



## Internet inequality: The relationship between high school students' Internet use in different locations and their Internet self-efficacy

Ling Zhao<sup>a</sup>, Yaobin Lu<sup>a,\*</sup>, Wayne Huang<sup>b,1</sup>, Qihong Wang<sup>a,2</sup>

<sup>a</sup>School of Management, Huazhong University of Science and Technology, Wuhan 430074, China

<sup>b</sup>College of Business, Ohio University, Athens, OH 45701, USA

### ARTICLE INFO

#### Article history:

Received 10 August 2009

Received in revised form

9 April 2010

Accepted 13 May 2010

#### Keywords:

Country-specific developments  
Distance education and telelearning  
Public spaces and computing  
Secondary education

### ABSTRACT

This research study utilized the framework of digital inequality proposed by DiMaggio and Hargittai (2001) to examine the relationships among the subdimensions of Internet inequality and their outcomes. We firstly investigated the relationships between constructs of technical apparatus, autonomy of use, availability of social support, variation of use at different locations of Internet access (school, home, Internet café, and combinations of these locations) and Internet self-efficacy (ISE). Then the relationships between ISE and high school students' exploratory behavior and academic were also investigated. The survey was developed from reliable instruments used in previous research to measure the following variables: Internet Self-Efficacy, Internet accessibility at home and school, exploratory behaviors, academic performance, study use, leisure use, parents influence, superior influence, and training support. Internet access at the Internet café, gender, and self-reported academic achievement were added to the student survey.

Bivariate correlation and regression statistical analyses were conducted to find significant relationships among these variables. ANOVA statistical analysis was used to find significant differences among groups. Significant findings indicated that digital inequality in Internet existed in school, home and Internet café and students with Internet access at home had the highest level of ISE.

Our study also showed that different dimension of Internet inequality had different relationships with ISE. Home Internet accessibility positively related to ISE. Availability of social support from school had a greater effect than that from home as parents influence did not associate with ISE. And last, the variation of use was also related to ISE. Leisure use at Internet café, leisure use at home and study use at home positively associated with ISE. In addition, at home and Internet café, the relationship between leisure use and ISE was stronger than that between study use and ISE. As to the outcome of ISE, high levels of ISE were positively related to exploratory behaviors, and for those students who used the Internet at school and home, higher ISE related to better academic performance.

© 2010 Elsevier Ltd. All rights reserved.

### 1. Introduction

The phenomenon called 'digital divide' in Internet, however, is still severe in China and impedes fair Internet use by people. For example, the Internet penetration rate in China is lower than the average level of the world which was 21.1% (CNNIC, 2008); in the middle of 2007, the Web users in the rural of China were only 29.9% of those in the urban regions, and the penetration rate in the rural was 5.1% that was relatively low (CNNIC, 2007c). Adolescent students, as a great portion of whole web users in China, should be given more attention, especially those high school students aged from 12 to 18. More than 50% of the adolescent students which account for 35.8% of the web users in China are high school students (CNNIC, 2007a). It is reported that there are 21.11 million senior high school students (36.4%) and 15.41 million junior high school students (26.6%) which make part of the whole adolescent student web users (CNNIC, 2007a). Those adolescent students are usually described as the future of the nation in reports of the government, thus, examining the influences of digital divide in Internet on the next generation would be helpful to understand the actuality and the results would be referential for policies making.

\* Corresponding author. Tel.: +86 27 87558100.

E-mail addresses: [lingzhao@smail.hust.edu.cn](mailto:lingzhao@smail.hust.edu.cn) (L. Zhao), [luyb@mail.hust.edu.cn](mailto:luyb@mail.hust.edu.cn) (Y. Lu), [huangw@ohio.edu](mailto:huangw@ohio.edu) (W. Huang), [qhwang@mail.hust.edu.cn](mailto:qhwang@mail.hust.edu.cn) (Q. Wang).

<sup>1</sup> Tel.: +740 593 1801.

<sup>2</sup> Tel.: +86 18971619735.

The existing literature on digital divide at individual-level mainly focused on ICT (Information Communicate Technology) adoption. Some of the research addressed the social factors and demographic characteristics that are related to the adoption of ICT, e.g., income, education, race, age, and gender etc. (Hoffman & Novak, 1998; Bimber, 2000; Katz & Rice, 2002; Lenhart et al., 2003; Rice & Katz, 2003). Some investigated the intention to use ICT from a cognitive prospective, e.g., examining how Internet self-efficacy influence Internet use intention (Lam & Lee, 2005), or using the Theory of Planned Behavior to investigate the continued Internet use intention (Eastin & LaRose, 2000; Hsieh, Rai, & Keil, 2008). Others examined the effects of government efforts (Hsieh et al., 2008; Jaeger, 2004), and social support or training (Lam & Lee, 2005) on bridging the digital gap.

These studies contribute to our understanding of digital divide, however, they are subject to limitations. First, few of the studies on digital divide examine the relationship between IT usage and its outcomes. Digital divide may lead to various outcomes. For instance, Fairlie (2005) found that home computer ownership increased the likelihood of school enrollment for those teenagers who had not graduated from high school, which implies that digital divide could impact educational outcomes. Digital divide was also found to affect the self-directed learning of secondary schools students (Wei, Teo, Chan, & Tan, 2009). Thus, as DiMaggio and Hargittai (2001) suggested, instead of documenting the digital divide, an urgent issue is to address “the relationship between the use of these technologies and valued individual-level outcomes”. Second, some important dimensions of digital divide are missing. According to the framework of digital divide proposed by DiMaggio and Hargittai (2001), digital divide contained five dimensions in terms of access and quality of access, autonomy of use, social support, usage and skill. But most of the existing studies examined only one or two dimensions of Internet inequality at the same time (Shaw & Gant, 2002; Novak, Hoffman, & Venkatesh, 1998). Measuring the digital divide from different dimensions may facilitate a holistic understanding on its driving forces and outcomes. Thirdly, the differences as results from the locations where individuals access ICT are generally ignored in the existing studies. While Researchers have examined the influences of different locations on use of IT applications (Levine & Donitsa-Schmidt, 1998), the studies on Internet use were limited to the locations of school and home (Abrams, 1997; Sax, Astin, Korn, & Mahoney, 1998; Service, 1997), with less concern on other sites. Hoffman and Novak (1999) suggested that it was necessary to understand Internet use outside the home particularly for those without home access to the Internet.

As school, home and Internet café are main locations for high school students to use the Internet, digital inequality may exist in these locations. In urban areas, students can use the Internet either at home or at school, but students in rural areas may have to use the Internet at Internet café due to insufficient facilities at school or unaffordable expenses for Internet access at home. Even in the same area, Internet usage of the students may differ in the level of infrastructure or training that their schools provide. Hence, locations provide different accessibility and quality, which may affect the Internet digital inequality reflected at different locations.

As the Internet becomes an integral part of our daily life and the critical infrastructure for business and economy, it calls for a cross-sectional view of the Internet inequality along various dimensions. With the cooperation of Xiangfan Bureau of Education, we conducted a project lasted from January to July 2008 which attempted to get a better understanding of high school students' Internet using in city of Xiangfan. In particular, we address the following research questions in this paper:

1. How is the Internet inequality reflected at home, school or Internet café associated with the Internet self-efficacy for high school students?
2. How does Internet inequality associate with high school students' exploratory behavior of Internet use and their academic performance?

This study contributes to the literature of digital divide as following. Firstly, we studied the effects of Internet inequality at different locations including home, school and Internet café, while the Internet use at Internet café was seldom researched in previous studies. In some developing countries like China, Internet café is considered as one important location to use the Internet and a place where high school students most often visit. According to the report of CNNIC (2008), about 57.3% of the student web users in senior high school and 39.3% in junior high school use the Internet at Internet café, and the proportion is even higher in rural areas. In China, Internet café appeared in the 1990s, and have developed greatly in the past two decades. Internet café plays an important role in narrowing the digital gap as it provides chances for many people to know the Internet for the first time when they can't afford a computer at home (Hong & Huang, 2005). However, problems rise along with the development of Internet café. For example, in some rural areas, even minors are allowed to go to the Internet café without their guardians' permission and against the forbiddance by law. Without effective management and supervision by teachers and parents, adolescent students may be immersed in online gaming, chatting or other online entertainment, and even become addicted (Hille, 2009). Meanwhile, adolescent students are exposed to pornographic and violent contents flooding the Internet. As these problems are not particular to China, conducting research in the context of Internet café is necessary and important. The further comparison across the three locations would provide clearer comprehension on the status quo of each location and their impacts on high school students.

Secondly, we quantitatively examined related dimensions of Internet inequality. Previous research on Internet inequality usually focused on describing the extent of digital divide and summarized findings or derived implications based on atheoretical analysis (DiMaggio, Hargittai, Neuman, & Robinson, 2001; Haan, 2004). Thus, our study could be a helpful attempt to understand the “how and why” parts of this phenomenon, as suggested by Hsieh et al. (2008).

Thirdly, we examined the outcomes caused by digital inequality, such as academic performance and high school students' online exploratory behaviors which refers to the extended Internet usage primarily stimulated by intrinsic reasons (Baumgartner & Steenkamp, 1996). Surveys on the Internet development from CNNIC every year provide information on conditions of Internet infrastructure and web users' characteristics, etc, but do not investigate the relationships between digital divide and its outcomes (CNNIC, 2007a; CNNIC, 2008). Just as we mentioned before, most research on digital divide also focused on the description or causes of this phenomenon, but not its effects (Wang & Li, 2006; Xie, 2008).

The remaining sections of the paper are organized as follows. Section 2 presents the review of the related literature. In Section 3, we propose the research framework and research model with detailed explanation about the hypotheses. In Section 4, we discuss the research methodology including the processes of instrument development, data collection, and analysis, followed by the discussion of results in Section 5. Finally, we conclude this paper with discussion on the limitations, implications in Section 6.

Download English Version:

<https://daneshyari.com/en/article/349082>

Download Persian Version:

<https://daneshyari.com/article/349082>

[Daneshyari.com](https://daneshyari.com)