

The Influence of Smart-phone Popularity on the Knowledge Gap between Urban & Rural Middle School Students

Research on four middle schools in Chongqing

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Abstract—Focusing on the difference in the use of mobile media between urban and rural middle school students in the information age, this study investigates the students in four middle schools in Chongqing to penetrate their attitude, motivation of smart-phone use and discusses the impact of smart-phone on the knowledge gap between them. The statistical results show they have the similar attitude and motivation for the use of smart-phone. But there is a great disparity in utilization efficiency of smart-phone media between them. Urban middle school students update their knowledge faster and have wider span of knowledge. So the conclusion is that the knowledge gap between urban and rural middle school students was not narrowed by the use of smart-phone.

Keywords-urban and rural middle school students; smart-phone; benefits of usual; knowledge gap

I. INTRODUCTION

There is a huge gap in education between urban and rural areas. Compared with urban middle school students, rural students have fewer opportunities to go to College. The Proportion of rural students in key universities in China continued slide since the beginning of the 1990's. [1] Rural candidates are labeled "narrow knowledge, obsolete knowledge and poor quality". In addition to differences in quality of education, there are differences in media contacts, which is the most important yet most easily neglected reason. In China's urban areas, traditional media and new network media have been popularized. But in rural areas, the most popular media is television and on new media, there is a low proportion of surfing on the Internet with computer. Fortunately, with the introduction of 3G technologies, smart-phone becomes a new choice for people to land on the Internet. Smart-phone is the comprehensive expression of the media. It has the mixed function of newspapers, radio,

television and network. Low prices, convenient use of the smart-phone make it popularized quickly in rural areas in 2012. [2]According to the data from the 31st survey of China's Internet development, the number of Mobile Internet users accounts for 60.4 percent of the total Internet users. Among the users of smart phones in the countryside, young people are the main force. So, it can be said that smart-phone is the new media with much similarities that both urban and rural young people contact.

With the rapid development of the smart-phone media, the controversy about the influence of knowledge-gap becomes more intense. Technology enthusiasts believe that the Internet can narrow the knowledge gap by connecting mobile phone with the Internet and thus reducing information costs. [3]Technology skeptics point out that the maximum benefit brought by the new technologies would go to those on higher socio-economic status. Because, with a more favorable economic condition, they can use the new media faster and more efficiently, which finally expand the knowledge gap among people on different statuses. [4] As can be seen, both a tech enthusiast and a skeptics hold the view that knowledge gap has a close relationship with "economic". This "economy" has two meanings: First, of course, it means "economic position"; second, it means whether the consumer through lower media costs get higher benefits of information. Obviously, this has beyond the earlier concerning range of "Theory of knowledge gap"s.

The knowledge-gap hypothesis introduced into the communication literature in 1970 by Tichenor, Donohue, and Olien appears to have important implications for the use of the mass media as a constructive social tool. [5]The hypothesis as originally formulated asserts that "as the infusion of mass media information into a social system increase, segments of the population with higher socioeconomic status tend to acquire this information at a faster rate than the lower status segments, so that the gap in

knowledge between these segments tend to increase"(Tichenor, Donohue, and Olien,1970:159) The hypothesis thus implies that attempts to equalize the distribution of information within a social system which employ the mass media are bound not only to fail, but actually to increase the inequality. [6]

It is clear that early knowledge gap theory believe people in higher economic status must get more benefits from media than those in lower status, for this theory , to some extent ignores the media users' autonomy and initiative. Today, new media is no longer pushing exactly the same information to the audience, But rather provides numerous information for audience to choose. So, media utilization benefit will not be determined by the user's economic condition, but by the audience's attitudes, motivation and efficiency on use.

Currently, smart-phone provides the most convenient way to get knowledge out of books for urban and rural middle school students. What the difference of their attitude, motivation and efficiency on smart-phone use? What is the development trend of the knowledge gap between them? In this study, two hypotheses are proposed and then four middle schools in Chongqing are investigated to verify them.

(1) Hypothesis 1. There are the similar using attitude, motivation and effects of the smart-phone between rural and urban middle school students.

(2) Hypothesis 2. The rural-urban knowledge gap may narrow.

II. OVERVIEW ON SURVEY

A. The scope of the Survey: Four Middle Schools in Chongqing

Chongqing is the only municipality in China's Western region. Chongqing has the typical characteristics in urban-rural structure. The city's permanent population is about 28.8462 million in 2012. [7]The ratio of the rural population to the urban population is about 1 to 1, which is similar to the nations' ratio.

In the field of media development, traditional media, like the newspaper, broadcast, TV has already been popularized in urban and rural areas. On the other hand, with fast development of engineering of rural informatization, broadband networks, base stations and other infrastructures in the countryside are being perfected.

B. Method of Survey

The main method of the survey is network questionnaires, associated with the group depth interview.

C. Survey Time

This investigation conducted over a period of two month between March and May 2013.

D. Participator and Sample Distribution

We distributed 600 questionnaires to four middle schools in Chongqing and got 564 valid questionnaires. Sample distribution is shown in table I.

TABLE I. SAMPLE DISTRIBUTION

Schools Surveyed	Number of Samples	Number of Valid Samples
Chongqing Yubei Middle School	150	144
Chongqing Yucai Middle School	150	138
Fengming Middle School in Yunyang County of Chongqing	150	139
Huanglong Middle School in Yunyang County of Chongqing	150	143

III. FINDINGS

A. The Similarity of the Using of Smart-Phone Between Rural and Urban Middle School Students

1) There is a high acceptance ratio on surfing the Internet by smart-phone both for urban and rural middle school students.

Most of urban and rural middle school students are 13-18 years old who have intense curiosity to get information through the mobile phone media. They absorb new things quickly, involve into the media easily, and communicate with classmates and friends frequently. Thus the school environment provides a convenient communication and sharing platform for them.

2) Urban and rural middle school students have the similar motivation to use the mobile phone.

The results of the question "what is the most important purpose of using the mobile phone?" shows that middle school students in both urban and rural areas all agreed that the most important purpose is to satisfy interpersonal communicational needs, which is followed by getting news and information, then entertainment and relaxation. Detailed data are shown in table II.

TABLE II. THE PURPOSE OF THE USE OF THE MOBILE PHONE

Student Category	Use Purpose		
	Interpersonal Communication	Getting News and Information	Entertainment and Relaxation
Urban middle school students	53%	31%	16%
Rural middle school students	56%	29%	15%

3) The ownership rate of the mobile phone is similar between rural and urban middle school students.

This investigation shows 99 percent of city middle school students have mobile phone, while the rate is 96 percent for rural middle school students. The survey also shows, city middle school students who surf the Internet by the mobile phone account for 98 percent of those served, whereas the proportion is 93 percent for rural middle school students. Therefore, they have the similar opportunity to acquire the knowledge through the Mobile Internet. Detailed data are shown in table III.

TABLE III. THE OWNERSHIP RATIO AND THE NET-SURFING RATIO OF MOBILE PHONE

Student Category	Ownership of Mobile Phone	Whether Net-Surfing with Mobile Phone	
Urban middle school students	99%	Yes	98%
		No	1%
Rural middle school students	96%	Yes	93%
		No	3%

Further investigation on the reason why they do not buy a mobile phone show, only 1 third of rural middle school students who do not have mobile phone chose “because of the poor economic condition”, the rest of students all chose “because of the negative impacts on learning”. The above description suggests that economic conditions are not the main factors affecting the use of mobile phone for rural students.

B. Points of Divergence Between Rural and Urban Middle Students

1) *Urban students spent more time on the Internet than rural students.*

The city has a distinct advantage in the construction and maintenance of the network. Along with the popularity of wireless networks in the public places and urban families, the urban students have more opportunities to surf Internet freely. While the rural network construction is relatively backward, mobile phone access to Internet is mainly purchasing information flow, so the cost is relatively higher, which to some degree restrain their enthusiasm for Internet. This investigation shows, city students spent more time than rural students online whether in class or during the holiday period. Especially during the holiday, 21 percent of the urban students spend more than 3 hours everyday surfing Internet, while there are only 5 percent of the rural middle school students who spend more than 3 hours everyday surfing Internet. Most of the rural students (61percent) spend 1 hour to surf Internet. Detailed data are shown in table IV.

TABLE IV. TIME SPENT ON MOBILE PHONE EVERYDAY

Student Category	Time Period	Time Spent on Mobile Phone Every Day			
		0-1hour	1-2 hours	2-3 hours	over 3 hours
Urban middle school students	School time	46%	37%	11%	7%
	Holiday time	12%	31%	36%	21%
Rural middle school students	School time	65%	28%	5%	2%
	Holiday time	61%	30%	6%	3%

2) *Urban students have richer experience and more advanced skills of surfing Internet*

Many urban students are familiar with Internet skill because they already have the experience of surfing Internet through personal computer before using the mobile phone. But because of lack of rural network construction, poor family economic conditions, lower cultural level of parents, most of rural families don't have the personal computer. The

survey shows, 94 percent of the city students' families have computer, while only 21 percent of the rural middle school students' families have network device, which makes the rural middle school students feel strange for the Internet when they start to access Internet by smart-phone. Detailed data are shown in table V.

TABLE V. THE DIFFERENCE OF NETWORK DEVICE BETWEEN URBAN AND RURAL STUDENTS

Student Category	Network Device	
	Personal computer	Smart-phone
Urban middle school students	94%	99%
Rural middle school students	21%	92%

3) *Urban students have more definite purpose and more strong initiative on surfing Internet by smart-phone.*

According to statistics, more than 78 percent of the students in the city know their purpose of surfing on Internet every time. But there are only 31 percent of the rural students who have a definite purpose. According to another question “would you be interested in searching information by the search engines”, the survey data show that 81 percent of city students can use search engines initiatively to get information they want to know, while most of rural students (74 percent) are relatively passive and they only look those information on the webpage. Detailed data are shown in table VI.

TABLE VI. THE PURPOSE AND INITIATIVE OF SURFING ON THE INTERNET

Student Category	Do you Know the Purpose of Surfing on the Internet Every Time?		Do You Search Interesting Information through Search Engines Actively	
	Yes	No	Yes	No
Urban middle school students	78%	22%	81%	19%
Rural middle school students	41%	59%	26%	74%

4) *Urban students got more benefits than rural students in using network and software.*

The survey found that all the students like to get information by landing news sites and using instant messaging software. However, there is a gap in using other new and popular software such as micro-blog, electric business website, electronic payment software and learning software. Take the learning software as an example; there are only 11 percent of rural mobile Internet users using the learning software such as English translation software. Compared with rural students, urban students get more benefits from learning software,(about 76 percent) in the survey report they always use learning software. Detailed data are shown in table VII.

TABLE VII. THE USE OF THE SMART-PHONE SOFTWARE

Software Types	Student Category	
	Urban middle school students	Rural middle school students
News obtaining software	72%	58%
Instant Messaging Software	99%	91%
Game software	94%	57%
Video software	98%	92%
Blog	96%	61%
Learning software	76%	11%
Electronic payment software	37%	1%

5) *Urban students were more active than rural students in responding to information.*

According to the results of the survey, only 35 percent of the rural middle school students propose their view through mobile phone, the vast majority of the rural students mainly acts as a silent spectator in cyberspace, while more than 73 percent of urban students are willing to expose their opinions. When there are some interesting things, they also like to record it by words, photos and videos and then share it in cyberspace through forum, micro-blog, BBS. Detailed data are shown in table VIII.

TABLE VIII. COMMENT FREQUENCY WITH SMART-PHONE ON THE INTERNET

Student Category	Do You Comment Frequently with Smart-phone on The Internet?	
	Yes	No
Urban middle school students	73%	27%
Rural middle school students	35%	65%

IV. CONCLUSION

The conclusions can be drawn from the above analysis of data: urban and rural middle school students have the similar attitude and motivation for the use of smart-phone. But there is a great disparity in utilization efficiency of smart-phone media between them. Ultimately, the knowledge of urban and rural middle school students showed the following differences:

1) *Urban students update their knowledge faster than rural students*

City middle school students often brush micro-blog, visit the forum, browse the web portal and download new software, thus they are familiar with hot event and various news. As a result their knowledge updates faster than rural middle school students.

2) *Urban students get wider knowledge than rural students*

The smart-phone broadens the knowledge range for all the students regardless of the city or the countryside students. But because urban students land more websites, download and install more applications, communicate with their classmates more frequently, so their knowledge is wider than rural middle school students.

3) *Urban students have greater depth of knowledge.*

Most urban middle school students have their own interested knowledge areas. They know how to take advantage of new software to discover the knowledge they are interested in. In addition, they also enjoy expressing their independent views on the Interne.

In summary, the smart-phone indeed provide a new way for rural students to contact the knowledge out of the book, but because urban students use the mobile phone more efficiently and get more benefits than rural students, the mobile phone media can not reduce the knowledge gap between urban and rural middle school students in a short period of time. So the survey seems to indicate that the first hypothesis we proposed at the beginning is not entirely true and the second hypothesis is totally incorrect.

However, just as each coin has two sides, smart-phone provides urban students with not only the benefit. in the era of information explosion, various kinds of rubbish information is flooded in the network, some urban students rely too much on the mobile phone media, being addicted to mobile phone games and SNS sites, thus the negative effects of smart-phone are worried about by more and more people. Compared with the urban students, rural students affected by the negative impact of mobile phones are less.

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