



# Exploring Users' Perceptions of Conventional and Unconventional Electronic Resources

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## ABSTRACT

This study explores and compares Chinese university library users' perceptions of conventional electronic resources inside the library and unconventional electronic resources outside the library in terms of ease of use, usefulness, and usage. Data collected from 278 library users were used for data analysis. The independent samples *t* test and one-way Analysis of Variance (ANOVA) present the exact nature of library users' perceptions of conventional electronic resources and unconventional electronic resources. The paired samples *t* test suggests that unconventional electronic resources outside the library are playing a role as a complement rather than a substitute to the conventional electronic resources inside the library. Hierarchical regression analysis indicates that both ease of use and usefulness can predict usage in the case of both conventional and unconventional electronic resources. These findings and their implications are discussed.

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## 1. Introduction

Electronic resource “is a deceptively simple and generic term that can encompass anything from a PDF of a government report to an aggregated database” (Skaggs, Poe, & Stevens, 2006, p.192). “Any interactive website, system or tool with an aim of supporting users in finding, interpreting and/or using electronic information can be considered as an electronic information resource” (Makri, Blandford, Cox, Attfield, & Warwick, 2011, p.456). Normally, there are formal boundaries for the electronic resources of Chinese university libraries, i.e., the electronic resources inside the library's boundary can be accessed only through the valid IP address or valid username and password. With the quick development of the Internet, university library users can easily access remote and networked databases, electronic journals, online services, and Web-based products purchased and provided by the library (Stewart, 2000). “The growth and availability of electronic journals offer libraries the opportunity to provide end users with quick and easy access to more journals than ever before” (West & Miller, 2011, p.267). Meanwhile, library users can also easily access electronic resources that reside in “large-scale, continuously evolving, open collaborative content creation systems” such as Wikipedia (Stvilia, Twidale, Smith, & Gasser, 2008, p.983). The former information sources can be regarded as formal and conventional electronic resources that are purchased

and organized by library, while the latter one can be regarded as informal and unconventional electronic resources that are free and self-organized and accumulated through the shared creation of content by users themselves. These two kinds of electronic resources each have their own unique characteristics, inviting more research. In this study, the authors use the term electronic resources inside the library (or library electronic resources) to specifically represent the former information sources and the term electronic resources outside the library to specifically represent the latter one.

There are many challenges in library electronic resources management (Skaggs et al., 2006). Wei, Teo, Chan, and Tan (2011) suggested three levels of digital divide: the first-level digital divide is the access divide that refers to the inequality of access to electronic resources. The second-level digital divide is the capability divide that refers to the inequality of the capability to exploit electronic resources. The third-level digital divide is the outcome divide that refers to the inequality of outcomes (e.g., learning and productivity) of exploiting electronic resources in given contexts. The first-level digital divide concerns the construction and development of electronic resources and infrastructure at the organizational or even national level. China Academic Library and Information System (CALIS), which was initiated in 1998 under the leadership of the Ministry of Education (MOE), is a nationwide information resources sharing project among Chinese university libraries (CALIS, 2005) that has greatly reduced the first-level digital access divide of electronic resources inside libraries in China. With abundant electronic resources inside and outside the library, library users can freely choose according to their own information needs. This study examines the effective use of electronic resources from the perspective of users.

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Electronic resources have been much studied, such as assessing the functionality and usability of electronic resources (Makri et al., 2011), an input–output analysis of electronic resources in academic libraries (Noh, 2012). Specifically, prior studies examined ease of use, usefulness, and usage of both conventional electronic resources inside the library (Ibrahim, 2004; Madhusudhan, 2010; Stewart, 2000; Tenopir & King, 2002) and unconventional electronic resources outside the library (Liao & Chou, 2012; Lim & Kwon, 2010; Lin, 2009). The construct (latent variable) ease of use in this research context refers to users' perceptions concerning the amount of effort required to use electronic resources, such as electronic resources inside the library or electronic resources outside the library (Venkatesh, Morris, Davis, & Davis, 2003). The construct usefulness refers to users' perceptions concerning the degree to which using electronic resources such as electronic resources inside the library or electronic resources outside the library would improve performance (Venkatesh et al., 2003). The authors suggest that, to some extent, the degree of ease of use perceived by users can reflect the second-level capability divide while the degree of usefulness perceived by users can reflect the third-level outcome divide. The construct use in this research context refers to the actual usage of electronic resources such as electronic resources inside the library or electronic resources outside the library with respect to the frequency of use and the amount of time involved (Kankanhalli, Tan, & Wei, 2005; Venkatesh et al., 2003). Given the acknowledgment of quality, reliability, and knowledge value of ongoing electronic resources outside the library (Fallis, 2008; Lim & Kwon, 2010; Stvilia et al., 2008), this study explores and compares library users' perceptions of conventional electronic resources inside the library and unconventional electronic resources outside the library in terms of ease of use, usefulness, and use, which the authors think provides a new view for electronic resources research and practice alike in China.

Following this introduction, the authors review the research background. Then, the authors describe the research methodology and data collection. Finally, the results of the research and a discussion of these results are presented.

## 2. Research Background

### 2.1. Conventional Electronic Resources inside the Library

Electronic resources inside the library have grown quickly given that “quite a lot of academic libraries committed more than 50 per cent of their budget to purchase electronic resources” (Noh, 2012, p.150). In China, MOE initiated CALIS, which provides the ultimate support for information users through its four national information centers: Science, Social Science and Humanities Information Center; Engineering and Technology Information Center; Medical Information Center; and Agricultural Information Center (CALIS, 2005). One important aim of CALIS is “to introduce and produce various databases” (Zhu, 2003, p. 400). Consequently, a number of Chinese databases such as China National Knowledge Infrastructure (CNKI), Wanfang Digital Periodicals, VIP Information, and Chinese Social Sciences Citation Index (CSCSI) were introduced. Meanwhile, a number of English abstract databases like Science Citation Index (SCI), Social Science Citation Index (SSCI), Engineering Information Village, as well as English full-text databases published by Elsevier, Wiley, Emerald, Sage, IEEE, and Springer were also introduced, covering almost all the disciplines and subjects (Zhu, 2003). In addition, some Chinese databases were also produced, including Chinese Dissertation and Proceedings Abstract Databases, Current Contents of Chinese Journals, and Chinese Databases with Unique Features (Zhu, 2003, p. 402).

All academic libraries in China and other social information service organizations can apply for joining CALIS, “taking part in the sub-projects of CALIS and, at the same time, enjoying all the services CALIS may provide, such as imported resource consortia acquisitions,

online cataloguing, dissertation database building, interlibrary loan and document delivery” (Luo, Wang, & Zhou, 2010, p.329). It is reported that “there are more than 1000 member libraries in CALIS” (Yao, 2012, p.97). Due to the lack of experience on foreign database purchasing, cooperative purchase has become one of the most important and popular services of CALIS, i.e., “libraries gather together acting as a consortia to purchase or import foreign databases as a whole” (Yao, 2012, p.97). Given the insufficient funding of libraries, it is “impossible for any single library to fully meet the needs and growingly demands of its readers” (Yao & Zeng, 2012, p.111). Consequently, interlibrary loan (ILL) and document delivery (DD) services are much needed. Created in June 2004, the CALIS ILL/DD services network “has about 60 service supply libraries, typically large academic libraries that can provide lending services to hundreds of other member libraries.” Library users of small libraries “may request ILL and DD services through their home institutions” (Yao & Zeng, 2012, p.111).

In the context of Chinese university libraries, librarians should pay more attention to the usage of English electronic resources given their high cost (Stewart, 2000) and the fact that cultural difference and language barriers are challenging problems in library electronic resources usage (Kindilchie & Samarraie, 2008; Lin, 2010; Whitmire, 2003). In this situation, it is reasonable to suggest that Chinese library users are more likely to have different perceptions of Chinese electronic resources and English electronic resources in terms of ease of use, usefulness, and use. On the other hand, Chinese electronic resources and English electronic resources are closely related, given that both can be regarded as formal and academic electronic sources inside the library. The access to this kind of conventional library electronic resource is controlled through valid IP address or valid username and password.

### 2.2. Unconventional Electronic Resources outside the Library

Outside the library, “large-scale, continuously evolving, open collaborative content creation systems such as Wikipedia have become increasingly popular” (Stvilia et al., 2008, p.983). Wikipedia is a notable example of mass collaboration on the Web that represents “one of the newest trends in the creation and dissemination of knowledge and information” (Fallis, 2008, p.1662). As a free and ongoing online encyclopedia that is collaboratively written and edited by its users, Wikipedia “is a community where people build a space for common good through active interactions for collective knowledge building;” this “differentiates it from other authoritative information sources whose authors are known for their expertise” (Lim & Kwon, 2010, p.213). Fallis (2008, p.1662) argues that “the epistemic consequences of people using Wikipedia as a source of information are likely to be quite good” and “the reliability of Wikipedia compares favorably to the reliability of traditional encyclopedias.” Lim and Kwon (2010) examine gender differences in terms of use, purpose of use, outcome expectations, risk, perceptions, and information utility regarding Wikipedia. Stvilia et al. (2008, p.984) explore “how quality issues are discussed by the Wikipedia community, how quality assurance processes evolve, and how one can begin to understand why the quality is better than might be expected.”

Generally, these online open collaborative content creation systems utilize Web 2.0 technology whose basic premise is that people are encouraged to participate in the shared creation of content. Web 2.0 has formed the “participatory Web” (Madden & Fox, 2006), showing much promise in “promoting communication, collaborative authoring, and information sharing” (Chu & Kennedy, 2011, p.582). The core of Web 2.0 “is of the user, by the user, and more importantly, for the user” (Chu & Xu, 2009, p.717). Consequently, some electronic resource systems known as knowledge communities have emerged and become popular in China, such as Baidu Know, Baidu Document, ScienceNet Blog, Chinese Wikipedia, each of which attract millions of

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