

# A Study on Online IM(Instant Messenger) Development in China

Focusing on Network Effect for QQ Messenger Users

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## Abstract

As the number of Chinese internet users grows very fast, the online industry of China continuously develops and online instant messenger(IM) became the most used communication tool in China. Until the first half of 2010 the number of internet users in China reached 420 million, and total active IM user accounts surpassed 636 million by the third quarter of 2010. Tencent's QQ has been at the center of such an explosive increase of IM users in China. So this study tried to take a general approach to IM use pattern of Chinese young people as well as a specific approach to QQ IM users' behavior through the field survey. In addition this study classified QQ IM users into four groups whose entry motive is related with network effect by applying their opinions for the satisfaction and advantage of QQ.

According to the survey result online network including IM already became an inevitable communication method at least for Chinese young people. And the competitive advantage of QQ IM based on network externality and portal site lock-in effect will be kept as long as the number of Chinese internet users grows. However to go abroad strategy of Tencent's QQ will be not easy because of the liabilities of foreignness such as language barriers or cultural difference. In future as wireless internet and smart phone are gradually popular in China the online IM will make a big contribution to the arrival of 'Web 2.0 period'. Furthermore the portal site competition among Chinese local firms will be changed by online platform competition.

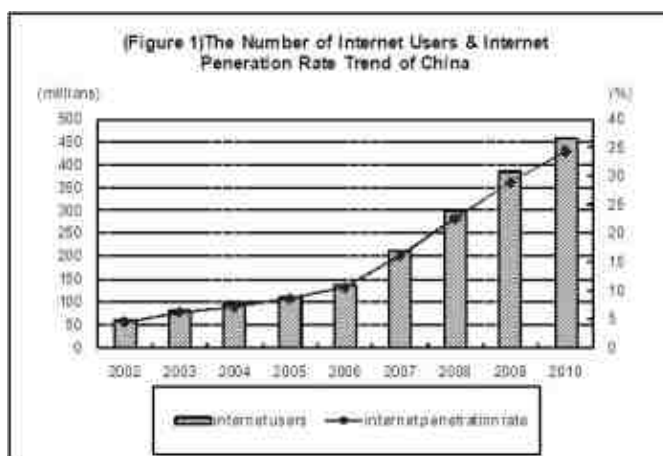
**Key Words** Tencent, QQ, China's IM(Instant Messenger), Network Effect, Portal Site, Platform

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## I. Introduction

By the end of 2010, the number of internet users, so called netizen(网民) reached 457.3 millions in China. The CNNIC(China Internet Network Information Center; 中国互联网络信息中心) announced that Chinese internet users reached 420 millions at June 2010, and from 2009 to 2010 it increased by 73.3 millions of which growth rate was 19.1%(figure 1). Internet penetration rate of China was 34.3% which is 5.4% points higher than the penetration rate in 2009. On the basis of continuous development of national economy and personal income growth, the internet access environment and the online business of China have rapidly developed not only in technology but also in contents. The CAGR of internet users of China from 2006 to 2010 was 35.2%, and if such a growth trend continues in future the internet users of China will exceed 500 millions in 2011. Internet already became an essential instrument for Chinese to upgrade the



**Source** CNNIC, 2011, "Zhongguo hulanwang fazhan zhuangkuang tongji baogao (Report for Internet Development Condition and Statistics of China, 中国互联网络发展状况统计报告)" January, \_\_\_\_\_. 2010, "Zhongguo hulanwang fazhan zhuangkuang tongji baogao (Report for Internet Development Condition and Statistics of China, 中国互联网络发展状况统计报告)" July.

quality of daily life.

In recent years the growth of internet users in China mostly comes up at four categories; trade(交易), communication(沟通), entertainment(娱乐), information acquisition(信息获取). Lots of Chinese start to use internet for the first time in order to do such things. This researcher took a deep interest for the online communication such as instant messenger(IM), E-mail, blog, and social network services(SNS). Especially the online instant messenger became a very popular communication tool for young people in the world including China. At present MSN, Yahoo, Tencent(腾讯) QQ, renren(人人网) are mostly used instant messengers in China. However among them the position of QQ messenger in China is more and more strengthening as time goes on. In 2009 active QQ messenger user accounts<sup>1)</sup> reached 522.9 million with showing up the annual growth rate of 38.8%, and went up 637 million by the third quarter in 2010. In addition at the first quarter in 2010 the 'peak concurrent users(PCU)' for QQ messenger broke 100 million line for the first time in China. In term of frequency of IM use, its market share in China reached 76.2% in 2009. On the basis of QQ messenger's dominant position, Tencent has accomplished a very noticeable management performance for last 4~5 years.

This study tried to deal with the issue that related with QQ messenger's development process, users' behavior and user classification by focusing on the network effect. To do so not only the literature research but also the field survey was performed. Also this study tried to get answers about next three questions. First, how about the popularization level for online IM in

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1) Active IM user accounts refer to those who have logged on the messenger at least once during the last 30 days.



method for the improvement of transaction efficiency.

Most of all in order to improve the transaction efficiency at online space, economy of scale as well as economy of scope need to be realized. The economy of scale means that the more products or services the lower unit cost. When there is a significant economy of scale in manufacturing, marketing, distribution, service or other functions of a business, larger firms have a cost advantage over smaller firms(Barney 2002, 234). In contrast the economy of scope means that the value of a firm's resources and assets combined is greater than the value of its resources and assets separately(Barney 2002, 370). Economy of scale can be called a synergy effect because of the notion of resource complementarity by a firm internally or among firms.

For most of the firms at online space, the economy of scale occurs when the network effect, in other words network externality or network economy, exists at the value chain(Chang 2010). In contrast the economy of scope is mostly related with the portal site lock-in effect. Firstly the network externality refers to the utility or value of a product gradually grows as the number of users of that product increases(Katz & Shapiro 1985; Brynjolfsson & Kemerer 1996). Network externality can be divided into direct externality and indirect externality. Generally the externality occurs when the one party's actions affect the consumption or production of other parties outside an exchange relationship(Brickley et al, 1997, 59). Further at the network externality the bandwagon effect usually exists too, the bandwagon effect means that the more users for a product, the higher the probability of use as a beginner for that product. So it can argue that the more strong the network externality of an online firm, the higher the possibility to accomplish the economy of scale.

Secondly the portal site lock-in effect, in short a portal site effect, refers to the expecting benefit gained by switching a portal site at online space is not more than the existing benefit. Generally the type of lock-in can be classified into the contract responsibility, the required purchasing for complementary goods, the special training, searching cost, supplier restriction, information & database operation capability, etc.(Shapiro & Hal, 1999). Also switching cost is rooted in the tendency of users which the more invest, the more like and the harder change(Rusbult 1983). Switching cost refers to an additional cost in economical or in psychological which occurs when users try to use a new product or service while cutting off the relation with the existing one(Katz & Shapiro 1985). Therefore the switching cost is a very important factor to make users lock-in a particular product or service, and to raise the switching cost of users became an essential assignment in creating a successful business model.

Portal site refers to the first gateway for an internet user to access internet but presently the value of portal site is much higher than before. Because the portal site takes a critical role not only as the first gateway but also as a platform to use various online services like E-mail, game, music, news, shopping or searching (Park choelsoon et al. 2007; Lee Kangbae et al. 2008). So major portal sites make all efforts to be online platforms. The platform refers to a basic architecture that can control various activities on value chain such as manufacturing, purchasing, delivery, marketing, R&D etc.(Choi 2010, 2). Also it means a kind of software which supports the operation of services, programs and application on mobile phone or wired computer(Jang 2010, 3), and it can be called a ground(場) where lots of transactions, information exchanges, meetings, communications take place simultaneously & in real time(Hirano & Hagi 2010).

Online instant messenger(IM) is a real time communication tool through internet. IM users can check the online status in real time and send a short sentence, a letter, a document, a photo or video files with almost no charge. Currently IM makes a big contribution to create the social networking and online community. Online community can be classified into four types; transaction, interest, fantasy, relationship(Armstrong 1996, 135-136), and all the types are supported by IM. Meanwhile, there are many methods in classifying the users' type for a product or a service by the satisfaction or the attitude for brand. This study classified the IM users based on the attitude for a specific IM brand; supporters, loyal customers, customers and consumers(Peter & Donnelly 2000). Supporters show up the highest brand loyalty and actively & voluntarily participate to the promotion for a specific brand. Loyal customers also have a relatively high brand loyalty but they like a specific brand due to something different reasons from supporters. Customers just have brand associations without brand loyalty, and they tend to use a specific brand regularly. Finally consumers rarely make any relationship for a specific brand, and show up a spot purchasing pattern when some needs occurred.

## **2. Research Method**

In order to get answers for above three questions, this study did a literature research as well as a field survey for Chinese IM users. At the next chapter, this study analyzed Tencent's development process and management performance through the literature research with centering on the annual reports of Tencent and the related articles published by CNNIC and diverse documents by Chinese local press. At the same time this study did a field survey to access Chinese general IM users' behavior and to

analyze QQ IM users' behavior. Such a field survey would be beneficial to supplement the literature research as well as to suggest more meaningful implication for Tencent's business model and Chinese online industry development.

(Table 1) Survey questions' classification and their contents

| Two parts                                                       | classification             | questions                                                | Type              |
|-----------------------------------------------------------------|----------------------------|----------------------------------------------------------|-------------------|
| Part 1: General approach to IM access behavior                  | IM use experience          | Do you have any experience to use IM?                    | Yes/No            |
|                                                                 |                            | If yes, IM, do you usually access?                       |                   |
|                                                                 | IM use time                | How long do you access IM at weekdays?                   |                   |
|                                                                 |                            | How long do you access IM at weekend?                    |                   |
|                                                                 |                            | Which day do you use IM the most at a week?              | double choices    |
|                                                                 |                            | What time do you use IM the most at weekdays?            |                   |
|                                                                 |                            | What time do you use IM the most at weekend?             |                   |
|                                                                 | IM use place & reason      | Where do you access IM the most?                         | double choices    |
|                                                                 |                            | What is the main reason to use IM?                       | double choices    |
|                                                                 | Mobile IM experience       | Do you have any experience to use a mobile IM?           | Yes/No            |
|                                                                 |                            | How often do you use a mobile IM?                        |                   |
| Part 2: Specific approach to QQ messenger & overall QQ services | QQ account possession      | Do you have QQ messenger account?                        | Yes/No            |
|                                                                 |                            | Do you have QQ email account?                            | Yes/No            |
|                                                                 | QQ use & other & advantage | What is the reason to start to use QQ messenger?         | double choices    |
|                                                                 |                            | What do you think the advantage of QQ messenger?         | double choices    |
|                                                                 | QQ users' satisfaction     | How much do you satisfy QQ messenger?                    | five Likert scale |
|                                                                 |                            | Is there any inconvenient point for QQ messenger?        | Yes/No            |
|                                                                 |                            | If so, please write inconvenient point for QQ messenger  | free description  |
|                                                                 | QQ's other services access | Do you use other services of QQ while using a messenger? |                   |
|                                                                 |                            | Which services do you use the most at QQ platform?       | triple choices    |
|                                                                 | QQ's growth potential      | Do you have any plan to change QQ IM by other IM?        | five Likert scale |
|                                                                 |                            | What do you think the growth potential of QQ platform?   | five Likert scale |

Survey was done from November 5 to December 14 2010, and total 360 questionnaires were circulated to four universities of China; Ocean University of China(中国海洋大学), Qingdao University(青岛大学), Beihua University(北华大学) and Heilongjiang Tourism Vocational & Technical College(黑龙江旅游职业技术学院).<sup>2)</sup> The questionnaire has twenty two questions, and half of them were general questions to analyze the current behaviors of Chinese users for instant messenger. Another half centered on

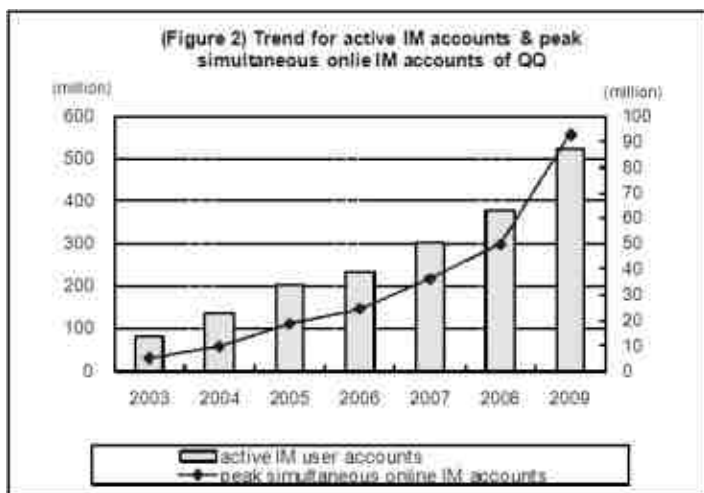
overall satisfaction level for Tencent's QQ messenger and other online services. In addition users' motives to have QQ accounts and advantages & inconvenient points for QQ IM were asked at the second part of questionnaire. All the questions were translated into Chinese. The detailed content of each question and its type classification were presented at(Table 1).

The main part of this study, the chapter IV was organized by three sections, 1) to approach general IM using pattern of Chinese young people, 2) to approach QQ IM users' behaviors and their satisfaction, 3) to classify QQ IM users' type with focusing on the network effect. Especially the classification for QQ users' type was done only for the respondents whose entry motives are associated with QQ's network effect. Further two appraisal factors, the satisfaction and the advantage for QQ IM were applied to do the user grouping analysis. In addition before starting these three analyses, this study handled the management performance of Tencent and the development condition for QQ messenger through the literature research.

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- 2) The questionnaires of this study were mostly distributed to the international education (foreign language training) center of four universities of China, 100 questionnaires to Ocean university of China at Qingdao, 80 to Qingdao university, 100 to Heilongjiang Tourism Vocational & Technical College, 80 to Beihua university. The surveys were done by the help of each university's staff and this researcher gathered questionnaires by visiting each university directly.

### III. Development Condition of QQ Messenger

Tencent Holdings Limited had been founded in November 1998 and has grown continuously one of China's largest and most used online portal. At February 1999 Tencent launched online instant messenger, QQ in China and at August 2000 and at June 2001 it started the mobile telecommunication value added service(VAS) and internet VAS respectively. On the basis of QQ messenger's success Tencent launched QQ game portal and the website portal QQ.com in 2003. The rapid growth of QQ messenger user scale made a great impact on the sustainable development base creation as well as on the expansion of Tencent's online services. It can say a positive outcome of the network effect, and it brought about the portal site lock-in effect at online space of Tencent.



Source: Tencent Annual Report 2004, 2005, 2006, 2007, 2008 and 2009

The number of active user accounts of QQ messenger was only 82

million in 2003 but 202 million in 2005, 377 million in 2008 and reached 523 million in 2009(Figure 2). It would exceed 650 million in 2010<sup>3)</sup>. From 2005 to 2009 the CAGR for active user accounts of QQ was 27% which is a very noticeable record in the world. The number of peak simultaneous online accounts of QQ was just 5 million in 2003 but 18 million in 2005, 50 million in 2008 and reached 93 million in 2009. The CAGR of it from 2005 to 2009 reached 50% which means the heavy users for IM rapidly increased and QQ IM has already been a very popular communication tool to Chinese. Such a growth trend for QQ IM will be maintained at least for 5~10 years in future as long as the internet users continuously increase in China.

As the growth speed for the IM user accounts, the revenue and operating profit of Tencent increased very fast. In 2009 the revenue and profit of Tencent were 1,822 million US dollars and 882 million US dollars respectively(Table 2). These were increased by 73.7% and by 85.3% respectively compared with the performance in 2008. The CAGR of revenue for recent five years, from 2005 to 2009 was almost close to 80%, and the CAGR of operating profit reached 96%. At the revenue to profit ratio that is a quality measurement index for a firm's management performance, except 2005 Tencent had continuously showed up above 40% since 2003. Especially the ratio in 2009 went up by 48.4 owing to a big increase, the increase rate 94%, of internet VAS<sup>4)</sup> sector's revenue. That

3) As of September 30, 2010, the active IM user accounts of QQ amounted to 636.6 million while its peak concurrent users reached 118.7 million. "Tencent Investment Fact Sheet," November, 2010.

4) Internet VAS of Tencent refers to QQ IM, QQ.com(portal), QQ Games, Qzone, Music, QQ Show, QQ pet, SoSo(search engine), PaiPai(shopping) and Tenpay(payment), etc. Mobile

means Tencent's operation efficiency and value creation activity, in other words the revenue making model took a root on the online space of China. Tencent already went public on the main board of the Hong Kong stock exchange market(SEHK 700) at June 16 2004.

(Table 2) Management performance trend of Tencent (million US dollars)<sup>5)</sup>

| Item                                | 2003   | 2004   | 2005    | 2006    | 2007    | 2008    | 2009    |
|-------------------------------------|--------|--------|---------|---------|---------|---------|---------|
| Revenues                            | 88.8   | 138.2  | 176.7   | 358.8   | 523.8   | 1,048.7 | 1,821.9 |
| Operating Cost                      | (48.8) | (83.9) | (125.8) | (220.4) | (309.1) | (589.3) | (851.5) |
| Cost of Revenues                    | (27.7) | (50.0) | (58.2)  | (104.7) | (153.2) | (218.1) | (359.8) |
| Selling & Marketing Expenses        | (6.8)  | (13.1) | (24.5)  | (37.5)  | (40.8)  | (75.9)  | (85.2)  |
| General & Administrative Expenses   | (13.3) | (20.5) | (43.1)  | (78.2)  | (115.2) | (195.3) | (296.8) |
| Other (Loss) Gains                  | (0.1)  | 1.3    | 9.1     | 10.7    | 9.5     | 16.4    | 11.4    |
| Operating Profit                    | 40.0   | 54.3   | 50.9    | 138.4   | 214.7   | 459.4   | 970.4   |
| Revenues to Profit Ratio (%)        | 45.2   | 40.2   | 34.0    | 41.5    | 42.8    | 45.4    | 48.4    |
| Finance Costs                       | 0.2    | 1.1    | 5.9     | (6.0)   | (13.7)  | (20.8)  | (0.3)   |
| Share of Profit(Loss) of Associates |        |        |         |         | (0.8)   | (0.1)   | 3.3     |
| Profit before Income Tax            | 40.0   | 53.2   | 45.0    | 132.4   | 201.0   | 438.5   | 963.4   |

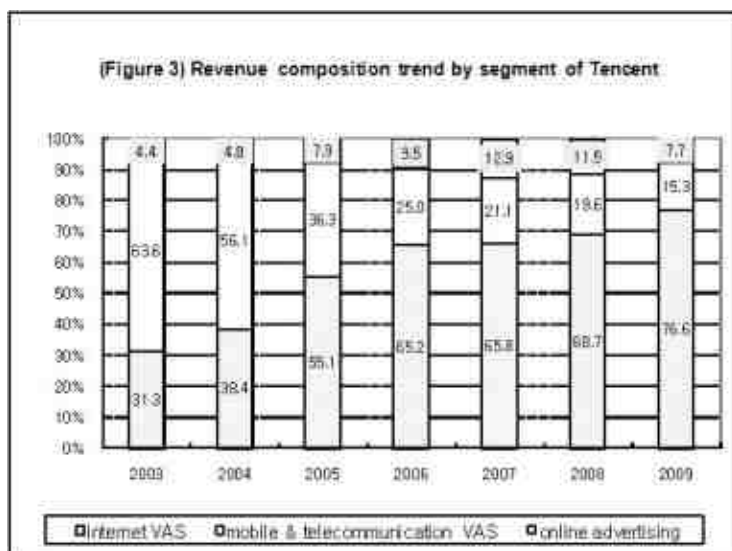
Source Tencent Annual Report 2004, 2005, 2006, 2007, 2008 and 2009

Actually the revenue ratio for internet VAS of Tencent in 2009 reached 76.6%, and the revenue ratio for mobile & telecommunication VAS was 15.3%, the ratio for online advertising was only 7.7%(Figure 3). At Tencent's revenue the ratio of internet VAS revenue has gone up continuously from 31.3% in 2003 to 76.6% in 2009. In contrast the ratio of mobile &

& telecommunication VAS of Tencent refers to the bundled SMS packages, mobile IM and mobile game, etc.

5) All the management performances at Tencent annual reports that published on Hong Kong stock exchange market were suggested by 1,000 yuan(元) unit, but this study changed them into US dollars by applying exchange rates of each year.

telecommunication VAS went down from 63.6% to 15.3% for the same time. The reason would be close related to the growth speed for the wired internet users much faster than the growth speed for wireless internet users in China. Further the fact that internet services supplied through the wireless network are not still free might affect the revenue structure of Tencent.



Source Tencent Annual Report 2004, 2005, 2006, 2007, 2008 and 2009

However Tencent has tried to become a platform for 'one-stop online lifestyle services' of which strategic goal to be the largest internet community, to meet the various needs of internet users including communication, information, entertainment, e-commerce and others. In 2010 at the brand value ranking for Chinese private firms, Tencent took the first place for the first time, and Baidu(百度) took the second place.<sup>6)</sup> Their brand values

6) According to the '2010 Hulun(胡润) private firm brand ranking' Ping An Insurance(平安

reached 46 billion yuan, 43 billion yuan respectively.

## IV. Three Approaches to QQ Messenger Users' Behavior

### 1. General approach to IM use behavior of respondents

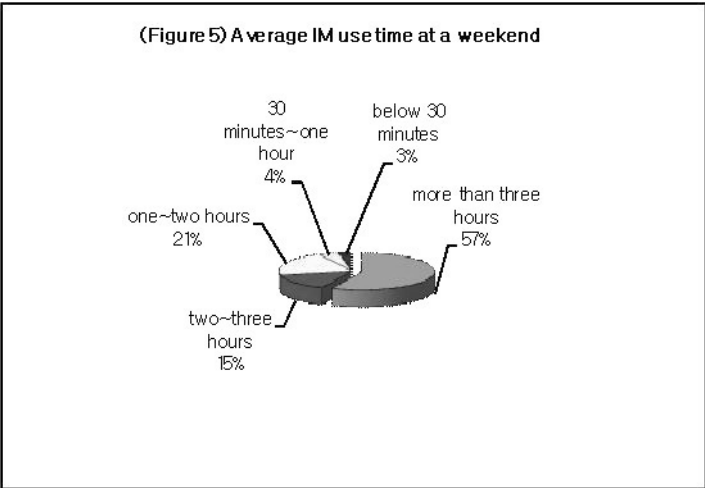
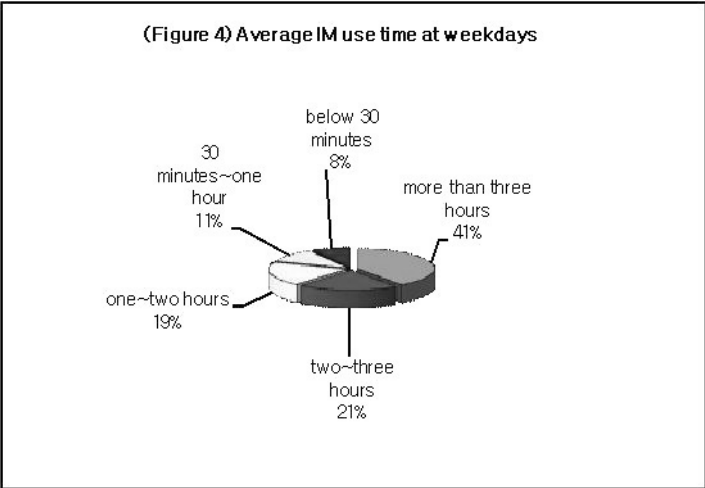
As mentioned above, total 360 questionnaires were distributed to four university of China and this researcher gathered 227 questionnaires(the collection rate 63%). However the number of effective questionnaires which answered all the questions as well as checked exactly was 195, so the actual collection rate was 54.2%. Further among the effective questionnaires the number of respondents who currently use QQ messenger including other IMs was 178 but the rest 17 respondents revealed that they did not have any experiences to use QQ messenger even though using other messengers. At this chapter, the general approach to IM users' pattern was made by whole effective questionnaires but the specific approach to QQ IM users' behavior and the classification for QQ IM users' type were done by 178 questionnaires.

Now among 195 questionnaires, the number of female respondents was 124(63.4%) which more than the number of males(36.6%). Their ages were between 19 and 29, but 92.4% of all respondents were 21~24 years old. Among them the ratio for respondents who only use QQ messenger was 72.4%, and the ratio for respondents who use two or three messengers

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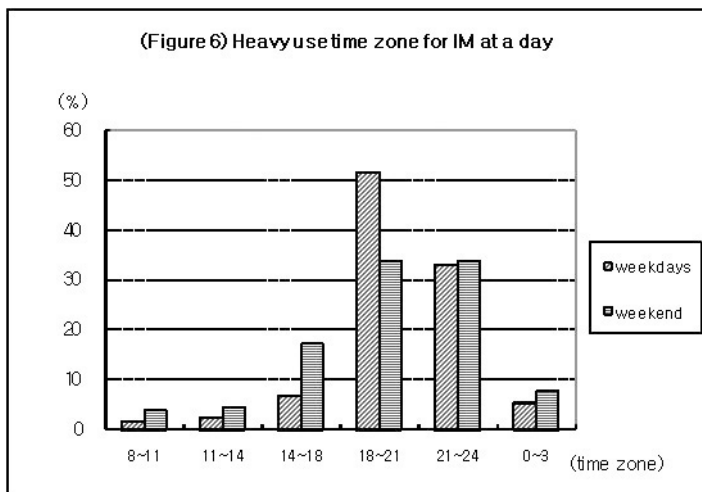
保险) took the third place, and Haier took the fourth place. Besides Suning(苏宁) took the 7th place and Lenovo, Biyadi(比亚迪) and Alibaba entered top ten brand raking with recording the same value, 12 billion yuan each(Zhongguozhengquanwang(中国证券网), 2010 July 5).

including QQ, MSN, Yahoo or Renren(人人网) was 25.4%. So it can argue that QQ makes a great influence on IM sector at least for Chinese young generation.



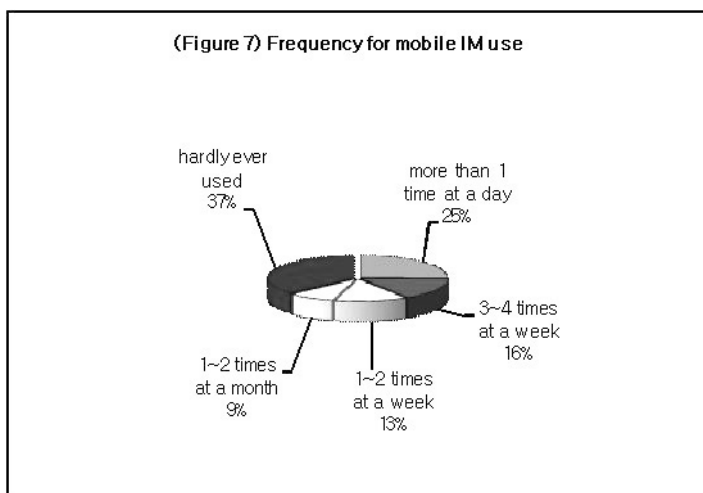
Among 195 questionnaires, 41% of the respondents revealed that they use IM more than three hours a day during weekdays, and 21% of the respondents used IM 2~3 hours a day(Figure 4). The ratio of respondents

whose IM use time is below 30 minutes was only 8%. In addition at weekend 57% of all respondents said that IM use time is over three hours but the ratio of respondents whose IM use time is less than one hour was only 7%(Figure 5). As expected, it turned out that the respondents usually spend more time at about 30~40% at weekend than at weekdays for IM use.



Also it turned out that the respondents mostly access IM at evening (18~21) and at night (21~24). 51.5% of all respondents mostly used IM at evening, and 31.8% of them mostly used it at night during weekdays (Figure 6). However at weekend the sum of ratio for the evening time users and the ratio for night time users was 67.2%. The ratio for afternoon users at weekend reached 17.2% which is much higher than the ratio for afternoon users at weekdays(6.7%). Among 195 respondents, 116 respondents(59.5%) pointed out that they mostly use IM at home or at dormitory through the wired network but the respondents' ratio to access IM through school's wired network was only 8%. The users' ratio for the

private paid online shop, so called PC Pang or Wang Ba(网吧), was 12.5%. The ratio for users who generally access IM through the wireless network at home(dormitory) was 19.3%.



Recently the number of mobile phone users grows very fast in China,<sup>7)</sup> therefore the number of wireless internet users continuously increases too. The respondents who have an experience to access IM through wireless network was 139(71.3%), and 25% of them use wireless IM more than one time in a day(Figure 7). Also the wireless IM users who access 3~4 times in a week was 16% and 1~2 times in a week was 13%. However the ratio for respondents who hardly ever used the wireless IM was still relatively high, 37%. Currently not a few wireless IM services are not still free in China and

7) The number of mobile phone users of China (including multi users who have two or three phone number) exceeded 800 million by 2010. It was 330 million in 2004, 460 million in 2006, 640 million in 2008, and reached 750 million in 2009. In contrast the number of wired phone users of China had continuously gone down to 310 million by 2009.

such a charged service might affect negatively on the rapid popularization of wireless IM use(Renminwang 2008).

## 2. Specific approach to QQ IM users' behavior

As mentioned above among 195 effective questionnaires, the number of respondents who have QQ messenger account was 178 persons. This study analyzed these QQ users' behavior and developed such results as a tool for classifying QQ IM users' type. Firstly except only two respondents, 174 respondents said that they also use QQ e-mail. In addition 47% of the respondents selected that QQ messenger is a mostly used IM in China( 'many people around me use it' ) as a key reason to begin QQ messenger(Figure 8). The 29% of respondents selected the convenience for using diverse services through QQ portal(qq.com), so called the portal site lock-in effect, and the 11% of them said that friends or family members made them join the QQ messenger. So it can argue that the most important motive for respondents to start QQ IM is related with the network

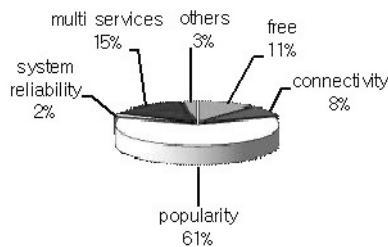
(Figure 8) EntryMotive for QQmessenger



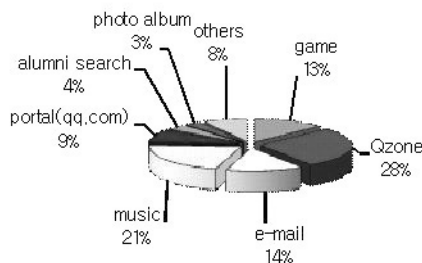
effect(58%).

At the advantage of QQ messenger, 61% of the respondents selected the popularity of QQ messenger, and the 15% of respondents selected the convenience for multi services use such as game, music, shopping, etc.(Figure 9). Also 11% of the respondents checked the free service as an important advantage. But regarding QQ' s free services policy, a few

(Figure 9) Advantage of QQ messenger

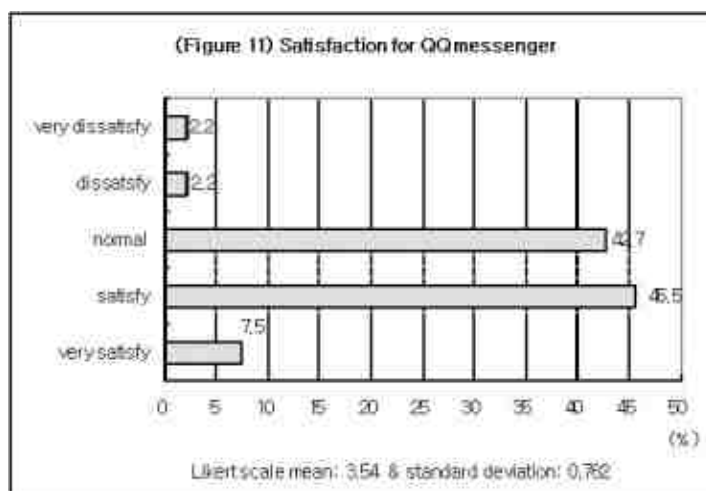


(Figure 10) QQportal's services which are mostly used with QQ messenger



respondents showed up dissatisfactions for a gradual increase trend of the charged services at QQ portal site. About 90% of the respondents revealed that they usually access other services of QQ while using QQ IM. At present about 40 services are supplied through QQ portal site, and it turned out that top five services that the respondents frequently use were Qzone(a personalized multimedia space), music, e-mail, game, and news(Figure 10).

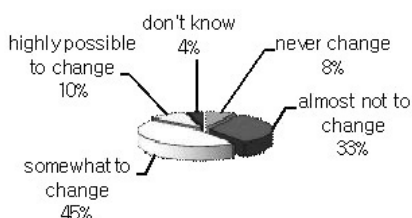
This study analyzed the respondents' satisfaction for QQ messenger through five-point Likert-type scale that is 'very satisfy' (5 point), 'satisfy' (4 point), 'normal' (3 point), 'dissatisfy' (2 point) and 'very dissatisfy' (1 point). As a result the mean of satisfaction was 3.54 and the standard deviation was 0.762. So the respondents' satisfaction mostly was between 'normal' and 'satisfy' but more exactly to say it is a little bit more close to the 'satisfy'. Among 178 respondents 81 persons(45.5%) checked the 'satisfy' for QQ messenger and 76 persons(42.7%) said the 'normal' (Figure 11). The 'dissatisfy' and the 'very dissatisfy' were just four respondents respectively.



The 35.8% of respondents wrote the discomfort things for QQ messenger. Specifically the ID hacking experience was mostly mentioned, and the computer virus infection and the instability of QQ operation system were followed. In addition the increase of charged services, the complication of its portal composition and the almost exclusive service for Chinese were picked up as discomfort things. However at(Figure 12), the 55% of respondents revealed that they can change the QQ messenger by others in the near future, and among them about 10% respondents already began to actively consider it. But it is not clear whether the real plan for changing QQ messenger means that completely quit the QQ or not. Because it can be interpreted as a multi IM use plan only by adding another new messenger without stopping the use of QQ messenger.

At the growth potential for Tencent & QQ messenger, about half of the respondents had optimistic views which including the 'very good' (5 point) and the 'good' (4 point), and the 43% of them regarded it as 'normal'. But the pessimistic opinions were very few, just below 5%. The mean of Likert

(Figure 12) Possibility to change QQ by other messengers in future



(Figure 13) Growth potential of Tencent & QQ IM in future

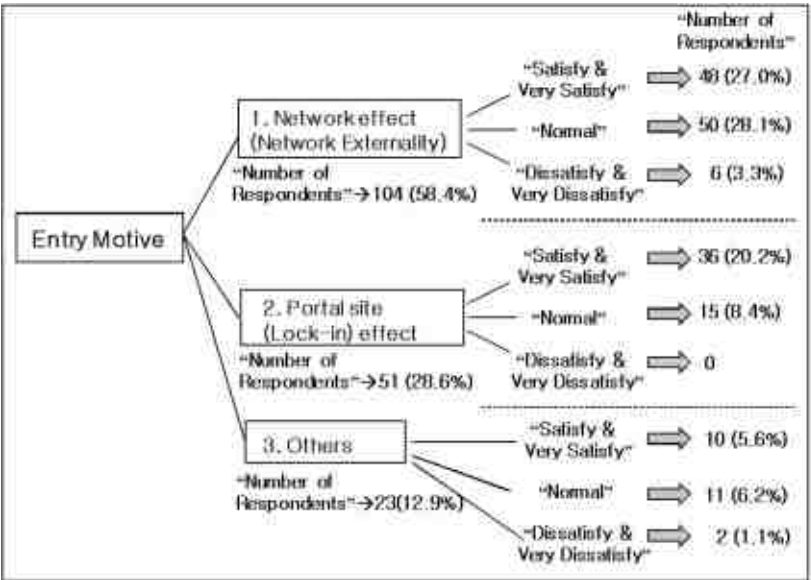
| Category   | Percentage |
|------------|------------|
| good       | 41%        |
| ordinary   | 43%        |
| very good  | 9%         |
| bad        | 4%         |
| very bad   | 1%         |
| don't know | 2%         |

scale for the growth potential was 3.56 and its standard deviation was 0.751(Figure 13). Consequently it can say that respondents' opinions for the satisfaction and the growth potential for QQ IM were mostly above the normal but did not reach the general satisfaction or good level.

This paper took a deep approach for the entry motive for QQ messenger with centering on the network effect and the portal site lock-in effect. At the questionnaire, if respondents selected the ‘many people around me use it’ as a main reason to start to QQ messenger, their motives were considered as the result of network effect. However if the ‘convenience of multi use for other services of QQ’ was a main reason, it was thought for the result of portal site lock-in effect. Other reasons were the ‘self decision of respondent’ or the ‘Chinese local firm,’ etc. Consequently among 178 respondents, 104 respondents(58.4%) were influenced by network effect of

QQ messenger at initial entry stage, and 51 respondents(28,6%) were more influenced by the portal site lock-in effect rather than by network effect (Figure 14). The ratio of respondents who checked other motives was 12,9%.

(Figure 14) Entry motive classification for QQ messenger users



This study already mentioned the analysis result regarding the entry motive for QQ messenger at(Figure 8), and the analysis result of(Figure 14) is also closely related with it. In addition the 48 respondents among 104 respondents whose entries are resulted from the network effect, checked the 'satisfy' or 'very satisfy' for QQ messenger, but 50 respondents appraised it as 'normal'. So there was almost no difference between the number of respondents for the 'satisfaction' and the number of respondents for the 'normal.' However among 51 respondents whose entries are

resulted from the portal site lock-in effect, 36 respondents satisfied(or very satisfied) with it, but 15 persons checked the 'normal' . The number of persons for the 'satisfaction' was more than double of the number of persons for the 'normal,' Therefore it can say that the satisfaction of respondents whose entry motive is related with portal site lock-in effect was much higher than the satisfaction of network effect related respondents. However it is hard to suggest why such a satisfaction difference between the network effect and the portal site lock-in effect exists with only this survey result.

(Figure 15) Classification of QQ IM users who selected network effect as entry motive

|                        |                        | Advantage of QQ IM                                                            |                                                                                   |
|------------------------|------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                        |                        | Popularity                                                                    | Others                                                                            |
| Satisfaction for QQ IM | Satisfy & Very Satisfy | <u>Group I</u><br><i>Supporters</i><br>for network effect<br>(41 respondents) | <u>Group II</u><br><i>Loyal customer</i><br>for network effect<br>(7 respondents) |
|                        | Normal                 | <u>Group III</u><br><i>Customer</i><br>for network effect<br>(40 respondents) | <u>Group IV</u><br><i>Consumer</i><br>for network effect<br>(10 respondents)      |

In order to approach more deeply the nature of QQ messenger users this study classified them by the satisfaction and the advantage for QQ messenger. Most of all this study focused on the network effect related respondents because they were the most at this survey. At the

questionnaire the question about the advantage of QQ messenger is connected with the after use appraisal but the question for the entry motive is concerned the before use feeling. As a result by using the network effect related respondents this study classified the QQ messenger users into four groups; 'supporters,' 'loyal customer,' 'customer,' and 'consumer.'

At(Figure 15) the people in group I not only satisfied with QQ messenger but also chose its popularity in China as an important advantage. Among 104 network effect related respondents 41 persons were included in the group I. In addition the people at group III also chose the popularity of QQ messenger as a good point but their satisfaction for it was the 'normal.' The number of people at group III was 40, so total 81 people among 104 respondents considered the popularity of QQ messenger as a key advantage. In contrast 7 persons in the group II satisfied with the QQ messenger but did not choose the popularity, and 10 persons in the group IV did not satisfy with the QQ messenger nor picked up the popularity.

Therefore among these four groups, the users in group I can be classified as 'supporters' to QQ messenger who take a spearhead role to maximize its network effect. It can say that they voluntarily & passionately advertize the good points of QQ messenger to other people around them. The users in group II can be classified as 'loyal customers' to QQ messenger who like QQ messenger and trust it because of other reasons rather than the popularity of it. However regarding the network effect of QQ messenger they are also a different type of supporters, somewhat passive supporters because their entry reasons were closely related with the network effect of QQ messenger.

The users in group III can be called 'customers' because they often visit

QQ messenger but it is hard to say that they locked-in QQ messenger or not. Of course they recognize well the influence of QQ messenger or its popularity in China. However for them QQ messenger might be just one of various IMs in the world, and the switching cost for QQ messenger is not so high as the switching cost occurred in group I or in group II. But when considering they selected the popularity as a great point for QQ messenger, it is able to expect them to do something to upgrade QQ messenger network as potential supporters. Finally the users in group IV can be called 'consumers' at least for the network effect of QQ messenger because their satisfaction was not so high nor considered the popularity as a main advantage. Of course it would not be true to argue that they rarely like the popularity of QQ messenger nor like to visit because their entry reason was connected with the network effect and their satisfaction was the normal. With only this survey result they can be characterized by the unclear role's users or neutral users for the evolution of QQ messenger network.

## V. Summary and Implication

As the number of Chinese internet users grows very fast, the online industry of China continuously develops and online messenger became the most used communication tool in China. Until the first half of 2010 the number of internet users in China reached 420 million(internet penetration rate 31.8%), and total active IM user accounts surpassed 636 million at the third quarter of 2010. Further the number of peak simultaneous online IM accounts exceeded 100 million for the first time in China by the first quarter

of 2010. Tencent's QQ has been at the center of such an explosive increase of IM users in China. And this study tried to take a general approach to IM use pattern of Chinese young people as well as a specific approach to QQ messenger users' behavior through a field survey. In addition this study classified QQ messenger users into four groups whose entry reasons are related with its network effect.

Firstly at the general approach to IM use pattern, this study analyzed the 195 questionnaires, and the 91.3% of total respondents had actual QQ messenger accounts. Most of the respondents have used online IM, and the half of them had multi IM accounts including QQ account. It means that online IM already became a universal tool at least for young people of China. Also 62% of the respondents used the IM over two hours at everyday, and 57% of them used IM more than three hours at weekend. However wireless IM access was not so popular as wired IM access even though the number of wireless internet users continuously increases. 25% of the respondents said that they accessed more than one time in a day but 37% of the respondents rarely ever used it

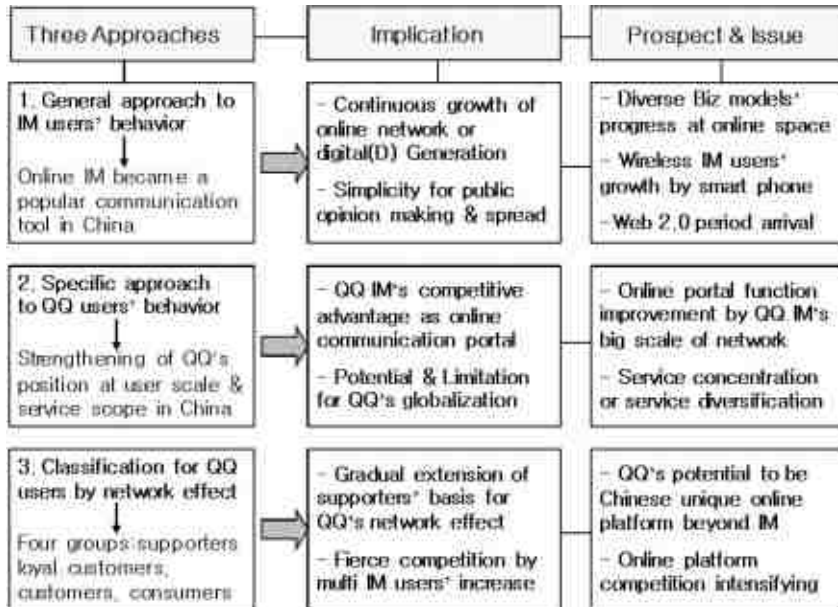
Secondly, most of 178 respondents who have QQ messenger accounts used QQ e-mail too. At the entry motive to QQ messenger 47% of the 178 respondents said that QQ was the mostly used IM in China, and 29% of them pointed out the convenience of use for the diverse online services. Also 61% of respondents regarded the popularity of QQ messenger as an important advantage, and 15% of them selected the convenience for multi services access as a critical factor. Generally QQ messenger users accessed simultaneously other services such as personalized multimedia(Qzone), music, game or e-mail. It can be a result of portal site effect. Regarding the satisfaction for QQ messenger, 45.5% of the respondents checked the

‘satisfy’ , and the 42.7% said ‘normal.’ The mean and standard deviation for satisfaction by five likert scale were 3.54 and 0.762 respectively. Finally about half of the respondents had optimistic thinking to the growth potential of QQ messenger and its firm, and 43% of them considered it ‘normal.’ The mean and standard deviation for the growth potential by five likert scale were 3.56 and 0.751 separately.

Thirdly, by using the satisfaction and the advantage for QQ messenger, this study classified the QQ messenger users into four groups; supporters, loyal customers, customers and consumers. This analysis was made with only focusing on the respondents whose entry reason is associated with the network effect of QQ. Actually among 178 respondents 104 persons chose the network effect as their entry reason, and 51 persons checked the portal site effect, and 23 persons selected other reasons. In addition among 104 network effect related respondents, the supporters take a spearhead role to maximize its network effect, and loyal customers, so called passive supporters also take a similar role as supporters but they like QQ IM by other reasons rather than by its popularity in China. Customers can be considered the latent supporters for QQ’s network effect but consumers can be regarded as the neutral users to its network effect.

The implication for the three approaches can be presented as (Table 3). Firstly at least for Chinese young generation below 30 years old, it needs to take a more notice to the continuous development of online network and their network culture as well as to the easiness of IM in a public opinion making & its proliferation. Secondly the competitive advantage of QQ IM will be maintained as long as the number of Chinese internet users goes up in future because QQ already began to do a platform role beyond a portal site based on IM (Tengxunkeji 2010). However in contrast to such a growth

(Table 3) The implication and Prospect for three approaches



**Source** Cho & Jung, 2010, "Success Condition for Web 2.0+ Period" *LG Business Insight*, March 10, pp. 39-44, Hirano & Hagiu (authors) · Cheon(translator), 2010, *Platform Strategy*, pp. 41-59, Arthur, 1996, "Increasing Returns and the New World of Business" *Harvard Business Review*, pp. 102-103, Renminwang(人民網), 2008, "tengxunfazhanzhanlueyanjiu(騰訊發展戰略研究)" April 10, Zhongguo changjing xinwen(中國產經新聞), 2010, "tengxun mahuateng: kaifangshidai chaungxinzhe shengcun(騰訊馬化騰：開放時代 創新者生存)" November 19, Baidukuiaizhao(百度快照), 2011, "tengxunyanjiuzhisi: tengxunzhanluede SWOT fenxi (騰訊研究之四：騰訊戰略的 SWOT分析)" January 2

potential of Tencent, to go abroad strategy will not be an easy job for Tencent. Because there are lots of global leaders like MSN, Yahoo, Google, Facebook outside China but Tencent is not yet compatible with them not only in the brand recognition but also in the international diversity of users(Baidukuiaizhao 2011). At the survey some respondents pointed out the exclusive services for Chinese as a discomfort thing of QQ.<sup>8)</sup> Of course Tencent has tried to attract more foreigners under QQ membership and pursued an active open-door strategy through strategic alliances

(Xinminwang 2010). But at the position of foreigners the 'liabilities of foreignness' like language barriers, cultural difference or limited accessibility to major community still exist and is never low(Hulianwang 2010).

Thirdly the network externality of QQ IM and other QQ services are probable to be more and more strong in China but the competition for IM service area will more intensify than before. At the survey the 25.4% of total respondents were multi IM users, and the 55% of QQ IM users were somewhat or actively considering having other IM accounts. The potential competitors to QQ IM would be MSN messenger, Yahoo messenger, renrenwang(人人网), Taobao wangwang(旺旺)(Tengxunkeji 2010). On the basis of these three implications this study suggested three key issues to understand future growth background for online industry of China. Actually this study tried to make a contribution to international area studies and China studies by drawing such implications and prospects & major issues for online network development of China.

First of all the Web 2.0 period already started in all over the world including China, and it will proceed more fast in future as the number of smart phone users continuously increases(Hamel 2008). Web 2.0 period can be characterized by three key words; opening, sharing and participating. In contrast the characteristic of web 1.0 period can be summed up by the closed specialty, monopoly and one-way communication(Cho & Jung 2010; Kim 2007). Secondly Tencent will face an important choice whether to keep the online service diversification strategy or to change it by the selection &

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8) The 35.8 % of QQ IM users wrote their discomfort things at the questionnaire, and 11.4% of the QQ users pointed out that the exclusive service for Chinese is a big defect of QQ IM.

concentration strategy. Currently QQ portal site supplies too many services to say what the core service is except IM. As a representative portal site or platform of China, such a complication would be understandable for Chinese users. However it would be a different story to international users. Because it is possible for them to be confused the brand identity for QQ(Shanghaizhengquanbao 2007). Finally the front line of competition at Chinese online space will change from portal site to platform. Globally the platform became an important concept for management strategy not only at offline but also at online, and Chinese firms already recognize it well too. Therefore the online platform competition in China will be more fierce than present, and it is very probable that major local players joining the platform competition will be Tencent, Baidu, TaoBao(Alibaba) and Sina.

This study also has limitations at the quantitative side as well as qualitative side. At the quantitative side it needs to analyze the survey result after more clarifying the concept of network effect even though not including the hypothesis verification process. Actually this part can be handled as another topic of the following studies. At the qualitative side the comparison for online messenger cultures between China and other countries as well as the differences of users' access pattern need to be supplemented for drawing out a more meaningful implication. Nevertheless this study would be used as a stepping stone for future studies to access the online culture of Chinese young people and online industry development of China.

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## 중국의 온라인 메신저 발전에 관한 연구

-QQ 메신저 사용자들의 네트워크 효과를 중심으로-

최병헌

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중국의 인터넷 사용인구가 빠르게 증가함에 따라 중국의 온라인 산업이 계속 발전하고 있으며 온라인 메신저(IM)는 이제 중국에서도 매우 인기 있는 소통 도구가 되었다. 2010년 상반기까지 중국의 인터넷 사용자는 4억 2천만 명에 달했고 한 달에 한 번 이상 사용되는 온라인 메신저 계정은 2010년 9월 말까지 6억 3,600 만개를 넘어섰다. 그리고 중국 최대의 온라인 포털(portal), Tencent QQ는 중국 내 메신저 사용자의 폭발적인 증가세의 중심에 서 있다. 이에 본 연구는 현지 설문조사를 통해 중국 젊은이들의 메신저 사용 패턴에 관한 일반적인 접근 및 QQ 메신저 사용자들에 대한 상세한 접근을 시도하였다. 아울러 네트워크 효과, 일명 네트워크 외부성과 QQ 메신저 가입 동기를 바탕으로 QQ 메신저에 대한 만족도와 장점을 두 축으로 하여 QQ 메신저 사용자들을 네 개 그룹으로 분류하였다.

설문 조사 분석 결과, 메신저를 포함한 온라인 네트워크는 이미 중국의 젊은이들에게 필수적인 소통 방법이 되었음을 확인할 수 있었으며, 네트워크 외부성과 포털 사이트 고착효과에 기반을 둔 QQ 메신저의 경쟁 우위 상태도 중국의 인터넷 사용자의 증가 추세에 따라, 계속 유지될 것으로 전망된다. 그러나 Tencent QQ의 해외시장 진출 전략은 문화적 차이와 언어 장벽과 같은 외국인 비용으로 인해 결코 쉽지 않을 것으로 예상된다. 앞으로 중국에서 무선 인터넷과 스마트폰이 점차 대중화됨에 따라 온라인 메신저는 '웹 2.0 시대'의 도래에 큰 공헌을 할 것이다. 더 나아가 중국 기업들간 포털 사이트 경쟁은 온라인 플랫폼 경쟁으

로 바뀌게 될 것으로 전망된다.

**중심어** : Tencent, QQ, 중국의 인스턴트 메신저(IM), 네트워크 효과, 포털 사이트, 플랫폼

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공주대학교 경영학과 조교수. 주요 연구 분야는 중국 산업(자동차, IT, 온라인)과 중국 기업의 국제경영전략이다. 오하이오 주립대학교에서 경영학 석사(MBA), 한국의국어 대학교에서 국제지역학 박사학위를 받았고, 인천발전연구원 한중교류센터 책임연구

원, 중국 상하이사회과학원 부문경제연구소 박사후 연구원이다. 저서로 『중국 자동차 산업의 미래: 다국적기업 전략 변화 전망』이 있고, 「중국 자동차산업에서 전략집단 형성에 관한 연구: 분리기제 형성 요인을 중심으로」, 「바이두의 블루오션 전략 연구」, “A study on the corporate social responsibility(CSR) reinforcement in China; Focusing on Chinese automobile industry” 등의 논문이 있다