considered a successful case.

The loyal customer will generate the biggest part of the profits for the companies (Hung, C. H., 2008). In order to achieve better profits in the market competition, retaining the level of customer satisfaction and fostering customer loyalty is crucially important (Lin, 2008, Ahn, 2004). *Figure 1* shows a common approach to foster the customer loyalty.

**Figure 1: Building Customer Loyalty In The Virtual Community(VC)**



*Source: adapted from Lin, H., 2008.*

To retain customer loyalty, firstly, members will receive different appraisal of priorities and services, which all rely on their participation level in this virtual communities (Lin, C., 2008). That will encourage the user to keep coming back to the same virtual community.

Recently, to make the virtual community more real, game developers have developed plenty of sub-organisations inside of virtual environments. For example, according to Chen, et al, (2008) building guilds in the MMOGs “World of Warcraft” is a very effective approach to emphasise the concept of community amongst the game users.

Furthermore, holding special events to attract customers is another popular approach which is widely used by many virtual environment hosting companies. In the real world, events such as the Olympic games attract thousands of athletes to join and compete in the event, according to a report of the BBC, 14,939 athletes from 204 countries will compete against each other in 28 big competitions at the Olympic games in Beijing in 2008 (TV, BBC1, 2008). Similarly in the virtual world, where virtual environment hosting companies would create special events to attract players, for example, in “World of Warcraft”, territory

attacking events commonly are created in which hundreds of players or more are forced to unite into a team to defeat the attackers in order to survive (Zackariasson & Wilson, 2005).

## **2.3 Challenges Facing Virtual Companies**

Virtual games have been become popular as quickly as ICTs (Information and Communication Technologies) in the latest decade. Now they can be found in millions of families. One of the greatest challenges for virtual environment hosting companies is in fact to handle the huge scale of game users (McGraw, & Hoglund, 2007).

E-business infrastructure has a direct effect on online company services quality (Chaffey, 2007). MMOG can support a few thousands or even more players who play at the same time. Without concerning information processing progress, a light-based information signal need take 21 milliseconds to travel from the American east coast to west coast (Cheshire, 1996), so the communication-latency (the time gap between users when users receive the same information from the server system) is minimized and does not affect the fluidity of the game (Claypool, M. & Claypool, K., 2006.). The speed of information synchronizing among peer servers should be as quick as possible. The game hosting companies need to develop appropriate network architecture to exactly match virtual environment needs (Kabus, & Terpstra, 2005). On the other hand, identifying users' demands and building interpersonal trust is of paramount and foremost importance. For this reason a perfect promoting plan and a professional team to manage the interaction between large scale users and the exploration of the virtual communities are not of less importance either (Deen, et al, 2006).

### **2.3.1 Technological challenges**

#### **➤ Alternative network architecture**

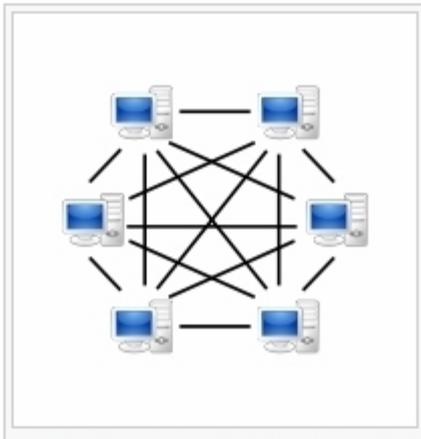
McFarlane (2005) is considered that one of the main challenges to develop MMOG is that of creating an applicable network structure which could idealize time latency, network bandwidth, cheating, security of customer information and scalability.

There are two popular architecture models (*See Figure 2*) which are able to support MMOG networks: Client/Server (C/S) model and Peer to Peer model (McFarlane, 2005). As the number of players goes up, the conventional centralized architecture server model becomes

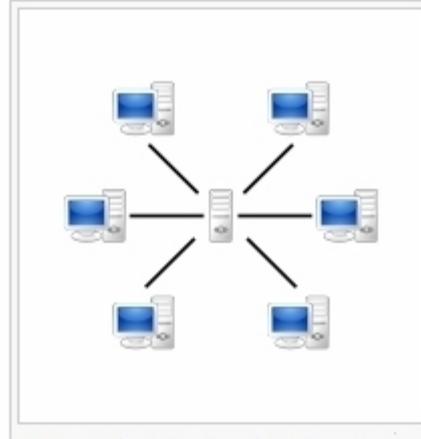
more unaffordable. Meanwhile, the Peer to Peer (P2P) architecture model deserves consideration to become an alternative choice (Norden & Guo, 2007).

**Figure 2: Illustration of P2P and C/S Network Structure**

(a) P2P network structure



(b) C/S network structure



In the Client/Server system, all the communication activities amongst clients need to be transferred by servers. There is no direct communication between clients. This model has been understood well and widely used in the whole industry, because it is easy to be administered (Kirmse & Kirmse, 1997), it is secure and has consistent features (Dalton, W., 2003).

Today most MMOGs use the Client/Server network structure, the server or server group provides services to thousands and millions of players, and manage a big part of data processing and information exchanging tasks. Developing a P2P architecture will shift those tasks to the client's workstation, partially or completely (Kabus, & Terpstra, 2005). Additionally, developing Client/Server structure network for a MMOG implementation will require a huge investment on the network infrastructure (McFarlane, 2005).

In the Peer to Peer systems each workstation may communicate directly between each other. Some claim that the Peer to Peer structure is the future network of MMOG (Fitch, 2001, Knutsson, et al, 2004.). The system provides many advantages. By contrast Client/Server architecture, Peer to Peer structure require less investment on the hardware, and the P2P

network structure allows users to share bandwidth burden from servers, which significantly improves the working efficiency of servers (Rooney, et al , 2004).

From a technological point of view, P2P network users can send direct information to each other. To some extends, the network latency will be reduced as the messages do not go through the servers (Knutsson, et al, 2004).

Two sides of one coin, the P2P architecture suffers more from security and personal privacy leaking issues (Baughman, et al, 2004). For the MMOG hosting companies, P2P networking has made cheating-proof management a new level of difficulty. (Baughman & Levine, 2001, Baughman, et al, 2007). Again, Kabus and Terpstra (2005) emphasised that in the P2P network environment cheating is hard to be proved.

By comparing the two structures, Peer to Peer is much more vulnerable and prevention of unfair practices is more difficult whereas Client/Server networks cannot match the scale of customer expansion and the needs resulting as a consequence. Thus, it must be a painful choice for an online game hosting company when choosing the structure.

#### ➤ **Security**

The virtual game storms have taken among the computer and the Internet users. “Gaming has always been (and remains) a prime driver of PC technology, with deep penetration in the consumer market” (McGraw & Hoglund, 2007). As the Internet develops rapidly, information security has become one of the most challenging issues for online operating companies. Online games, particularly MMOGs became some of the first victims of security faults; for instance, “Second life”, “World of warcarfts”, “EVE online” all suffer from the security challenges (McGraw & Hoglund, 2007).

Online security is a critical issue that concerns online companies and internet users. Firstly, personal privacy: customer’s individual information needs to be fully protected by the companies and any kind of unexpected information leaking need to be avoided. Secondly, when information is being transferred, the messages have to be encrypted to keep message’s integrity. Finally, the payment safety has to be also ensured (Kare, 2003).

Trading virtual items with real world currency makes the virtual world and physical world strongly integrated. The trading also happens among users, based on Mr Kane study in 2006 virtual items trading had reached \$1billion (Economist, 2007). When virtual items are considered with value by most of people, the owners of virtual items are being targeted by online criminals.

### **2.3.2 Management challenge**

First of all, website operating companies have to explore and understand what users expect. The companies are then able to build up the contents and facilities to match the requirements of users (Lin, C., 2008). The facilities of virtual environment for the interactions amongst the virtual residents are one of the essential conditions. Furthermore, the companies to persuade customers to join the virtual communities must offer better opportunities than other choices (Ahn, 2004).

Secondly, Young & Tseng (2008) pointed out that interpersonal trust is a reflection of willingness of individuals or organisations to devote themselves to other parties and it is not only crucial when people interact with others face to face, but also vital to the communication based in the Internet, especially in virtual communities.

Simultaneously, Young & Tseng's (2008) research has shown that building interpersonal trust in the virtual world heavily depends on physical interactions and communications. Hence, building up the trust between virtual residents and online gaming companies is a vital precondition for the residents to feel free to communicate and share their knowledge with others.

Hardey (2002) claimed that the interpersonal relationship which exists in the virtual communities is based on the players' cultural and social background, which is also a foundational stone for the virtual residents to establish relationship among individuals and organisations. Moreover, interpersonal trust is an essential factor to initiate the trading of virtual items and converting between virtual currency and real currency (Young, & Tseng, 2008).

Finally, under virtual world circumstances, players can win experiencing points by certain activities (for example: finishing the missions which are given by systems or win fights against other players); players can also purchase additional points with real cash. Currently, managing the virtual economy in the virtual world is becoming a new challenge to game hosting companies (Sderstrm, 2008). Meanwhile, there are only few rules of procedures concerned about regulating consumption and trading directly within virtual worlds (Lin, A. 2008).

## **2.4 Impacts**

### **2.4.1 Social impacts**

Virtual reality as new entertainment model has been integrated into people's daily life, so that patterns of interpersonal communication and behaviour styles have been affected (Cline, 2004 found in this article Ferry, et al, 2008). Virtual communities are formed up through the Internet by online users who support each other. Information exchanging platform are set up to satisfy the members' various required knowledge, interactions and amusement (Lin, 2008). People used to living only in the physical world, through display technology and connection with other computers, may discover new opportunities to understand concepts never realizable in the real world (Sutherland, 1965)

Moreover, the emergence of virtual communities has had a significant impact on how communications and collaborations among individuals occur (Lin, H., 2008). Henry Jenkins of the MIT Comparative Media Studies Program has pointed out, "people have been assuming alternate identities for thousands of years. Masks, costume parties and other cultural traditions have long served a useful purpose: They provide a way for people to pretend to be someone they aren't. When people assume alternate identities, they often behave differently and more honestly than when they're being themselves" (Gillin, 2007).

The virtual community is not only limited to anonymous communication, in this cyber world users feel like modelling their personal characters freely (Gillin, 2007). Denevy & Springen (2008) pointed out that some virtual games show to kids how to spend money wisely by practicing shopping and bargaining actions in the virtual world. Gillin, (2007) noted that

users are more able to be themselves, particularly people who have mobility faults caused by diseases or accidents will find that the cyberspace gives them a new world where they can free their spirit, where they can even fly.

A virtual environment company aiming on success, the first and foremost thing to do is to gain “clicking rate” which mean the companies would do whatever necessary to attract people to click and visit their websites (Lin, H., 2008). That would easily cause the website or the virtual environment might include illegal or unmoral contents. At the same time all online companies are more or less involved in web contents, intellectual rights and revenues issues for different benefited purpose, for example, the inappropriate contents to attract users, supporting unauthorized items to users for improving their “clicking rate” and increase companies profits (Economist 12/8/2007).

Hitherto, some MMOGs have officially started to offer the players opportunities to earn real cash through their activities in the MMOGs’ virtual environment, for example in “Second Life” (Mennecke, B., et al 2007). Their research also noted that heretofore there have been no specific rules or organisations to regulate players’ revenues which are generated from the virtual environments. The taxation issues of incomes deriving from virtual working should bring new concerns of the government.

In addition, MMOGs are very attractive to people, particularly teenagers and young people who lack self-discipline. They might indulge in the virtual world and ignore the real world (Lian, J. X., 2006). Sometime, there is a bad balance between games and studying and careers for the game addicts. Furthermore, the users’ nervous systems are overwhelmed by playing games overtime. If the players overindulge in the virtual reality might lead to neural damages and psychological collapse (Li L., 2007). Younger people overspend time in virtual communities, which has provoked the government and media’s awareness. In 2007, the Chinese government implemented new regulations and software to eschew young people from over spending time in virtual games ([www.gapp.gov.cn](http://www.gapp.gov.cn), 2007). Virtual games have become a controversial topic in our contemporary society.

### **2.4.2 Business impacts**

As the Internet is widely used, traditional business industries' structures have been changed (May, B. 2002). Many companies have been seeking the chance to promote their business online (Glimore A. et al 2007). Meanwhile, companies no longer achieve their profit only through the real world as slowly but surely the virtual world is getting into focus (Meredith, 2007).

By using the virtual communities, the game producing companies are able to interact with their customers in the first position in the virtual communities which is hosted by companies themselves. As if they publish their games through the agents they would not have direct feedbacks. (Sderstrm, 2008)

Microsoft invited 10 million players from their Xbox live community through the Internet to help the company to develop the game console system. "The time has come for the games industry to open its doors to all game creators, enabling anyone to share their creations with the world," said John Schappert, corporate vice-president for Xbox Live (Edwards, C., 2008). Through the virtual communities the game developing is company available to collect the information on players' demands, widely and effectively.

Building a virtual brand has started to be focused on by many companies (Bearne, 2007). As a virtual community "Second Life" not only supports users with a platform for communications and interactions, but also can be used as a platform to fill the business requirement. Recently, Coca-Cola built a virtual vending machine to distribute their products in the virtual world to promote their brand awareness. IMAX (a Canadian film company) uses to give out the lottery ticket to promote the movie "Harry Potter" (Fisher, G., 2007). In a word, both "brick" and "click" businesses have started to gain competitive advantage by corporate or integrate with the virtual environment (Ferry, et al, 2008).

## **Chapter III Methodology**

### **3.1 Introduction**

Research methodology is a critical process of decision making. All the decisions made are affected. It is an interrelated system of decision (Brannick & Rache, 1997).

Research is divided into primary and secondary research. The primary research was finished by combining both qualitative and quantitative approaches, which include survey and cases study. The surveys were completed by distributing questionnaires (including softcopy version and hardcopy version) and interviews (including both enterprise end and consumer end). A case study was finished by first hand participation which means to join virtual communities and play the online game purely for researching purposes. On the other hand, the secondary research was finished by widely collecting data from online sources and college library.

### **3.2 Research Philosophy**

Although the research has involved opinions of over a hundred people, the results cannot be absolutely correct as all the answers came from sampling groups by interviews and answering the questionnaires. Also, each result deriving either from survey or case study might include objective views. So the research will try to eschew the personal bias during the analysis process. Beside, the physical social world and the online entertainment business world are constantly changing. Especially, virtual reality, the concept became popular only in recent years. Not many researches had been done so far. In this case not many canonical ground theories were available, the research adopted many practical approaches such as first hand participating into the case to gain results.

In a world, there are two research philosophies mainly applied, critical realism and pragmatism.

### 3.3 Secondary research

Ghauri (2005) noted that the secondary research can widely collect opinions of the topic of interest and save enormous resources for the researcher.

The Secondary research was finished mainly rely on the electronic database, such as

<http://www.library.wales.ac.uk/index.htm>

<http://www.emeraldinsight.com>

<http://search.ebscohost.com/>

Meanwhile, the physical library of Portobello College has given many information sources supports as well during the secondary research. “Secondary data is generally data, which is collected for some purposes other than helping to solve the problem at hand. It is imperative that secondary data relating to the subject matter analyzed before and primary research is conducted.” (Malhotra, 1993)

According to McKenna (2005) the online industry in Asia had generated profit \$1.09 billion in 2004, also Asian online game market is most profitable market segmentation in the world. As a result of this the research focused on the largest population nation (China) in Asia to study the online gaming industry facing challenges and profitable marketing strategies which are commonly applied by existing companies.

### 3.4 Selection of research methods

Malhorta (1993) defined an interview as following “Unstructured and direct in which a single respondent is probed to uncover underlying motivations, beliefs, attitudes and feeling on the topic.” The research was started by interviews and from the point of view of the enterprise to discover internal challenges. The interviews with the services consumers and case studies would give much support to find marketing strategies in the industry. Each stage had unique conflicts, although some of them had been solved, the research still could not be absolutely perfect.

To help companies which tend to develop online game service, to find out who their main target in this market was, the questionnaires were designed to identify the consumer bodies of online game market by gender, the ranges of age, educational level and occupation. Also, one open question is included in the questionnaire to assess the suggestion whether virtual reality has an impact on the business and society. “The questionnaire design and development is part art and part science, with the balance tipped toward the former. The best way to learn how to design and develop questionnaires is by doing it and learning from the experience.” (Bagozzi, R., 1994) In respect of that, 20 questionnaires were handed out for pre-testing and the results used as feedback for the final questionnaire.

During the research the special web site (<http://www.jusiman.com>) has been built to distribute the questionnaires online (<http://www.jusiman.com/Questionnaire.php> & <http://www.jusiman.com/ChineseV.php>). The softcopy version questionnaires have been published through the website; also the questionnaires had been connected to the “Mysql” database to collect results for further analysis. To a large extent, the web site improved efficiency of data collection process, as all the collected data could be transferred from the database server to the analysing software “SPSS”, directly. The performance would be more significant for the enormous data collection.

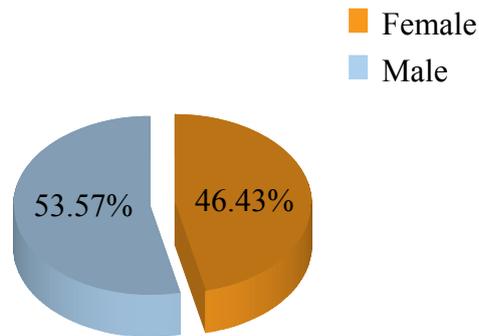
### **3.5 Sampling**

According to the report of China Internet Network Information Centre (CNNIC), 54.9% of Internet users are male and 45.1% are female. Also the result pointed out the age demography of Chinese Internet users, 17.7% were less than 18 year-old, 33.5% were between 18 and 25 year-old, 19.4% were between 26 and 30 year-old and 10.1% were between 31 and 35 year-old ([www.cnnic.com](http://www.cnnic.com), 2007). The research would do its best to ensure the demography of the audiences close to the Chinese online population

First and foremost it was important to confirm that the people carrying out the questionnaires actually were internet users, therefore email has been the main channel to distribute the questionnaire. Some hardcopy versions of the questionnaire were distributed in Internet cafes to keep the experimental samples as close as possible to the demography which had been given out by CNNIC’s latest report.

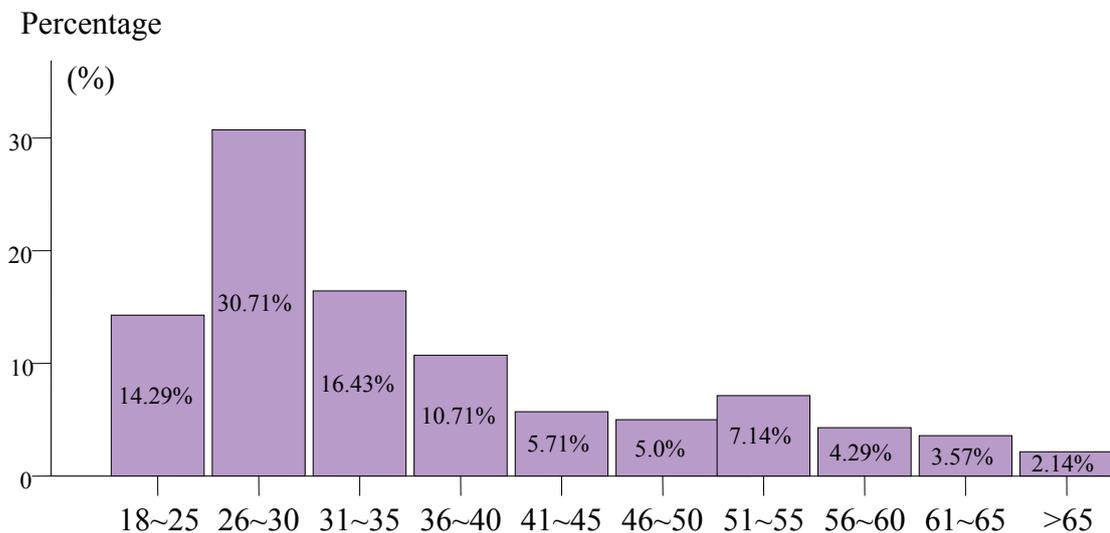
To keep the respondents 'gender and age' matching to the online user demography, 124 hard copies questionnaires were distributed in 10 different internet cafe crossing 5 different cities in China.

**Figure 3: Respondents' Age Structure Pie Chart**



Finally, the Proportion of Respondents Gender had reached 52.9% : 47.1% between male and female (See Figure 3), and 12.1% respondents less than 18 year-old, 22.2% were between 18 and 25 year-old and 21.2% between 26 and 30 year-old (See Figure 4).

**Figure 4: Age Structure of Respondents Bar Chart**



To find out what the common challenges of the online gaming industry were, three interviews were developed in two popular online games hosting companies in China. To understand the challenges from different stages, the interviewees were chosen from different

departments of the companies. Meanwhile, based on the report of [www.analysys.com.cn](http://www.analysys.com.cn) both of them were in top ten list of marketing share competition in the first season of 2008 (Yi, 2008). Also, some of those companies from the list were targeted as studying subjects.

### **3.6 Research Strategy**

Design and research requires various strategies and plots. So the data collection approaches and methods, measurement and data analysing tools must be specified in the first position (Emory & Cooper, 1999.)

The research focused on people who use the internet for recreation, so the web page format questionnaire and email distributing approaches were prior options. The qualitative research would describe a demographical draft to locate main profitable consumer targets in this industry.

The surveys were carried out in China's mainland. 500 copies in Mandarin were planned to be sent back to China via email which included a URL of the questionnaire. The same contents questionnaires were made into 100 hardcopies version as backup in case of balancing respondents' demographical needs.

As the research focuses on audiences who have been using the Internet, so that, the questionnaire copies were mainly delivered online. Even though, there were many methods to send message out via the Internet, for instance, Bulletin Board System (BBS), online forum, Chatting room, real-time communicating software (such as Windows Live Messenger, Skype, ICQ and Chinese "QQ"), etc, as many virtual communities had included BBS, online forum and real-time chatting functions, which might mislead the audiences to answer the questionnaire. Eventually, the softcopies of questionnaire were distributed purely by email, insofar that email is one of the basic functions broadly used.

Also, the hardcopies of questionnaires were handed out during the research. Finally, 665 questionnaire copies were sent out in total, 531 of them were distributed via email; 124 of them were handed out by hardcopies; 10 calls were made for filling out questionnaires as well.

Beside quantity questions, some quality questions were built into the questionnaires to widely collect respondents' personal opinions. Finally, 140 of 665 questionnaires were validly filled. The responding rate is 21.05%. 108 of 531 were filled online, 25 of 124 were filled up in hardcopies, and 7 of 10 questionnaires were filled up via IP telephone calls. The final make up of surveys was finished by handing out the questionnaire hardcopy version which crossed 5 cities which the population over 5 millions, such as Shanghai, Beijing, Shenyang, Dalian, and Tianjin.

The interviews with the online companies' experts would dig out many challenges with which companies were faced. The interviews with the senior software programmer of the MMOGs would help research to gain much information about challenges of developing MMOG as a software product, another interview with a manager assistant of "the9.com", one of the popular games hosting companies will help the research to analyse further issues during game operation.

To study marketing strategies that were widely applied by the online gaming industry in China, the researcher chose to participate in some virtual communities at first. Through the participation of virtual communities the author was able to gain much valuable information of virtual reality. Furthermore, it filled up much of the researcher's gaps about virtual reality and enforced understanding of conversations with many virtual game users.

To some extent, offering to post the result of the research could help to identify audience who might be interested in online game and willing to present an interview. So the following open question is asked in the questionnaire: "Email: (option, you might be able to receive the results of this research)". Meanwhile it could enforce responding rate of the questionnaire.

By leaving an open blank form to allow respondent to fill their email contact, six of respondents were required for further interview over the phone. Finally, five statements were made. One person is huge game fan who spends much time and money on the game, another one is involved in many virtual communities and games but never spent a penny on the services.

Although the experiences of online game users might have something in common, each person should have their own unique views. That was a main approach to discover the marketing strategies in this industry by knowing about virtual reality attractive points to different users.

### **3.7 Data Collection Instruments**

As the research topic is quite related to the internet, so the questionnaire is built up in two formats, a hardcopy version and a softcopy version. The hardcopies were printed out and handed out physically; the softcopies were edited into a dynamic web page and distributed via the internet. Additionally, all the interviews were finished by IP phone calls via the Internet as the cost were bottom low and this avoided many unnecessary conflicts such as traffic issues, less time and geographical restriction.

### **3.8 Data Analysis Procedures**

First step was to export the data from web server which was designed to publish the questionnaire and collect the results from respondents. Secondly, import all data file to the “SPSS” which was the chosen software to analyse the quantitative results and generate different type of graphics to illustrate the trends required for the research. The SPSS structural equation modelling procedure was used to test the hypotheses as it was thought to be less sensitive to non-normal distribution (Wothke, 1998). The questionnaire results which were collected by hard version and phone calls were manually input into “SPSS”.

As the questionnaires were distributed in three approaches, emails, hardcopies and phone calls, the results which were collected by hardcopy version and telephone were ordered by respondent’s name of city and finishing date (e.g. Beijing-Aug-10, Shanghai-Jul-29), The online questionnaire was automatically coded by the hosting server, which is a combination of finishing date and respondent’s IP address (*See Figure 5 below*) when the audiences visit the site the time and IP will be record automatically.

**Figure 5: Demonstration of Data Coding System in the Database**

code
2008-08-26~89.125.90.107
2008-08-26~123.188.33.188

The qualitative data which came from the enterprises would be compared with secondary research and a final conclusion was drawn. Moreover, the widely collected opinions from questionnaires, interviews and a case study were combined to reveal popular marketing strategies in the industry. Qualitative research can be analysed by intuition where the aim is to produce common or contradictory themes and patterns from data, which can be used for interpretation, researchers need to stay close to the data (Eaterby-Smith, Thrope and Lowe 1991)

### 3.9 Limitations of Methodology

First of all, when questionnaires were distributed via email, many questionnaire audiences replied to confirm whether the email which includes the URL of the research questionnaire is a spam email or not. It also might be a main reason why the many questionnaires' audiences were afraid of clicking on the link of the questionnaire. It all means that the online security issues are of concern for many internet users. So the questionnaires sent out lately had a reasonable explanation to explain the URL as an attachment.

Secondly, the age structure of the people who filled out the online questionnaires did not closely match the demographical requirements. There not were enough respondents from 18 to 25 years old. However, the hardcopies and telephone calls covered the faults.

Additionally, as internet only started blooming since the beginning of this decade, the concept of the virtual reality has been accepted by many people. Although the secondary research can save time and money and is easily available, each study has special objects so they might constitute a perfect match to this topic (Ghauri & Grohaug, 2005). Moreover, during the secondary research not many ground theories were to be found and much

information was based on non-academic articles. By reason of that, many new concepts will be introduced in the primary research.

Furthermore, because of time and connection limitations, the interviews of enterprise have only arisen between three companies. Although the whole industry is running under a similar theory model, based on real practices each organisations might have unique challenges. The research only emphasis the common issues going along with the operation process of the company, from infrastructure preparations to managements. Otherwise, the results of enterprises internal challenges were collected by interviews only, more or less the interviewees' personal biases were inevitably.

Finally, it was hard to ensure all the respondents took the research questionnaires seriously. Even during the interviews the result could include personal bias. Meanwhile, many unreasonable results of the questionnaires have been dropped during the analysis process. Although a considerable amount of research work had been done, the result of research only could represent fact trends and could not reflect the absolute truth as the whole industry is constantly and rapidly developing.

## Chapter IV Findings and Analysis

### 4.1 Questionnaire Interpreter:

#### 4.1.1 Background Study

By using specified research approaches, such as sending questionnaire emails and distributing questionnaires in the Internet cafes in China, which have ensured the research is the Internet user focused.

*Figure 6: Time Spending Online Statistic of Respondents*

		Frequency	Valid Percent
Valid	Less than an hour	4	2.9
	1~5hrs	16	11.4
	5~10hrs	18	12.9
	10~20hrs	23	16.4
	20~30hrs	23	16.4
	30~40hrs	18	12.9
	More than 40 hrs	38	27.1
	Total	140	100.0

Figure 6 above shows how much time respondents spend on the internet per week. Only 2.9% percent of the respondents use the internet less than one hour per week. 27.1% of the respondents use the internet more than 40 hours per week. Also, there are 29.3% of the questionnaire audiences spend 20 to 40 hours on the Internet. Meanwhile, the table unfolds the trend that people today spend more and more time on their online activities. As a result, they will spend less time in the real world. That is one of the major reasons why online gaming industry is generated and popularized in China.

*Figure 7: Proportion of Portable Device Internet Users*

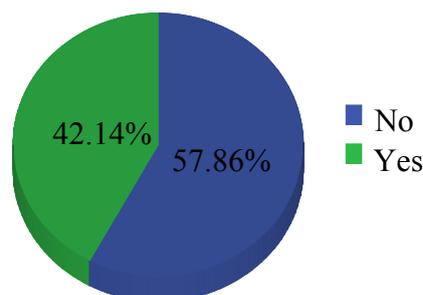


Figure 7 shows that 42.14% of respondents, 59 persons in the research have been using portable devices access to the Internet, which means the development of technology have made access of the Internet much convenient than ever. Few of herald in the online gaming industry have started to explore this new market field.

Since that the Internet more available to the users, the residents of virtual world not only can access to the virtual environment through the computers, but also they can interact with other online individuals by using the portable devices, such as mobile phone.

For example, in China, one of popular online communities “QQ” has designed special client side software which is compatible with the mobile communication devices. Portable version “QQ” is more than real-time communication software. By using the portable “QQ”, the user can to login to the online community without physical Internet connection. The users of portable “QQ” not only can chat with others online friends, but also are able to play games with online the virtual residents. In respect of mobile bandwidth and chips restriction, the interactivities which through the mobile connection are not completely same to the access of landline. However, the application of portable network devices in the online gaming industry implicates a possible future direction of the market trends.

Figure 8: Percentage of Real-Time Software User Among Respondents

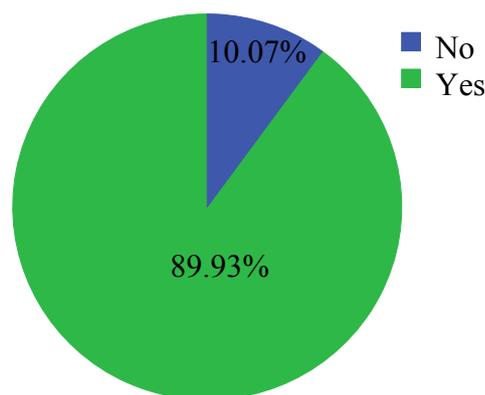


Figure 8 shows the proportion of real-time communication software users amongst internet users. Almost 90% of the respondents are real-time communication users. To improve communication efficiency, real-time communication software has been integrated in many online communities. Conversely, some online communities were developed from

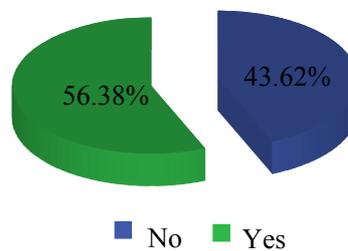
communication software. The software companies organise their customers into a virtual community to enhance the customer loyalty and attract new customer.

**Figure 9: Real-Time Communication Software Marketing Share**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Do you use any real-time online communicating software? * QQ	109	87.2%	16	12.8%	125	100.0%
Do you use any real-time online communicating software? * MSN	63	50.4%	62	49.6%	125	100.0%
Do you use any real-time online communicating software? * Skype	27	21.6%	98	78.4%	125	100.0%
Do you use any real-time online communicating software? * ICQ	10	8.0%	115	92.0%	125	100.0%
Do you use any real-time online communicating software? * Others (communicating software)	11	8.8%	114	91.2%	125	100.0%

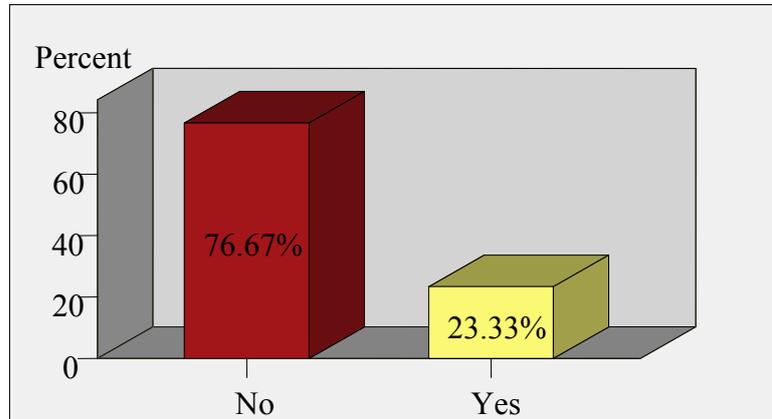
The table (See Figure 9) shows 87.2 % of real-time communication users have registered as “QQ” member. Windows “Live Messenger” and Skype are only used by 50.4% and 21.6%. First because “QQ” occupied Chinese market earlier, secondly, “QQ” used online community as bait to retain their dominate position in Chinese market.

**Figure 10: The proportion of the online communities with advertisement**



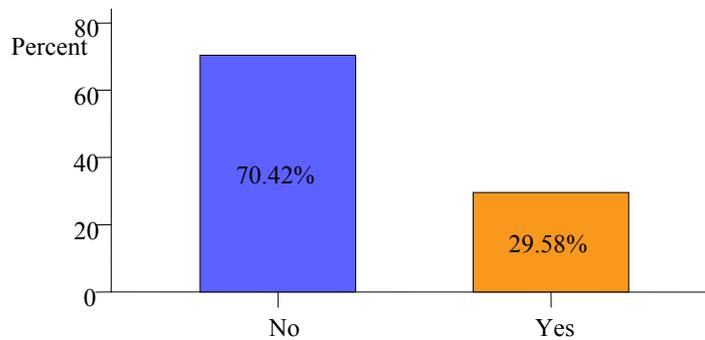
According to the pie chart (See Figure 10), 56.38% of the online community users are aware of advertisement in their communities. It means gaining profits from the advertisement sponsors is a major factor for online community host companies.

**Figure 11: Proportion of Fees Paid by Online Forum Community Users**

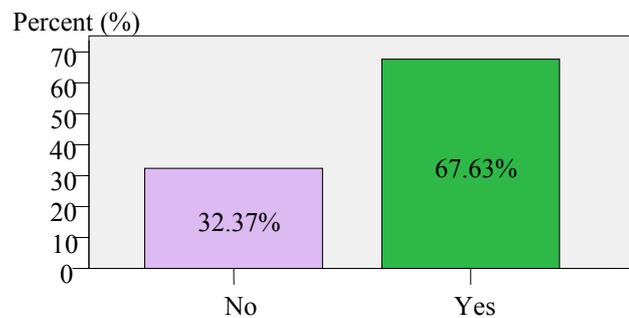


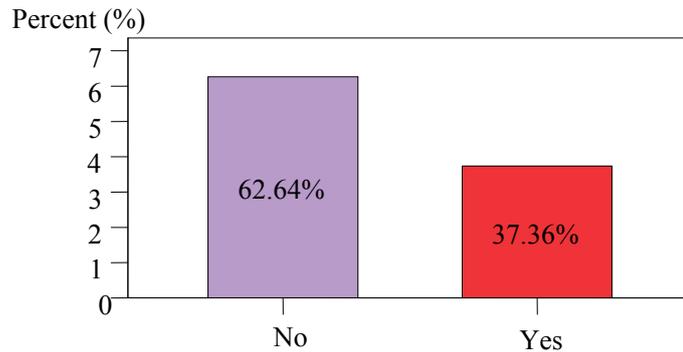
However, 23.33% of online communities are fees paying member (See Figure 11). Generally fee paying members will be less bothered by advertisement. By contrast with fees free users, the fee-paying users will also have certain privileges. The results also point out that, amongst 76.67% of no-fees paying users, nearly 30% of them are willing to pay to improve their authority or privileges in the communities (as illustrated by Figure 12).

**Figure 12: Potential fees paying users among non-fees paying users**



**Figure 13: Online Game Users' Proportion of the Respondents**



**Figure 14: Fees Paying Users Proportion of Online Game Users**

The figure (See Figure 13) states that 67.63% of respondents were participating game users in online communities during the research. It means that more than two third of internet users in China have been using it for gaming. Among 94 game users, 37.36% of them are subscription donators (See Figure 14). Although many factors are pushing online games to become a no-fees orbit, currently, subscriptions of online gaming industry still are a main revenue channel in China.

#### 4.1.2 Games-using Respondents Study

The line (See Figure 15 below) indicates the amount of time games-using respondents spend within the game. 31.03% of the respondents spend 1 to 5 hours in the games, as the playing hours growing up the percentage of games-using respondents become less and less. Both of 20 to 30 hours and 30 to 40 hours is 2.3%. Surprisingly, 6.9% of the game users are playing game over 40 hours per week because some of virtual item dealers are included in this group.

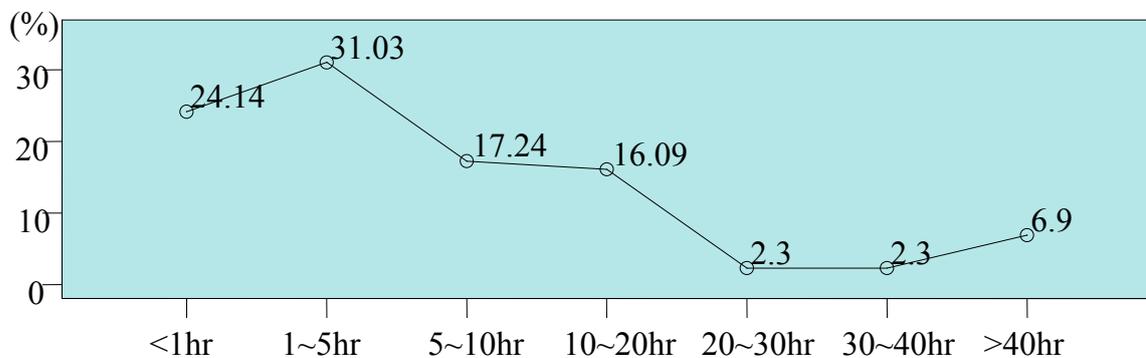
**Figure 15: Time Spending On Game of Games-using Respondents**

Figure 16: Proportion of Virtual Items Seller among the Online Game Users

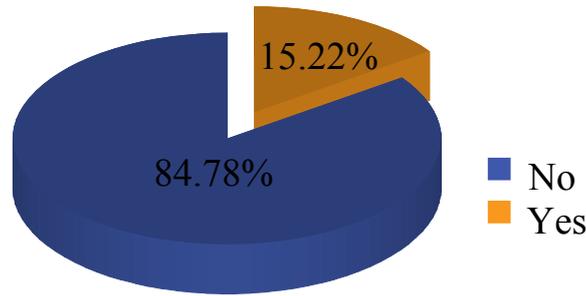
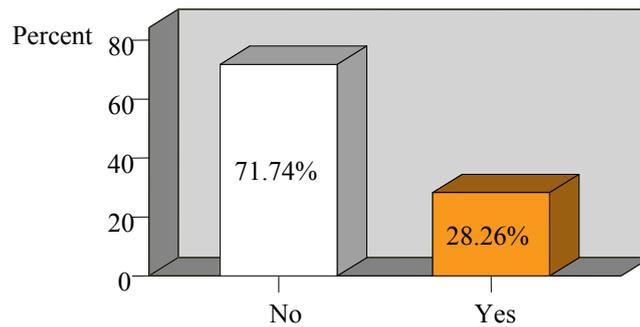


Figure 16 shows that 15.2% of online game users have selling virtual items experiences. Again the result proved that, if customer demand exists, virtual items can be converted into real cash. 28.28% of online game users are virtual items buyers and the scale is twice as big the seller’s group (See Figure 17 below).

Figure 17: Proportion of Virtual Items Buyer among Online Game Users

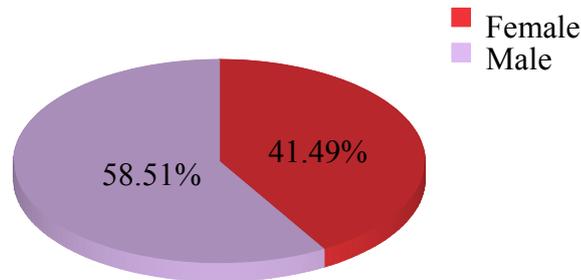


To satisfy the needs of online game users and gain financial benefits, many players have started playing online games full time, as a professional. Those professional players even joined together and built a company to deal the virtual items. At the same time, some others created companies more like virtual avatar’s crèche. They help Internet users who like the virtual game but do not have enough time to manage avatars on the daily base to “breed” their characters in the virtual world.

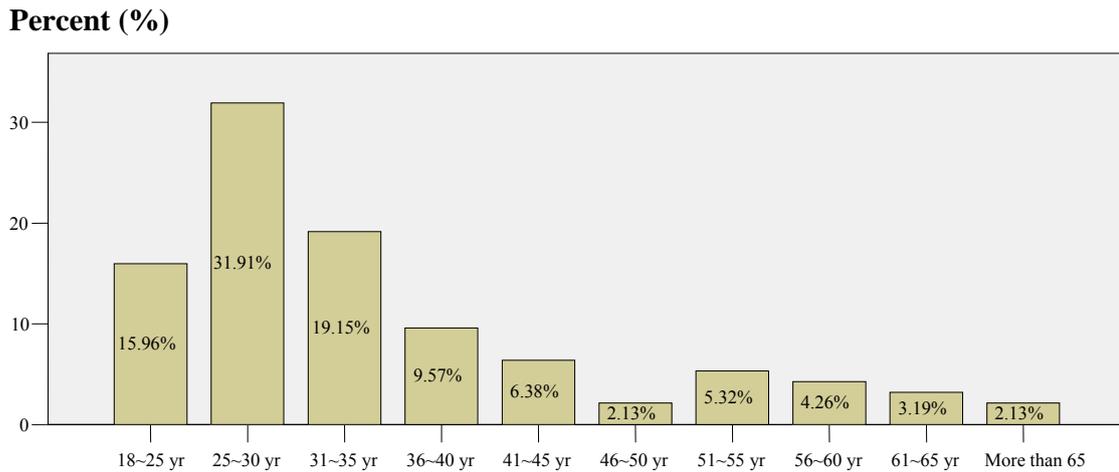
Based on the results of the questionnaires, 58.51% of respondents using online games are male and whereas female respondents only make up 41.9% (See Figure 18 below) compared with the entire gender structure of the respondents (See Figure 3) 53.37% are male. In other words, male internet users will tend to enjoy online games more than female users in China.

The age structure of gaming using respondents (See figure 19 below) is almost a duplicate of the entire respondents' age structure, which means the online game audience age range has not much to do with the age of users.

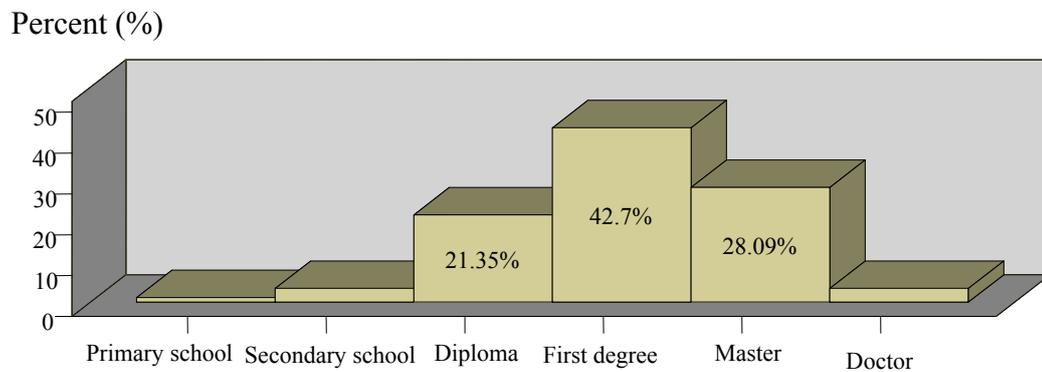
**Figure 18: Gender Structure of Games-using respondent**



**Figure 19: Games-using Respondents' Age Structure:**



**Figure 20: Education Levels of Games-using Respondents**



**Figure 21: Education Levels Statistic of Games-using Respondent**

		Frequency	Percent
Valid	Primary school	1	1.1
	Secondary school	3	3.2
	Diploma	19	20.2
	First degree	38	40.4
	Master	25	26.6
	Doctor	3	3.2
	Total	89	94.7
Missing	System	5	5.3
Total		94	100.0

On average, (See Figure 20 and Figure 21) online game users are mainly focused on the well educated groups, 21.3% of the games-using respondents are diploma holders, and 42.7% of them have received their first degree which is the biggest part of respondents, as the second largest group game users are people who have their Master degree, which occupied 28.09% of the total.

As the figures (Figure 22 and Figure 23) below illustrate, 44.32% of games-using respondents are employees. The student group amounts to 28.41%. The group of managers and employers is merely half as big as the student group. The remaining part is separated by 5.68% layout and 6.82% retired game users.

**Figure 22: Occupation structure Statistic of Games-using Respondents**

		Frequency	Percent	Valid Percent
Valid	Student	25	26.6	28.4
	Employee	39	41.5	44.3
	Manger/Employer	13	13.8	14.8
	Layout	5	5.3	5.7
	Retired	6	6.4	6.8
	Total	88	93.6	100.0
Missing	System	6	6.4	
Total		94	100.0	

Figure 23: Occupations of games-using respondents

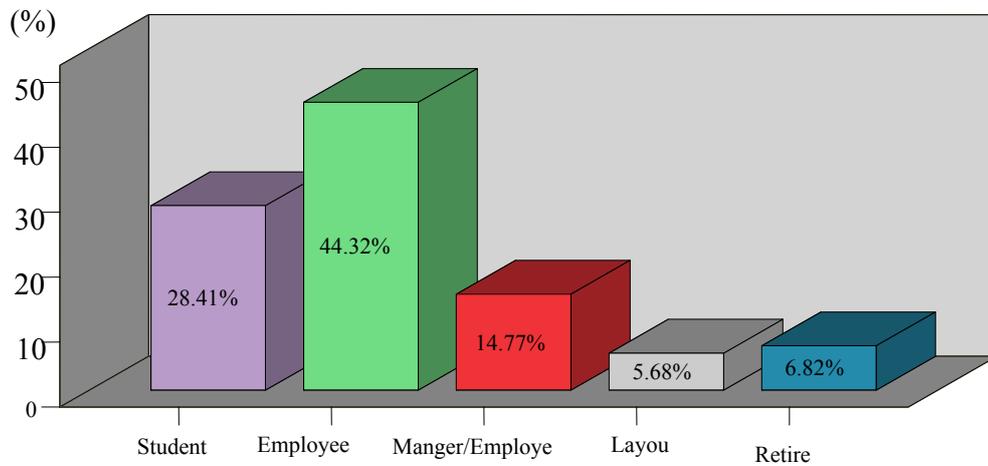


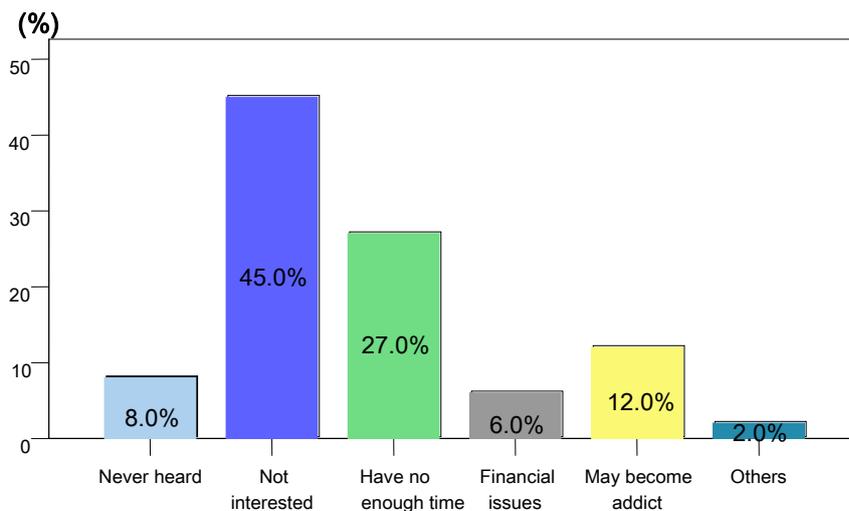
Figure 24: Comparison among different types online game

	Cases	
	Valid	
	N	Percent
Online game users * Flash games/Casual games	35	37.2%
Online game users * Gambling games	2	2.4%
Online game users * LAN PC games	18	19.1%
Online game users * MMOGs (First person shooting )	18	19.1%
Online game users * MMOGs (Role playing)	26	27.7%
Online game users * MMOGs (Simulating)	15	16.0%
Online game users * MMOGs (P2P contest)	23	24.5%
Online game users * MMOGs (Web page game)	13	13.8%
Online game users * Others (game types)	7	7.4%

The table (See Figure 24) above shows the number and percentage of particular types of games played by games-using respondents. The Flash/Causal game is the most popular one, 37.2% of the respondents chose playing flash games, as most flash games/casual games are fees free, small, short time taking and easier to be operated. Also the various game contents can be broadly accepted by different type game users. MMORPG as the second popular are accepted by 27.7% of the respondents, 24.5% of games-using respondents tend to play

online P2P (person to person) contest games. As a new born branch of MMORPGs, webpage games attract 13.8% of the games-using respondents' attention. However, for the legal concern only few of respondents fancy the online gambling game in China, the result is less than 3%. Overview the market trend, MMOGs still is the main stream of the on line entertainment market.

**Figure 25: Non-Games and game quitter analysis**

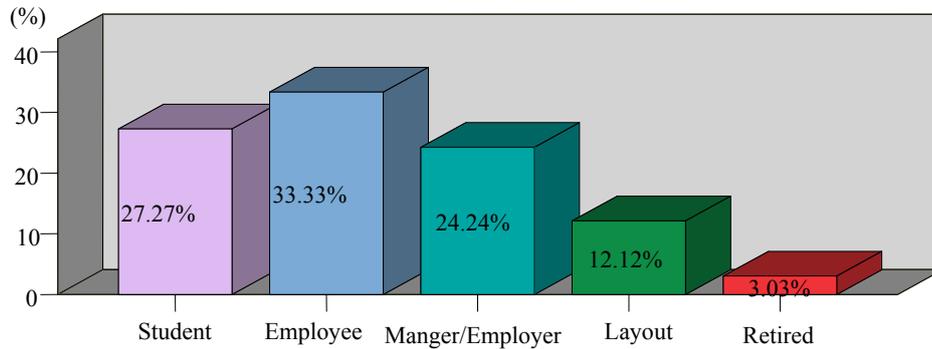


45% of respondent are not interested by online games. 27% of respondents do not play the games as they do not have enough time. Also, 12% of the respondents are concerned they may become addicted of the game. Only 8% of respondents have no clue about what is the online game and 6% of them do not play the online because the financial costs of the games (See Figure 25).

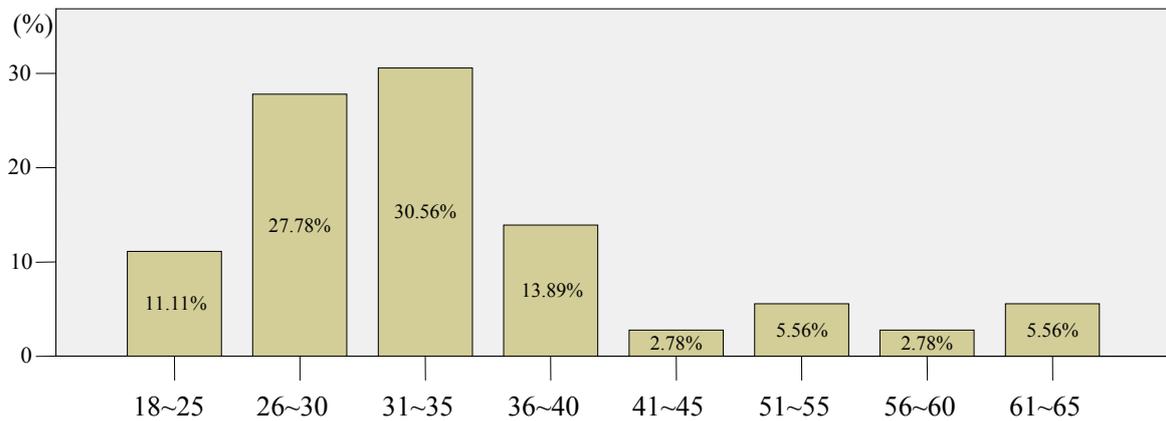
### 4.1.3 Fee-Paying-Game users Study

Among Fee-paying game users the student groups' scale has not changed (See Figure 26 and Figure 23), the percentage of employee group dropped to 33.33%, by contrast with games-using respondents. Concerning the financial advantages of the manger/employer, this group has increased by almost 10% to 24.24%. Meanwhile, 12.12% of the Fee-Paying-Game users are unemployed and only 3.03% of the fees paying users from the retired group.

**Figure 26: Occupation of Fee-Paying Games-using Respondents**

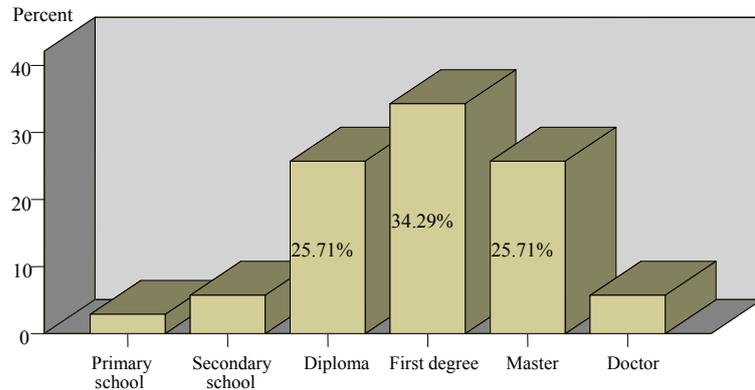


**Figure 27: Age Structure of Fee-Paying Games-using Respondents**



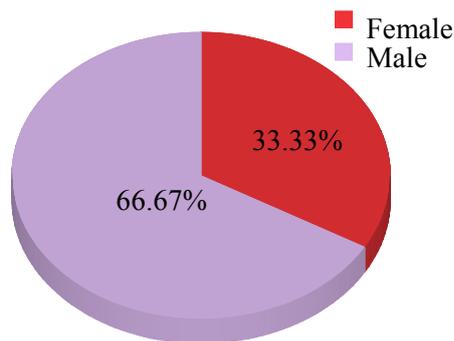
Obviously, 26 to 35 year-old respondents are the most profitable customers in China (See Figure 27). The results show that 30.56% of fees paying users are 31 to 35 year-old and 27.78% are 26 to 30 year old. Although 31.19% of the respondents are from 26 to 30 year-old group and only 19.15% from 31 to 40 year-old group(See figure 19), among fees paying respondents from 31 to 35 year-old group overtakes 26 to 30 year-old group as respondents between 31 and 35 are financially stronger. Certainly, the scale of 18 to 25 year-old group is decreased to 11.11% and 36 to 40 year-old almost level off at about 14%. The games users between 18 to 25 year-old and 36 to 40 year-old need to be given certain attentions by game hosting companies as well.

**Figure 28: Education Levels of Fee-Paying Games-using Respondents**



The respondents who have a first degree are still the main part of Fee-Paying-Game users, but the percentages slightly decrease from 44.32% to 34.29%. Meanwhile the diploma Fee-Paying game users rise to 25.71% and the percentage is accidentally equal to the respondents who have achieved their master degree (See Figure 29). Clearly, most of the fees paying users are well educated as diploma, and degrees owners are overwhelming percentages among the fees paying users. There are no significant differences among diploma group, first degree group and master group on the scale. It means that the education level not much affect whether the game users are willing to pay for the games or not.

**Figure 29: Fees Paying Users' Gender proportion**



The figure (See Figure 30) shows that male Fee-Paying-Game users represent 66.67% of the whole; female fees paying users only amount to 33.33%. The scale of male users is twice as big as the female group, which means male games users not only fancy the online games more the female users do, but are also willing to spend money on their favourite games much more than females.

## 4.2 Interviews

### 4.2.1 Interviews of Enterprise Side

Profiles of the interviewees (See appendix I)

#### ➤ **Updating of hardware and software**

Upgrading programming software has to match the development of the hardware. Development of the hardware technology has greatly promoted the online gaming industry's prosperity. An online game hosting company will have to continually update its infrastructure to satisfy customers' demands and thus avoid being dropped out of the competition. However, frequently upgrading the infrastructure put many employees of online game hosting companies under 'studying' pressure and many dropped out with the reason of being incompetent staff. (Interviewee 1, Lin, H. T., 2008) "As software, the online game will never be perfect, after it was published, the company still needs to upgrade and maintain it." (Interviewee 2, Zhang, C., 2008)

In the Chinese gaming industry, the companies have some common issues, which regard that an excellent software tester is much more difficult to locating than an excellent software developer, as someone who is testing the software is not well paid in comparison with a software developer. The software tester also needs to have greater analytical ability and knowledge of how to apply different scripts environments to carry out tests. The software tester must be good at more than one programming language and has to be creative. Actually, testing software is equally if not more complicated than programming. (Interviewee 2, Zhang, C., 2008)

#### ➤ **Security of game software**

The MMOG as a software pack is much more related to network, so software security becomes a considerable issue. Setting up a firewall to protect private information and sensitive technology is one of the priority tasks, pointing out the authorization level by coding is one of the main approaches. Furthermore, the software can formulate or specify user's range of operation (Interviewee 2, Zhang, C., 2008).

➤ **Risk of project management**

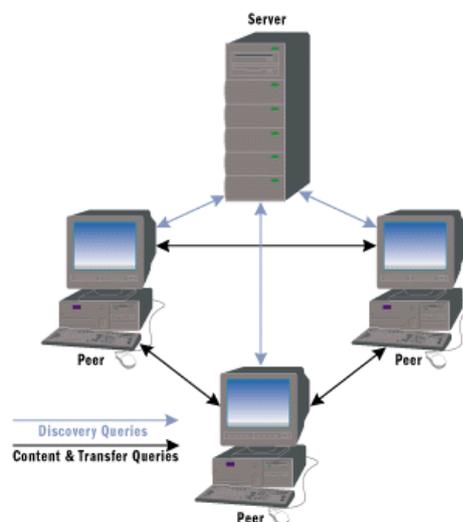
“For example, one programmer supposes to finish the task in two days, but for some reasons that task is finished in six days, the software tester will have to wait for his or her part of the task. Additionally, the person in charge of assembling will also suffer a further delay.” (Interviewee 2, Zhang, C., 2008)

➤ **Available network structures**

There are three network structures which are being widely applied in this industry. They are “P2P (Peer to Peer)”, “C/S (Client/Server)” and “B/S (Browser/Server)”. (Interviewee 3, Kong, X. B., 2008)

P2P networking is a very old concept, even older than the emergence of internet. It was less popular for a while than Client/Server networks, however, as the PC technology has been rapidly developing, P2P was brought out again. However, the online gaming industry has dipped its toes into this pound. The P2P network system can reduce expenses of servers, and is easily extended if the customer scale grows. Nonetheless, security functions in P2P networks are less powerful than Client/server network systems.

*Figure 30: P2P Network System Application in Online Game*



There absolutely is no P2P network structure for online games, as *Figure 30* shows, the main responsibility of servers in this system is to collect data results from clients and storing them

in the servers. The P2P network architecture is gradually being used by many online game sponsors. (Interviewee 3, Kong, X. B., 2008)

The Client/Server network system is the most popular network structure in the Chinese online gaming industry. So far, it has been used by many online gaming companies. The technology used for C/S network systems is relatively mature, but the cost of servers and particularly maintenance costs are extensive. The side software used by clients is much more complicated when compared to the B/S structure. Overall, without being concerned about the costs, the C/S network structure is the best selection among these three. (Interviewee 3, Kong, X., B., 2008)

The B/S network was created after the emergence of the Internet. Actually, it has evolved from the C/S structure, as both of them are based on servers. The difference between them is the C/S structure needs software used by clients and the other uses the browser to finish the functions on the client's side. The B/S structure has no trouble with client side software installation and upgrading, so it will require servers to do more processing work. So far, it is solely able to support literature MMOGs. The application of the B/S network structure in the online gaming industry has only been getting popular in the last two years. 'Three Kingdoms' is one the few successful examples which use B/S networking. The B/S structure might be the future of network systems supported by the development of PC technology. (Interviewee 3, Kong, X. B., 2008)

➤ **ID stealing**

*Concepts*

ID stealing is an illegal activity whereby people steal other people's game account ID and passwords by using various approaches to obtain the same privileges. All kinds of accessing other peoples' accounts by using other ID and password without authorization from the owners of those accounts are regarded as acts of ID stealing.

Some who steal account information from others do it to show off their computer skills. However more of them steal other people's account number in order to take advantages from

the victims and seek out their benefits, inciting other users to fraud, or steal virtual properties for personal profit. (Interviewee 3, Kong, X., B., 2008)

### ***Working principle***

There are two ways for someone to steal account IDs and passwords, physical approaches and technical approaches. The technical approaches are of significant concern of the game hosting companies (Interviewee 3, Kong, X. B., 2008).

### **Physical approaches**

Physical approaches are generally used in real life, which include the following two ways:

Firstly, the stealers achieve other peoples' account IDs and passwords by luring the victims, not through the network. For example: an acquaintance of a victim might steal the account IDs and passwords physically to get access.

Secondly, they can steal others' IDs and passwords by peeping. For example: the stealer might go the Internet cafes to achieve other people's account IDs and passwords by peeping on the typing procedure.

### **Technical approaches:**

Technical approaches mainly exist in the network, the stealer remotely accesses account IDs and passwords through the Internet. Some common ways are described here:

#### **a. Phishing:**

The thieves rely on the account owner being greedy, and by using the counterfeit winning information to lure the account owners to enter the phishing website which almost looks exactly the same as an "official website" from the interface, but actually is created by the thief. The website will ask account owners to enter their account IDs and passwords. Thus, thieves can easily gain a victim's account ID and password. Phishing is one of the most popular approaches used to steal others' account information. For example: inside the virtual world, someone who claims he or she represents a game company and informs other residents with some winning messages. To claim the prize, virtual residents will be required to visit some site to know how to receive the prize, which usually is a virtual item.

**b. Spyware:**

Some stealers put spyware on computers used in the public such as in Internet cafes or college computer rooms. The spyware is able to monitor all the keyboard activities and make a record of all the activities. Meanwhile, the recorder can be sent to specified email box. Through analysis the keyboard input log the stealers can achieve other people's account IDs and passwords.

**c. Inside Jobs**

Occasionally, something can go wrong inside the online game service providing companies. The employees would be involved in an inside job, by selling the customer information to the stealers and exchange for their personal interests .

**d. Attacking server:**

By attacking official servers database the stealer can directly achieve entire customer information data. However, these approaches presuppose a thief has very advance computer skills. Furthermore, most of the official servers are protected by strong security systems, so this approach is less popular.

**e. Hackers & Cracker:**

By using viruses and Trojan horses, thieves are able to access other computers and spy on account information. Such an individual is called hacker or cracker. Trojan horses and viruses are is one of the major approaches used by many stealers.

To protect the interests of customers and defeat ID stealing activities, the companies have to keep improving their security systems, as no matter how well the armour is, there will be a weapon that can break it. By keeping improving security technology the company can protect its customer information from the infringement of ID stealers (Interviewee 3, Kong, X. B., 2008)

If the companies fail to protect their customer information, virtual residents' properties could be endangered. According to the internal research 94% of users will not come back to the same game after their virtual properties were cleaned out by stealers. (Interviewee 3, Kong, X. B., 2008)

➤ **“Plug-in”**

*Concepts*

“Plug-in” is some people created a piece of third-party software that is able to accomplish users’ cheating purpose via revising the part of data or configurations of the online game.

By using “Plug-in” software, the user can cheat in the game and gain the surprising results which the ordinary users usually could take long period to achieve that. The “Plug-in” has various performances. The most notable feature is that the applications of “Plug-in” can bring many differences from the honest users in the game results. By using “Plug-in”, the users can run faster than normal, improve attacking power and gain more experiencing credits than usual by finishing the same virtual tasks. (Interviewee 3, Kong, X., B., 2008)

*Working principle*

To tamper with the results of the game and cheat on the game servers, the “Plug-in” program might simulate activities of the keyboard and the behaviours of mouse, modify data packets, or amend the local memory.

➤ **About GM**

Actually, “Game Master” (GM) is a team, and they use the same identity working in the virtual world 24/7. The responsibility of GM is as a communicator between companies and the virtual world hosted by the companies. They are just ordinary employees inside the companies. For the virtual residents, the GM is a king, is a judge, as the GM is the only one who has the authority of maintaining and revising game data. To avoid GM being involved in the unfair and illegal virtual items trade, the GM is required to strictly follow confidential policy, which the GM cannot leak out as it is a working responsibility in their companies. (Interviewee 3, Kong, X., B., 2008)

➤ **“Si-fu”**

Since some source code of the online games are leaked, “Si-fu” illegally access to the server installation process. After that, the operators of “Si-Fu” establish a network server of the online games without authorized the copyright. It is a network of piracy.

Building “Si-fu” requires the operators to amend any source of the game according to their own needs, or make improvements based on the original game by removing boring sections. That will make the game more attractive to users. It lacks relevant regulation of supervision.

To publish a game online, a company spends huge amount money on software researching, as well as a lot of human resources and capitals on the promotion. Finally, “Si-fu” takes many advantages from the company. It is a “game cancer” which cannot be absolutely removed, and as more the game growing up, the number of “Si-fu” will be increased. The official game hosting company goes bankrupt when “Si-fu” becomes out of control. Many MMOG have been killed by “Si-fu” in the Chinese online gaming industry. (Interviewee 3, Kong, X., B., 2008)

Most of “Si-fu” does not rely on subscriptions as same as the official game hosting company does. That is one of main strategies they use to lure people to join membership. Moreover, “Si-fu” would like to attract player by giving out some free virtual items. However, if the users want to own top level equipments they have to pay by cash. Official game does not accept cash and virtual items trades. Some “Si-fu” tends to support free service to attract “clicking rate”, by doing that “Si-fu” could make profit from their advertisement sponsors (Interviewee 3. Kong, X., B., 2008)

To compare with official game hosting companies, the cost of “Si-fu” is almost zero. In this aspect, “Si-fu” can charge very low subscriptions or even free. The “Si-fu” owners will revise the source code of the game whatever necessary to please the users. For example, in the official virtual game environment all beginner users have to start from “Level 1” and “naked” (which means the users own nothing in this virtual world). But in “Si-fu” the players born could be from “Level 100” with millions “Bi” (virtual currency unit) and great virtual items. In official servers to achieve this would take players more than years. Obviously, “Si-fu” satisfies users’ sense of achievement, but it is against the nature of the game and decreases game life cycle. The “Si-fu” owners do not care about that. If they are not profitable, they still have nothing to lose. Eventually the official game hosting companies are losers. (Interviewee 3, Kong, X., B., 2008)

To retrieve the losing market from “Si-fu”, some companies tend to decrease their subscriptions to compete with “Si-fu” and other peer rivals. After cutting off the subscriptions, the companies will try to find advertisement sponsors as their financial supports. (Interviewee 3, Kong, X., B., 2008)

#### **4.2.2 Interviews of Customer**

The users will never reach the end of the game. To maintain the interest of their users, the game hosting companies have to keep developing stories and contents of the games.

The game users have to spend a lot of time in the games, or their level would be overtaken and despised by other players. The more users play their virtual avatar would be stronger, and they will be eligible for better reputation sub-organisations in the virtual world. Whereas, they might be disqualified from their current group which is big shame in the virtual game world. (Interviewee 4, Dong, Y., N., 2008)

Some games do not require subscription, but the user has to pay for their virtual consumption. The systems try to encourage users to spend more money in the game by rewarding them with virtual items. (Interviewee 5, Shen, N., 2008)

Many flash games will allow users to submit scores and names to the servers. Then users are able to see a result chart of the competition which describes the name of users and what country they are from. As the top three, there will be a medal beside the name of users. The other users would like to keep challenging the records. (Interviewee 6, Chen, X. M., 2008)

There are many sub-organisations and sub-communities in the virtual world. They keep fighting each other for protecting their honour which is attached to their team’s or group’s name. Users who did not present their character in a fight would be treated as traitors or cowards in the virtual society. (Interviewee 7, Cui, S., 2008)

In the MMORPG “Mir3” wedding ceremonies for virtual residents in the game can be held. The time and location will be assigned by the system, after an application by the two users

has been made. Then, all the virtual friends of the users will be informed by the system. (Interviewee 7, Cui, S., 2008)

“PK (Player Kill which means life and death fighting between two or more avatars) is a popular word in the virtual game world. It is illegal to kill or bully others in the game, which will be punished by the system. However, there is a special court in the game, where the system will make an exception to the rule and organise PK competitions. The winner will be awarded with valuable virtual items and titles. (Interviewee 8, Yang, Y., 2008)

### **4.3 Case summary:**

By first hand participating in a virtual community for 1 month the following features of the community were found.

“QQ” is one of the biggest 2-D virtual communities in China. It was built based on real-time communication software. In the “QQ” world 1Q-bi equal to 1 RMB (RMB is Chinese currency unit, 100 Euro≈1083 RMB ([www.boc.cn](http://www.boc.cn))). The players can use Q-bi to buy clothes or accessories to decorate their virtual icons and furnish their virtual houses. They can purchase on different levels of privileges or priority as well. They can buy some virtual gifts and send to their favourite persons. They are even allowed to gamble between each other in the virtual world with Q-bi, the winners can exchange their Q-bi to real cash, but they will only have nearly half price as they buy.

During the Olympic Games in Beijing 2008, Coca-Cola held a special promotion in the virtual “QQ” world, namely the “Online Olympic torch passing in China”. The “QQ” users can achieve a special torch holder pattern with Coca-cola logo on their 2-D virtual characters. Shortly, McDonald held another similar event “Cheer up for the Beijing Olympic games”. As a reward users could receive another decorator with the McDonalds logo for their virtual characters.

## **Chapter V Discussion**

### **5.1 Common marketing strategies of industry**

#### **5.1.1 Free trail**

The first and quite popular trick is to offer free trial to game users. Most online games support free trails service, players can play the games without any payment for a long period. The length of this period is variable and depends on the companies. It could be hundreds hours or a few weeks. Some newer online games are guaranteed free forever, all of these offers sound like a great “free lunch” for all game users. For that reason a lot of players started their online virtual life.

Free tails make game access to online games easier for many game users. At the beginning users can be attracted by the vivid graphical works and interesting stories of games. Bear in mind, users would not play the game only in the virtual world. For the time being, they will meet many virtual friends. Until the free trail finished, users are not allowed access to this account for playing, then many of them become fees paying users.

After the free trail time, users might consider to open another free trail account. To prevent this happing, many online games require the users to show their valid ID in the real world. It means most of users only allow registering in one game once only. Besides that, after working on the game for weeks, there must be some virtual properties in the users trial account. Although, opening a new trail account might available by some tricks, which also means for the trail account users everything in this virtual world have to start over. So many users rather pay for continual playing.

#### **5.1.2 Never let customer reach the top level**

In fact, the virtual world is a small world. Some non-game users may say the online game is boring ,by walking on the same map, killing the monsters to gain experience, money, small items, talking to other strange players. Eventually, it becomes a routine that goes on and on. For game users, virtual communities are a bit like “the carrot and the donkey”. The systems

keep updating the elements of the game to please players and keep them interested in the games. They would always be required to finish new assignments and they would always find better virtual items or somehow they could upgrade their virtual properties to a new level.

### **5.1.3 Peer pressure**

There are millions of game users who are playing the same game and thousands of them might be online at same time. Peer pressure pushes everyone to work hard in the games to maintain or improve their social position and their virtual properties. Although, systems would give some punishment to players who bully others in the game, bullying might give weaker players a motivation to grow stronger. To do that the game users must spend more time and more cash on the games. Some virtual world are more like a jungle, “living here either you choose to eat others or you would be eaten”.

According to Chen, et al, (2008) many sub-organisations or sub-groups are developed by the game hosting companies and game users themselves inside the virtual communities. These kinds of sub-organisations can be divided by regions, by levels, or special common interests. To improve users’ personal honours and organisational reputation, in the virtual world, these virtual groups often fight each other for various reasons. Contests for virtual land and other resources have been built into the game on purpose so as to trigger fights between groups. To defend their group’s honour from others attacks or to gain respects from others in the virtual world, each game user has joined this permanent war. That also attracts users to spend much time and more money in the game, and game users who did not present their characters in fights for their groups would be treated as cowards or traitors.

### **5.1.4 Reward of attendance**

The game users would receive certain praise depending on their attendance and contributions to the virtual world (Lin, 2008). That will encourage users to participate the virtual world.

Companies would reward their virtual residents from time to time. By rewarding some of the players, others are encouraged to spend more time and money within the game. Most online

gaming companies would choose to reward their customer with virtual items. From the companies' view the price of reward items might just cost nothing, as the virtual items for the game hosting companies is simply a piece of script code or data. By rewarding the game user, the companies indirectly sold this piece of code to the customer.

Rewarding the customer with virtual items, not only promotes the game from inside the virtual world, but also costs nothing for the companies. That really is “killing two birds with one stone” trick.

### **5.1.5 Special events**

There are many special events held by the system to attract users to spend time and money on the games. Zackariasson & Wilson (2005) suggested that holding special events not only can make the virtual world more real, but also will attract many virtual attentions and participations of the virtual residents.

Special events are organized by the system, however some special events are organised by the game users themselves. The special events are able to attract many users online which would create an interactive atmosphere amongst users. Special events also make the virtual world and reality much alike. By holding special events inside the virtual game, the concepts of virtual world and the virtual organisation are enhanced (Chen, et al, 2008). The game hosting companies could gain many profits from online time of users. On the other hand, game users would enjoy the game more because of the events.

## **5.2 Facing Challenges:**

The challenges of the online gaming companies are various, as each company has its own unique features. However, some common issues with which online game supporting companies are faced with will be studied from two aspects: building game infrastructures and running a game.

### **5.2.1 Game building challenges**

#### **➤ Infrastructures Upgrading**

Chaffey (2007) was considered that infrastructure is essential to ensure good quality of services of online companies. As the basic infrastructure, the hardware and software is updated more frequently in the IT (information technology) industry. The companies which support online game services, particularly, the MMOGs require the servers to deal with huge amount of data processing works. Therefore, online gaming companies need the top level hardware and software to support their huge data amount processing works and high quality graphical works more than other online companies do.

The increasingly growing scale of online game users is one of the main challenges for companies (McGraw & Hoglund, 2007). To face the challenges and maintain a competitive advantage over the rivals, the companies frequently intend to upgrade their basic infrastructure to match with the development of hardware and software. It means that the online gaming companies like to purchase the fashionable IT products more than others.

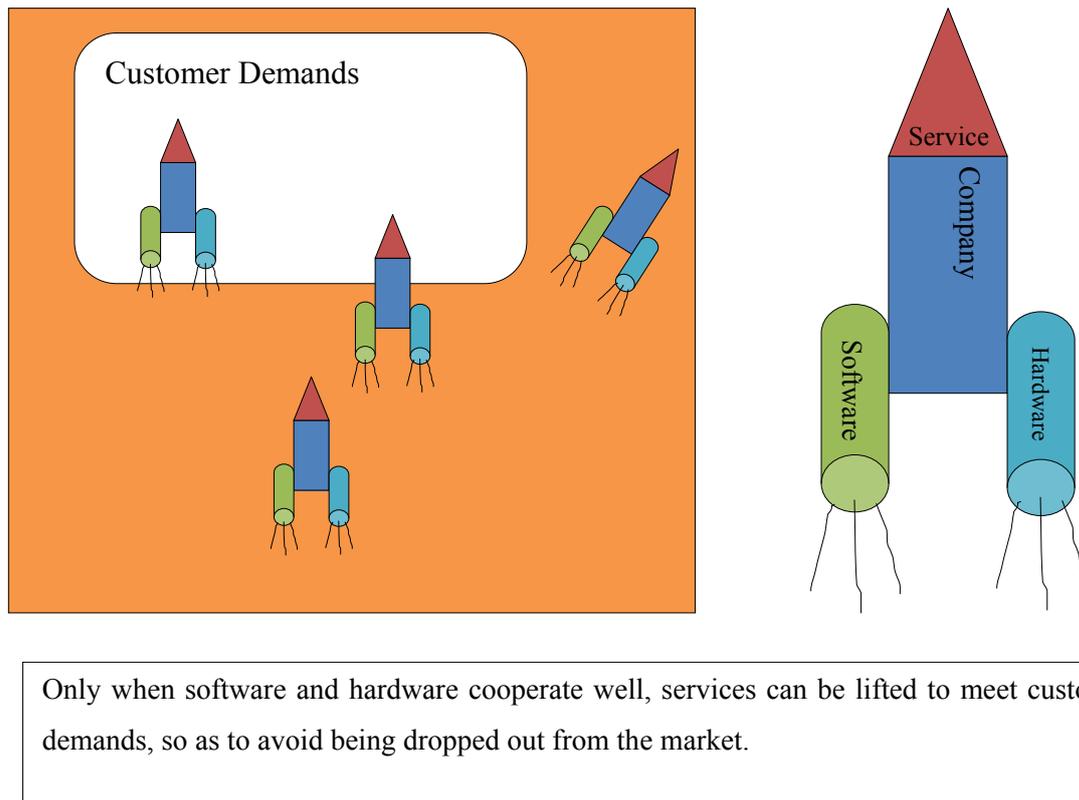
If a company is not able to retain their client because its infrastructure is out of date it could mean dropping out of the industry. Considering that audiences are vital for an online company, without the audiences “clicking rate” the web site operator would not earn a penny from their sponsors.

On the other hand, each upgrade of hardware and software is a big investment for a company, and the implementation of these new technologies or new products can be quite daunting for employees.

In order to support higher virtual environment graphics quality and minimize communication-latency to match customer demands and keep the consumer scale growing, virtual game companies have to keep upgrading their hardware and software infrastructure (Deen G. et al 2006). There is a difference between virtual world and the real world: virtual world is only a kind of service supported by the online game companies. Consumers always

have a right to choose the better one. Again, the company which cannot satisfy customer demand will not be able to compete on the market (*Figure 31*).

**Figure 31: Online Companies Drop Out Theory**



### ➤ Software building

#### *Software defects*

As regards software developing, online games such as MMOG are a bunch of software products.

As a software product, it will never be perfect. There are always some “bugs” included in the software. When programmers find some to the “Bugs” of games, they will revise them and develop the game software into a new version. Most of time the programmers only publish the patches to cover the faults of the program, instead of replacing the whole body of the software.

The probability of software running errors is in a direct proportion (a logarithmic relationship) with time. It means that after the software is accomplished many faults can be easily found at the beginning. As the time goes on, it becomes more and more difficult to find new problems. It is so-called software testing progress. MMOG software developing companies would not wait until all the errors are found. They would publish the software on a balance point between time and error rate.

Some software errors are not detectable during the building process, because these kinds of errors are quite related to the running environment, for example, operating system platform and hardware components. Meanwhile, the scale of game software is an essential element to lead whether the software easy to pass the test not. Certainly, the game software is complex and should contents more errors and more difficult to pass the test. To detect all errors from software is an impossible mission, no matter how considerate the testing process is.

### ***Security concerns***

When a MMOG program is published to the public, everyone might have opportunities to access to the program. In case, there are many audiences who would to use various tricky methods to achieve information which companies try to keep secret. All of these questions need to be considered before or during software developing. In the actual practices, sometimes software developers would focus on the accomplishment of the function of the game and put security concerns to one side. The improvement of security attention of the programmers will release much security pressure from the operation of the game.

### ***Project risks***

Developing a MMOG is an enormous project and needs considerable staff and cooperation. First the project will be broken down into many tasks, then, to accomplish each part of the task, detail plots are needed. If a tiny part goes wrong this might affect the whole project process and cause significant resource waste. Therefore, well organized planning and ensuring that everything is running on the right track is of vital importance.

➤ **Network selection**

McFarlane (2005) suggested that two network systems are widely used in the online gaming industry, such as P2P and Client/Server structure. However there is another network structure becoming more and more popular beside the main two, the Browser/Server structure.

***P2P (peer to peer network system)***

The P2P network allows direct communication between different players, so the time-latency will be relatively short (Fitch, 2001, Knutsson, et al, 2004). Furthermore, as much data processing is accomplished on the user's PC, most of the data processing will in fact happen on the client's side. To a large extent, the P2P networking improved servers' efficiency and decreased the requirement of bandwidth on the servers. So P2P has better extension abilities to deal with growing customer scales compared to C/S networks (Norden & Guo, 2007). Rooney et al (2004) suggested that the cost of P2P networks is a further attractive point as well.

However, P2P network online games let clients' PC share data processing tasks and bandwidth. It means that game users need better quality PCs and higher internet access speed. To some extent, P2P network games will narrow down the market range of game audience. Moreover, P2P network online games still have to depend on servers, but there is not a steady-going connection between client and server during the game. The server solely collects data processing results from users and monitors the data processing progress on a regular base. In this case, dishonest players might tamper with data results in the local PC easier than in a C/S network, and therefore cheat. So, Baughman, et al, (2004) said that security issues of P2P networking is a weakness which needs to be improved; security issues are still difficult questions to be solved (Baughman & Levine, 2001, Baughman, et al, 2007, Kabus, & Terpstra 2005).

***C/S (Client/Server network system):***

Nowadays, the application of C/S networks has become the mainstream network in the online gaming industry (Kirmse & Kirmse, 1997), as the network is easier to be managed by online gaming companies. By installing certain size client side software and interacting with

game servers, the game can create a vivid virtual reality world with great graphical quality on the user's PC. The servers will also monitor each movement and data exchanging among users. In C/S network games, game users do not communicate with each other directly (Kirmse & Kirmse, 1997), all the information and data exchange must go through the servers. Cheating in the C/S network game is not as easy as in P2P networks, as security protection software of C/S networks is better than those in any other network system (Dalton, W., 2003).

However, the servers of C/S networks bear most data processing works, so the server's extension abilities are much more limited than those of P2P networks. A C/S network online game has to keep adding new servers into the network system to keep up with the number of increasing user needs. As a consequence, C/S networks require more servers' investment and maintenance services. In addition, as the research mentioned before shows, game sponsors will keep upgrading their client software when new defects are found in games. Out of fairness, servers must ensure that all the clients' software is synchronized. It means that thousands and millions of users have to keep updating their local program every time client side software is upgraded by the company. Besides, the cost of building a Client/Server network is unaffordable for some small financial budgets companies (McFarlane, 2005).

***B/S (Browsers/Server network system):***

B/S is a new network system which was developed from Client/Server network structure. It has been used by many literature MMOGs and those game became a new branch of the online game: webpage games. It is unnecessary for the web-game users to install any client side software, as the program has been embedded in the webpage. The webpage game updating procedures are more convenient than the C/S network structure games. The webpage-game upgrading can be completed by merely revising the webpage contents on the servers. Additionally, the security facilities will be stronger as B/S networks do not require side software installed by clients and all the data processing works are finished by a centre host, which makes data protection routines easier than in the C/S structure. Meanwhile, without data processing on the client's side, game audiences have little chance to use their "Plug-in" software which helps them cheating in the virtual game.

Due to the limitation of web browsers, web games so far are not able to support quality graphical works. However, the cost of local CPU and bandwidth occupation rate is lower in B/S network games. Users can easily connect to the game without downloading any client side software. Therefore, the webpage games are very popular in offices, and broadly accepted by people who have lower quality PCs and poorer internet speed, for example, portable Internet devices users and modem users.

### **5.2.2 Security Breach of Online game**

Kare (2003) noted that online security should be given serious concern by all online companies, he also pointed out that it is critical to eschew customer information leaking and maintain the information integrity during data exchanging. Online security also arouses many concerns in the online gaming industry, such as customer information stealing and data tramping. All those security issues have dramatic impacts on the whole industry:

#### **➤ Impacts of ID stealing**

The value of virtual properties is of paramount consideration nowadays (Economist 12/8/2007). When an item is being considered to have value, there will always be someone trying to get it by immoral or illegal means. For that reason virtual game accounts information became a target of online criminals. Protecting users from unfair practices and ensuring their virtual properties are secure is a fundamental element to build trust among customers and companies. Young & Tseng (2008) claimed that the interpersonal trust is the major key to trigger off the conversion from virtual properties to real currency.

#### ***Security pressures***

To protect customer information from thieves and hacker attacks, the official game hosting companies have to invest many resources to keep improving the protection of the servers' security. As no security system is unconquerable, if the servers protecting team do not upgrade the security protection system, soon the whole security system might be knocked down by hackers and viruses. Then, sensitive information will be exposed, which includes game source code, customer information, all exploitable.

***Marketing share decreasing***

If the servers' security fails to protect customer information from the stealers attacks many virtual residents would become victims, and all their virtual properties might be stolen by someone else. That is going to be the most horrible experience in a user's virtual life. As serious consequences, most virtual game users choose not to return to the game and face the frustrations, or they lose faith on the virtual world hosting companies. Neither of these results is an expectation of the online game hosting companies.

➤ ***“Plug-in” abuse***

Accompanied by the appearance of online games, the “Plug-in” program of the online game was also created, because the “Plug-in” program can provide users additional functionality during the operation of the game, so it is developed rapidly.

Firstly, the game “Plug-in” users destroy the balance of the original avatars in the virtual world. The plug-software could break the inherent attributes of the avatars. “Plug-in” could significantly increase attacking and defence abilities of avatars or could re-configure the characters of virtual items and avatars.

Secondly, by running through the relevant script or tampering with data on the servers, Plug-ins can finish its cheating purpose. These procedures increase the data-processing burden on servers and decrease the operating efficiency. So the operation of additional data will cause the server running slow, or even cause servers system comes to a halt.

Third, cheating in the game will distort the original balance in the virtual world, and also it will hurt honest users' trust on the companies' service. Eventually, many users will back away from virtual games filled of unfair practices. On the other hand, “Plug-in” users will feel excited about what they are capable of doing, as the time being, but they will lose their interest in the game.

➤ **Game Masters (GMs) corruption**

*The responsibilities of GM:*

GM usually referred to GAME MASTER, which is the game administrator. In order to improve the quality of service, ensure the quality of the game and give users a clear instruction about virtual world or related facilities, companies would choose a group of employees as managers of the virtual world. GM plays a role as a virtual policeman to solve users' problems and be a counterpart to cheaters in the game.

In some MMOGs there are no official rules for residents to gain real-profits through virtual environment. Therefore some virtual residents would like put extra efforts and spend more time than others to gain better properties in the virtual world. Then, they can trade their virtual items unofficially in real-currency. It is so-called underground trading. That is because most of MMOGs have their own virtual currency and support a certain platform for virtual item exchanging between users, when one user eager to have a particular item and who does not have enough virtual money or equal value items to finish the exchanging process, buying the virtual item or property with real-currency becomes an alternative choice.

Actually, the virtual item is just a piece of script code saved in the server. But when everyone starts considering those codes virtual items are valuable. The demand of virtual items is generated and the prices of these sort items are put on high bids. When an item becomes valuable people would like to spend cash on it. Similar to the real world there will be someone who tries to gain those items by immoral and illegal approaches. Since the virtual resident began purchasing virtual items, criminal and unprincipled activities related to virtual items also emerged inside the companies.

Internally, the game operating companies need to guard against staff corruption, especially employees who manage and maintain the data of virtual items. Every single game server contains a huge amount of data which represents everything in the virtual world. Most data and scripts are not static, they are variable as the avatars are controlled by real individuals, and also these data and scripts are floatable as virtual items can be traded from one to another user. If the internal employee tampers with data and scripts related to virtual items, it might easily cause significant changes on the particular virtual items or avatars. While

compared with the whole virtual games these tiny changes are almost untraceable. Therefore, the employees may take some rules breaking actions for their personal interest.

➤ **A New challenge in China**

“Si-fu” is a brand new problem appeared in the Chinese game market in the last few years, because the Chinese online game market lacks a formal and united regulation (Lin, A. 2008).

***The concept of “Si-fu”***

“Si-fu” is an independent network server group established by installing server-side programs without legal authorization from the copyright owner. In essence, “Si-fu” is online piracy; it directly leads to a diversion of the revenues of the game hosting companies.

“Si-fu” is a sort of a serious disease for the online gaming industry. Most “Si-fu” is built independently, and operated by a single person or small group. “Si-fu” does not have large customer scales and only operates in small regions or local areas. Therefore, “Si-fu” owners do not have to purchase top level hardware. Their software is “borrowed” from official game servers and the source code to their personal requirement is adapted. In addition, official companies have “helped” them through their promotions works. They are just like mice stealing corns from the warehouses of the famers.

***Profit channels of “Si-fu”***

*Virtual items on sale*

Selling virtual properties is the first and most important profit channel of “Si-fu”. In the virtual world of “Si-fu”, users are allowed to purchase virtual equipments in real cash from “Si-fu” holders. Also, the “Si-fu” holders will be more than willing to accept convertibility from real currency to virtual currency. All the virtual equipments and virtual currency are not for sale in most official games, and users of official games can only gain such items by spending time and energies on the missions.

*Sponsors of advertisement*

Depending on credibility of official games and many of “Si-fu” are subscriptions free, “Si-fu” can attract many clicks. Especially, when they have their own regular customers, the “Si-

fu” holders would start to seek for advertisement sponsors. They would put the advertisement on the website or hold various kinds of promotion activities for the third part organisations.

#### *Business baits*

Concerning the scale of the Internet cafes in China, many of them are set up with over a hundred or even thousands computers. Therefore, many of the “Si-fu” is operated by the larger scale Internet cafes. The games will help the Internet cafe hook many loyal customers in the local areas, depending on the multi-players features of the games.

#### ***Impacts of “Si-fu”***

##### *Profit diversion:*

Actually, “Si-fu” is serious piracy over the network. They can support similar virtual games services as official servers do. As the cost of “Si-fu” is low and there are many affiliate benefits channels around “Si-fu”, the owners of “Si-fu” rather supports free subscriptions to attract users. Although, a “Si-fu” is only capable to afford 1,000 to 50,000 users, that is nothing compare with the scale of users of official games. However, consider about the number of “Si-fu” in national range, the diversion of consumers impacts on the official game sponsors are significance. “Without ‘Si-fu’ affects the official game hosting companies would develop faster and more profitable.

##### *Product life cycle shortening*

Many “Si-fu” attract the users to join them by giving out free virtual items which the users could spend many time to work it out on the official servers. If “Si-fu” users are willing to pay some cash, they can reach the supreme level in this virtual world. The precious virtual items in the official server became into common properties in “Si-fu”. Almost every resident has king’s level abilities. The “Si-fu” users enjoy a supreme sense of achievement, even if the user is only a freshman. Soon, this kind of feeling will be rapidly decreased and followed by being boring, tedious, fed up. Finally, the players do not play this game anymore. On the other hand, some of low-patience player who would like to try to own their dream items in “Si-fu”, such items would take them much time and works, in the official server. Eventually,

after they receive these supreme feelings, they are not capable back to their usual virtual life. As game sponsor companies, they have to start to develop new features of games, even brandy new games to retain their customer interest. The existence of “Si-fu” have greatly reduced online game products life cycle.

#### Distort market direction

As the impacts of “Si-fu”, many virtual games sponsors have reduced or cut off their subscriptions. Therefore in the near future most of companies will be recruited into this team. The companies decide to free their subscriptions of games to defeat the impacts “Si-fu” on their market share occupation, because the lower subscription is the most attractive point to the “Si-fu” users. Meanwhile, subscription free can enhance companies to maintain their market share in this industry, as if many other companies cut off their subscription, the companies which do not follow the market trend would lose their competitive advantage over the peer rivals.

Subscriptions are most important revenue channel. However, as the competition from “Si-fu” and peer pressures, cutting off the subscription has become a certain trend in the Chinese virtual game market. Actually, concerning the scale of the audiences, some online gaming companies have started to use the virtual games as new media to gain profits from their advertisement sponsors. Moreover, appropriate approaches to convert virtual currency or virtual items into real currency have been applied by some of official virtual game sponsors as well.

## **5.3 Impacts**

### **5.3.1 Impacts on business fields**

Rosedale (2007) noted that in his research, subscriptions for maintaining the virtual properties of the users, managing virtual economy, and FOREX (foreign currency exchange) transaction, are the three main channels to gain profits for the online game.

Many online games are operated in different countries and foreign currency profits have been given great attentions by many international online gaming companies. Whereas in the

research, only one single currency was involved as the research was mainly operated in China, comparison with other profit channels as FOREX is given less concern.

➤ **Virtual world as media**

Lin (2008) and Gilmore, et al (2007) considered that online advertising is a main channel to gain profits for online companies as many online and off-line companies have been seeking for chances to promote their businesses. Although subscription fees still is the main approach used by Chinese online gaming industry to gain profit, as the competition becomes more and more intense and “Si-fu’s” has a great impact on the industry, many companies are tending to give up the subscriptions and seek new approaches to increase their revenues. The scale of virtual game users has provoked attention of many “Click” and “Brick” companies. Hence, virtual games have been using a new media to promote other organisations amongst virtual residents ([www.screendigest.com](http://www.screendigest.com), 2007).

The companies which do not have enough resources to build up and maintain the virtual community, started to cooperate with the virtual environment hosting companies and tried to develop their brand awareness in the virtual world (Meredith, 2007). The “QQ” case shows that today virtual communities not only stand for the entertainment purpose, but also as a new medium to promote other organisations or businesses.

➤ **Management of Virtual economy**

Zackariasson & Wilson (2005) suggested that selling the privileges and virtual properties to the virtual resident can be profitable. Nearly every online game has their virtual currency in China. With the virtual currency, the players can purchase virtual items. The virtual money can be earned by finishing missions which are given by the system. Some online games allow users to convert real cash into the virtual currency. This way is easier than spending time to finish missions. Also, few of game support dual-way converting, but the exchange rate between “buy” and “sell” have big gap such as “QQ”.

However, many virtual game hosting companies encourage their users to purchase virtual currency and virtual items by increasing the level of difficulty to gain key components of the

games. Even, some virtual items or key game components can only be gained by purchasing in cash.

Furthermore, online companies have to be aware of virtual economy management (Sderstrm, 2008). Selling virtual properties to virtual residents is a double-blade axe. It can be used as a new profit channel to increase the income of the game hosting company. The companies could reduce the subscriptions to reinforce their competitive advantage over competitors and defeat negative effects of “Si-fu”. However, if selling virtual items goes out of control, companies would have no differences with “Si-fu”. Shortly, the game would be ruined by the companies themselves. They lift a stone and hit their own toes.

### **5.3.2 Social impacts**

#### **➤ Positive:**

Usually, the MMORPGs are a visual environment for players to decode a series of information symbols and make their decisions as soon as possible to complete tasks. It is quite an attractive game for young people (Lian, 2006). MMORPGs help players develop logical thinking ability and sense of space. Playing MMORPGs can enhance visual attention. Web-based role-playing games require players to complete tasks one by one and step by step. Avatar’s abilities are continuously enhanced by completing various tasks, which can strengthen players’ sense of purpose, and stimulate their self-motivation. A Player can achieve great accomplishments and satisfaction in the online gaming world.

Players inevitably learn from the environment to which they relate MMORPGs drive the users into a completely new environment, which simulates reality in many of its factors. In this virtual environment, every resident starts from an equal position, and the achievement fully relies on the efforts of the individual. In the virtual world each member needs to deal with all kinds of people. As a consequence, some would achieve virtual wealth, some would acquaint new friends and some would be deceived by others. However, everyone would gain different experiences.

In the game each player is a "Persona", but their words and deeds unknowingly restore their own character. Most players have been attracted to join and live in this virtual world by just

more than the story of games. Also MMORPGs provide a platform for making friends, this platform is not only a simple chat room, but also the players can share the actions by operating their avatars. Many friendships are established in the game and eventually are shifted into reality. This is one of the main reasons why MMORPGs' players are easily addicted to the games.

➤ **Negative:**

As the existing of technical defects inside of the MMOGs' system, a number of hackers through "Plug-in" programs hack in the game, changing the original rules of the game. By using the "Plug-in", the game audiences can easily gain virtual money, items and experience credits which honest players would have to spend a lot of energy to achieve. Some even steal others' accounts and illegally access to others' virtual properties. On the other hand, people with such abilities have not realized that their activities run foul the ethical standards and violated bottom line of laws in the society of reality.

To attract game users many companies might choose to use immoral approaches and inappropriate contents (Lin, 2008). Currently in China, online games are not standardized and imperfect in many aspects. Some online games contain pornography, gambling, violence, ignorance, superstition etc which could mislead game users. All of those undesirable contents of online games have been related to students' drop-out, juvenile delinquency and other social problems.

Most online games have many features, for example, anonymous, multi-interaction, real-time communication, broad in scope, highly free. Li (2007) claimed that if the users overspend time in the online games physical and psychological damages might be causes, especially as regards young people. Since the online interactivity is not restricted by morals and social norms, the interpersonal communication has become more attractive in the virtual world. In the virtual environment, the criteria and principles of individuals and social norms which are formed by the constraints of self-restraint are greatly reduced or even ceased to exist.

Lian (2006) suggested that players indulging in the virtual world will try to ignore the reality if they become game addicts. Someone who is infatuated by MMORPGs tends to be anti-social, sensitive, abstract-thinking, alert and not subordinate to the common social standardizes, also easy to be loneliness and depression. They fear reality of interpersonal feeling and hate to meet new faces in the real world. They feel being isolated from society and become more anxious. On the other hand, they feel more comfortable to meet with people over the Internet. There are significant differences in their behaviour between their virtual life and real life.

Obscenity and lies in the games can be seen everywhere, many young people learnt from “the Institute of lying” on the network and they do not feel ashamed about it. Some virtual circumstances are filled with gang and violence organisations, so that young people could easily form the wrong concepts with gang violence deriving from virtual games. Mistakenly, they believe that harming others is reasonable for obtaining success in their virtual life. The way they acted in the reality became similar to the way they act in the virtual world. Unconsciously, they might disobey the norms and laws.

## **Chapter VI Conclusions & Recommendations**

### **6.1 Introduction:**

In average, developing a MMOG will cost about \$15 million (Mulligan and Patrovsky, 2003). It could be a huge investment for many of companies. Understanding the challenges and the approaches of profit generation has great meaning for virtual environment hosting companies. Meanwhile, it is necessary for the game hosting company to understand the impacts of the online game to make better profits and shape popular games.

### **6.2 Conclusions & Recommendations**

Chaffey (2007) claimed that quality of services of online companies is linked with its infrastructure. If an online company tends to invest on virtual game services, the company must be aware of the state of development of hardware and software technologies and consequently extension abilities. The online game hosting company will continually improve its servers and network-working abilities to minimize the time-latency during the information exchange. Along with the development of online games, the company has to keep upgrading the hardware and software to match the rapidly growing customer scale and new customer demand. Contemporaneously, each infrastructural upgrade is not the only financial cost, as also implantation costs will need to be considered. Hence, finding a balance point between updating costs and the requirements of upgrading is an important decision for the online game hosting companies.

Building the online game software such as MMORPG can be a huge project of the game hosting company. The risks of the huge online game software project are significant. Even though the games go into functioning, they still are unfinished products for the game hosting companies, as the testing works will never finish. During the operation of the online games, the companies will keep patching the game software when new defects are found. Beside those, security concepts must engraft each team member of the project. All those security “BUGs” might lead to information leaking or used for cheating purposes during the game. To avoid dealing the software hassle, many companies are using outsourcing strategy by renting the software from professional software developing companies.

Three network structure systems are widely applied in the Chinese online gaming industry, each of which has unique features. The so called ‘C/S’ structure is the most mature technology, is easier to be managed and more secure than others, however the investment is not affordable for some companies. The P2P structure is relatively cheaper and more extensible, on the other hand, the security protection is weaker and it requires the users have better PC and bandwidth. The ‘B/S’ structure has only been used in the last few years, it is client side free and relatively cheaper, so far the B/S structure solely supports webpage MMOG. Knowing the game software requirements, customer scale and the financial basement of the company to develop right network architecture to exactly match virtual environment hosting needs, is crucial for an online game hosting company (Kabus, & Terpstra, 2005).

In order to achieve better profits in the market competition, retaining the level of customer satisfaction and fostering customer loyalty is crucially important (Lin, 2008). Hung (2008) revealed that a company’s profits mainly come from regular customer. In order to foster customer loyalty and build the interpersonal trust, the game hosting companies should take any necessary approaches to protect the virtual property of their residents from ID stealers. On the other hand, the online game hosting companies should enforce the management of the virtual world. Appropriate punishment to “Plug-in” users and other types of cheaters should be applied by GM. Safety and fairness is essential elements of the virtual residents’ satisfaction. Moreover, the CRM strategies such as holding special virtual events, some appropriate rewards for participation of the users or building sub-organizations can be applied to enhance customer loyalty.

“Si-fu” as a kind of serious online piracy has dramatic impacts on the market share of the official game hosting companies. It even distorts market trends in the Chinese online gaming industry. Many companies attempt to decrease their subscriptions to fight the negative impacts of “Si-fu”. In fact, to avoid the emergence of “Si-fu”, a company must give good protection to the source code of the games, and ensure legal support for the intellectual properties of the companies. To eliminate “Si-fu” absolutely from the Chinese market will take a long period and necessitate joint efforts of government and companies.

By studying a rough demography of the Chinese online game market, the research showed that almost 60% of game users are male, and most game users are well educated students and employees between 18 and 35 years of age; the results further implied that if the game hosting companies are subscription orientated, the male users should be paid more attention. The free virtual game hosting companies should consider collaboration and cooperation with advertising sponsors and virtual items trading companies. About half of the online population does not avail of the Chinese online gaming market, not having been attracted effectively. Furthermore, if the games are short term oriented and have simple/quick access, it could attract more internet users who are not able to spend hours at end within the game. Also, time is one of the main reasons why the casual games and webpage games are so popular. In addition, as portable Internet devices keep developing, mobile Internet users should be given appropriate consideration.

As regards of the scale of the online game users, many game hosting companies have attempted to use the virtual environment as a new media to build up brand awareness for third parties (Bearne, 2007, Ferry, et al, 2008). It is also turning the subscribers of the online games into advertising audiences. Moreover, many virtual residents would like to purchase virtual items to improve the quality of their virtual life. The results of the questionnaires showed that 15% of games-using respondents are virtual items sellers and 29% of them are buyers. The companies should grasp the chance of micro-transactions to make better profits (Zackariasson & Wilson, 2005). Young & Tseng, (2008) suggested that the interpersonal trust is a cornerstone of virtual items trading.

The online game hosting companies are an enterprise. Certainly, the profits for the enterprise are first considered issues. However, the process of profits should also be constrained by laws and morals insofar that companies should take upon them a social responsibility. The game developing and operating companies should pay attention to set reasonable gaming circumstances. It is necessary to innovate the profits gaining models. The traditional proven profit channel, by which players are attracted to spend longer times within the game, should be alternated with the development of sales on games related products and using various channels to introduce advertising profits.

Understanding the virtual world impacts on various business fields can help companies find better profitable channels. Meanwhile, to shape a popular online game among the public, knowing how to avoid negative effects of the online games is essential for the companies

### **6.3 Limitations of the results**

In order to remedy the lack of ground theory, in the secondary research, some information came from non-academic sources. Therefore, unreliability and bias were more or less included. Furthermore, the facing challenges of the companies, the customer demography and the CRM strategies are not tailing for any particular type of company. To deal with the reality the companies have to refer to their current situations. Finally, although emailing the questionnaire can ensure that all the respondents are Internet users, it cannot include someone who uses the Internet without using email and they may have different opinions.

### **6.4 Areas for further research**

Further research should be done to explore the fail cases in the online gaming industry, as the forthcoming companies could learn more from others' failures and mistakes so as to avoid going onto the same wrong path. To match the particular organizational needs, the demography can be detailed and individualized based on this research. The management of virtual economy should provide clearer direction for the new born game hosting companies in further researches.

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## Appendices I: Profiles of Interviewees

### ➤ Interviewee 1

(Lin, H. T.) Former employee of “Shanda” one of the biggest online game hosting companies in China. Currently the company hosts nine MMOGs.

Occupation: server maintaining technician.

Working Period: 2004~ 2007

Web reference: <http://www.shanda.com.cn/en/index.jsp>

### ➤ Interviewee 2

(Zhang, C.) Current employee of “Perfect World” a MMOGs hosting company in Beijing.

Occupation: Software Programmer

Working period: 2006~ now

Web reference: <http://www.pwrd.com/html/en/index.html>

### ➤ Interviewee 3

(Kong, X. B.) Current employee of “9th City” one of game hosting companies in Shanghai.

Occupation: Manager Assistant of security department

Working period: 2003~ now

Web reference: <http://www.the9.com/en/>

### ➤ Interviewee 4

(Dong, Y., N.) Male game user of “World of Warcraft”, “World of Warcraft” is hosted by “9th City” in China.

Occupation: student

Game playing period: 3 years

Reference of the game: [www.worldofwarcraft.com](http://www.worldofwarcraft.com)

### ➤ Interviewee 5

(Shen, N.) Female game user of “March”, “March” is subscriptions free guaranteed MMOG in China.

Occupation: civil servant of government

Game playing period: 1 year

Reference of the game: <http://zt.ztgame.com>

➤ **Interviewee 6**

(Chen, X., M.) Male game user of Flash/Causal game

Occupation: general employee

Game playing period: 1 year

Reference of the game: for example, <http://www.miniclip.com/games/en/>

➤ **Interviewee 7**

(Cui, S.) Male game user of “Mir3”, “Mir3” is MMORPG hosted by “Shanda” in China.

Occupation: unemployed

Game playing period: 5 years

Reference of the game: <http://www.mir3.com.cn/>

➤ **Interviewee 8**

(Yang, Y.) Male game user of “MU”, “MU” is a MMORPG hosted by “9th City” in China.

Occupation: college tutor

Game playing period: 3 years

Reference of the game: <http://www.muchina.com>

## Appendices II: Sample of Questionnaire

### ➤ Translation of hardcopy version

*This survey is anonymous: answers to the questionnaire will be processed with the highest standards of confidentiality*

1. **How much time do you spend on the Internet per week? (tick one only)**

Less than 1 hour~  5~  10~  20~  40~  more than 40 hours

2. **Have you accessed to the Internet with any mobile device?**

Yes  No

3. **Do you visit any Web sites on regular base?**

Yes  No

4. **Do you use any real-time online communicating software?**

Yes [**which one do you use?** *(Tick the below box that most applies to you)*

QQ  MSN  Skype  ICQ

Others (e.g.....)]

No, I don't use them

5. **Have you ever been a member of online an online community?**

Yes  No (if no go to question 8)

6. **Do you visit your community on the regular base?**

Yes  No

7. **Do you aware any third party promoting advertisement in your community?**

Yes  No

8. **Are you a fee paying member of any communities?**

Yes  No

9. **If there are any opportunities to improve your privileges in the communities via subscription, are you willing to pay?**

Yes                       No

10. **Have you ever played any games on the Internet?**

Yes                       No *(if no go to question 15)*

11. **How much time do you spend on the game playing per week? (tick one between two numbers)**

Less than 1 hour~  5~  10~  20~  30~  40~  more than 40 hours

12. **What types of computer games do you play? (tick the below box that most applies to you)**

Flash games/Casual games       Gambling games

MMOGs *(First person shooting)*       MMOGs *(Role playing)*

MMOGs *(Simulating)*

MMOGs *(P2P contest)*

MMOGs *(Web page game)*

other.....]

**MMOGs: Massive Multiplayer Online Games**

**P2P: Person to Person**

13. **Have you paid for playing any online games?**

Yes                       No

14. **Have you ever purchased any virtual items by cash?**

Yes                       No

15. **Have you sold any virtual items in cash?**

Yes                       No

16. **Do you think the online virtual world has impacts on our society?**

Yes                       No

17. **In your opinion, are there any positive or negative impacts on our society?**

Positive (Please, comments \_\_\_\_\_ )

Negative (Please, comments \_\_\_\_\_ )

18. *(If you have not involved any online communities or games, or you have quit from them, please this question )*

**The main reason why you do *Not* play online games or join any online communities.**

**(Tick one only)**

Never heard     Not interested     Have no enough time     Personal financial issues

May become addict     Others \_\_\_\_\_

**Profiles:**

**Gender:**

Male     Female

**Age:** *(tick one between two numbers)*

Less than 18~  20~  25~  30~  35~  40~  45~  50~  55~  60~  More than 60

**Latest formal education:** *(tick one only)*

Primary school     Secondary school     Diploma

First degree     Master     Doctor     Better than Doctor

**Occupation:**

Student     Employee     Manger/Employer     Layout     Retired

**Email:** *(option, you might be able to receive the results of this research):*

.....

***Thank you for your time and support!***

## Appendices III: Source code of Online Questionnaire

### ➤ PHP source code of the online questionnaire

```

<?php //require_once('../Connections/Query.php');

$Q01=$_POST["Q01"]; $Q02=$_POST["Q02"]; $Q03=$_POST["Q03"];
$Q04=$_POST["Q04"]; $Q05=$_POST["Q05"]; $Q06=$_POST["Q06"];
$Q07=$_POST["Q07"]; $Q08=$_POST["Q08"]; $Q09=$_POST["Q09"];
$Q10=$_POST["Q10"]; $Q11=$_POST["Q11"]; $Q12=$_POST["Q12"];
$Q14=$_POST["Q14"]; $Q15=$_POST["Q15"]; $Q16=$_POST["Q16"];
$Q17=$_POST["Q17"]; $Q19=$_POST["Q19"]; $Q21=$_POST["Q21"];
$Q41=$_POST["Q41"]; $Q42=$_POST["Q42"]; $Q43=$_POST["Q43"];
$Q44=$_POST["Q44"]; $Q45=$_POST["Q45"]; $Q131=$_POST["Q131"];
$Q132=$_POST["Q132"]; $Q133=$_POST["Q133"]; $Q134=$_POST["Q134"];
$Q135=$_POST["Q135"]; $Q136=$_POST["Q136"]; $Q137=$_POST["Q137"];
$Q138=$_POST["Q138"]; $Q139=$_POST["Q139"];
$Q1310=$_POST["Q1310"];
$Q181=$_POST["Q181"]; $Q182=$_POST["Q182"]; $Q183=$_POST["Q183"];
$Q184=$_POST["Q184"]; $Q185=$_POST["Q185"]; $Q186=$_POST["Q186"];
$Q187=$_POST["Q187"]; $Q188=$_POST["Q188"]; $email=$_POST["email"];
$others4=$_POST["others4"]; $others13=$_POST["others13"];
$others18=$_POST["others18"]; $others21=$_POST["others21"];
$Pro=$_POST["Pro"]; $Con=$_POST["Con"];
$gender=$_POST["gender"]; $age=$_POST["age"]; $education=$_POST["education"];
$occupation=$_POST["occupation"];
$country=$_POST["country"];
$time=date('Y-m-d');
$ip=$_SERVER['REMOTE_ADDR'];
$code=$time."~".$ip;
$query="INSERT INTO `research` (
`Q01` , `Q02` , `Q03` , `Q04` , `Q05` ,
`Q06` , `Q07` , `Q08` , `Q09` , `Q10` ,
`Q11` , `Q12` , `Q14` , `Q15` ,
`Q16` , `Q17` , `Q19` , `Q21` ,
`gender` , `age` , `education` , `occupation` ,
`Q4.1` , `Q4.2` , `Q4.3` , `Q4.4` , `Q4.5` ,
`Q13.1` , `Q13.2` , `Q13.3` , `Q13.4` , `Q13.5` ,
`Q13.6` , `Q13.7` , `Q13.8` , `Q13.9` , `Q13.10` ,
`Q18.1` , `Q18.2` , `Q18.3` , `Q18.4` ,
`Q18.5` , `Q18.6` , `Q18.7` , `Q18.8` ,
`email` , `others4` , `others13` , `others18` ,
`20Pro` , `20Con` , `others21` , `country` , `code` )
VALUES (
'$Q01', '$Q02', '$Q03', '$Q04', '$Q05',
'$Q06', '$Q07', '$Q08', '$Q09', '$Q10',
'$Q11', '$Q12', '$Q14', '$Q15',
'$Q16', '$Q17', '$Q19', '$Q21',

'$gender', '$age', '$education', '$occupation',

```

```

'$Q41', '$Q42', '$Q43', '$Q44', '$Q45',
'$Q131', '$Q132', '$Q133', '$Q134', '$Q135',
'$Q136', '$Q137', '$Q138', '$Q139', '$Q1310',
'$Q181', '$Q182', '$Q183', '$Q184',
'$Q185', '$Q186', '$Q187', '$Q188',
'$email', '$others4', '$others13', '$others18',
'$Pro', '$Con', '$country', '$others21', '$code'
)";
if ( !( $result = mysql_query( $query, $database ) ) ) {
print ( "Could not execute query! <br />" );
die( mysql_error() );}

if ($gender=="M")
{
print ("
谢谢你！男同胞：)</span></h2>
<h3><span class=\"STYLE3\">Thank you! Gentelman! Your support is appreciated)
</span></h3>");}

if($gender=="F")
{
print ("
谢谢你！同胞：)</span></h2>
<h3><span class=\"STYLE3\">TThank you! Lady! Your support is appreciated
</span></h3>");
}

if($gender=="")
{
print ("
谢谢你！性别不详：)</span></h2>
<h3><span class=\"STYLE3\">Thank you! Your support is appreciated</span></h3>");
}

?>

```

➤ **Mysql source code of the questionnaire database creation**

```

CREATE TABLE `research` (
  `Q01` VARCHAR( 2 ) NOT NULL ,      `Q02` VARCHAR( 2 ) NOT NULL ,
  `Q03` VARCHAR( 2 ) NOT NULL ,      `Q04` VARCHAR( 2 ) NOT NULL ,
  `Q05` VARCHAR( 2 ) NOT NULL ,      `Q06` VARCHAR( 2 ) NOT NULL ,
  `Q07` VARCHAR( 2 ) NOT NULL ,      `Q08` VARCHAR( 2 ) NOT NULL ,
  `Q09` VARCHAR( 2 ) NOT NULL ,      `Q10` VARCHAR( 2 ) NOT NULL ,
  `Q11` VARCHAR( 2 ) NOT NULL ,      `Q12` VARCHAR( 2 ) NOT NULL ,
  `Q14` VARCHAR( 2 ) NOT NULL ,      `Q15` VARCHAR( 2 ) NOT NULL ,
  `Q16` VARCHAR( 2 ) NOT NULL ,      `Q17` VARCHAR( 2 ) NOT NULL ,
  `Q19` VARCHAR( 2 ) NOT NULL ,      `Q21` VARCHAR( 2 ) NOT NULL ,
  `gender` VARCHAR( 2 ) NOT NULL ,    `age` VARCHAR( 2 ) NOT NULL ,
  `education` VARCHAR( 2 ) NOT NULL , `occupation` VARCHAR( 2 ) NOT NULL ,
  `Q4.1` VARCHAR( 2 ) NOT NULL ,      `Q4.2` VARCHAR( 2 ) NOT NULL ,
  `Q4.3` VARCHAR( 2 ) NOT NULL ,      `Q4.4` VARCHAR( 2 ) NOT NULL ,
  `Q4.5` VARCHAR( 2 ) NOT NULL ,      `Q13.1` VARCHAR( 2 ) NOT NULL ,
  `Q13.2` VARCHAR( 2 ) NOT NULL ,     `Q13.3` VARCHAR( 2 ) NOT NULL ,
  `Q13.4` VARCHAR( 2 ) NOT NULL ,     `Q13.5` VARCHAR( 2 ) NOT NULL ,
  `Q13.6` VARCHAR( 2 ) NOT NULL ,     `Q13.7` VARCHAR( 2 ) NOT NULL ,
  `Q13.8` VARCHAR( 2 ) NOT NULL ,     `Q13.9` VARCHAR( 2 ) NOT NULL ,
  `Q13.10` VARCHAR( 2 ) NOT NULL ,    `Q18.1` VARCHAR( 2 ) NOT NULL ,
  `Q18.2` VARCHAR( 2 ) NOT NULL ,     `Q18.3` VARCHAR( 2 ) NOT NULL ,
  `Q18.4` VARCHAR( 2 ) NOT NULL ,     `Q18.5` VARCHAR( 2 ) NOT NULL ,
  `Q18.6` VARCHAR( 2 ) NOT NULL ,     `Q18.7` VARCHAR( 2 ) NOT NULL ,
  `Q18.8` VARCHAR( 2 ) NOT NULL ,     `email` VARCHAR( 100 ) NOT NULL ,
  `others4` VARCHAR( 500 ) NOT NULL ,  `others13` VARCHAR( 500 ) NOT NULL ,
  `others18` VARCHAR( 500 ) NOT NULL , `20Pro` VARCHAR( 1000 ) NOT NULL ,
  `20Con` VARCHAR( 1000 ) NOT NULL ,  `others21` VARCHAR( 500 ) NOT NULL ,
  `country` VARCHAR( 50 ) NOT NULL ,  `code` VARCHAR( 50 ) NOT NULL
);

```