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Barbara D. Klein
University of Michigan-Dearborn, bdklein@umich.edu

Yi Maggie Guo
University of Michigan - Dearborn, magyiguo@umich.edu

Chunyue Zhou
Beijing Jiaotong University, zhouchunyue@hotmail.com

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Barbara D. Klein

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Yi Maggie Guo

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Abstract

Information consumption in China occurs in a rapidly shifting social and political environment. Understanding this group of information consumers is likely to play an important role in business and political decision making globally for the foreseeable future. Ratings of the importance of the dimensions of information quality and the way in which these ratings have shifted over time shed light on the beliefs of this group of information consumers. This study reports the results of a nonpanel longitudinal study involving two surveys conducted in China over a five year period examining information consumer ratings of the importance of the dimensions of information quality. Results show that Chinese information consumers rate the information quality dimensions of believability, reputation, and value-added as less important at the end of the five year period than at the beginning and rate representational consistency and concise representation as more important at the end of the five year period than at the beginning.

Keywords: Information quality dimensions, importance ratings, China, Chinese information consumers, longitudinal research

1. Introduction

This paper addresses the stability of information consumer ratings of the importance of information quality dimensions over a five year period from 2007 to 2012. Young adult information consumers in China were selected for the focus of the study because their information consumption is occurring in an environment characterized by a very large number of users of the Internet and a rapidly shifting social and political environment (Lewis, 2013; Tai, 2014; Tong, 2009). This group of information consumers is particularly interesting, not only because of their rapidly changing environment, but also because their perceptions, behavior, and decisions are likely to have a large impact on the global business and political environment for the foreseeable future (Haan & Cheung, 2012; Osnos, 2012).

The perceptions of Chinese information consumers have developed in a unique environment. As Chinese citizens have gained access to large amounts of information through the Internet they have been restricted in various ways. The Chinese government has deployed sophisticated technological methods and a great deal of human labor to censor, filter, and police the dissemination and consumption of information online (Lewis, 2013). For example, Google and Facebook are both blocked from Chinese information consumers. This approach continues a long tradition of institutionalized censorship that preceded the creation of the Internet. Because of these well-known tactics, Chinese information consumers have developed a particular sensitivity to the characteristics of information that is different than that of information consumers elsewhere (Guo & Feng, 2012). The tension between openness and control also changes over time. Periodically, high profile incidents occur which tend to bring changes to the environment in which information consumption occurs in China. Information consumers who experience these events and their consequences may develop different perceptions of information quality than information consumers elsewhere.

Information consumers may evaluate information resources along a variety of dimensions of information quality. For example, some resources may be viewed as very accurate but not very timely, while other resources may be viewed as very timely but less accurate (Ballou & Pazer, 1995; Ballou, Wang, Pazer, & Tayi, 1998; Cappiello, Francalanci, & Pernici, 2003; Lorence, 2003). Information consumers may view these dimensions of information quality differently. For example, they may perceive some dimensions of information quality to be generally more important than other dimensions of information quality (Wang & Strong, 1996).

The study reported in this paper adopts a nonpanel longitudinal research approach (Venkatesh & Vitalari, 1991) by surveying China information consumers first in 2007 and then in 2012 about their ratings of the importance of the dimensions of information quality. The theoretical framework through which the dimensions of information quality are viewed comes from the work of Wang and Strong (1996) who developed a well-grounded taxonomy of information quality dimensions.

The remaining sections of this paper discuss the related literature, the research question and hypotheses, the methodology of the study, and the findings of the study.

2. A Review Of The Related Literature

The literature on information consumption in China and the literature on information quality are used to articulate the background for the study. The literature on importance ratings generally and as applied in information quality research also informs this study.

2.1 Information Consumption in China

A great deal of information consumed in China is delivered through the Internet. Use of the Internet in China has grown rapidly since the middle of the 1990s, and it is estimated that there are now more than a half billion people who use the Internet in the country (CNNIC, 2013; Lu, Fu, Zhang, Ma, & Le, 2002). Because China is a large and important nation both regionally and globally, it is particularly important to understand these information consumers. There are unique cultural, social, and political factors that affect information consumption in China; and these influences are also rapidly shifting (Kluver & Yang, 2005; Li & Kirkup, 2007; Yang, 2007). Furthermore, generational shifts affect the views of information consumers over time in China as they do elsewhere (Strauss & Howe 1991).

The typical user of the Internet in China is a young, well-educated, highly-compensated, unmarried male (CNNIC, 2013; Guo, 2005; Guo, 2007). The environment in which this user consumes information has changed rapidly in recent years, and people living in China acknowledge these changes when they use labels such as "Born in the 19xxs" and the "Me Generation" to describe the generations who have come of age in this rapidly changing environment (Yi, Ribbens,

& Morgan, 2010). As is the case elsewhere, these information consumers use the Internet to entertain themselves and socialize (Fang & Yen, 2006; Li & Kirkup, 2007; Zhu & Wang, 2005) as well as to educate and inform themselves (Gao, Larsso, & Luo, 2013; Guo, 2007). Social media has become a major online application used by Chinese information consumers. For example, about half claim to be weibo (a Chinese microblogging service similar to Twitter) users (Fu, Chan, & Chau, 2013).

Over time the nature and implementation of government policy restricting access to information through the Internet in China has changed (Martinsons, Ng, Wong, & Yuen, 2005; Wang, 2002; Yang, 2007; Zittrain & Edelman, 2003). The nature of these restrictions shifts periodically as the government responds to domestic and international events as well as to the decisions made by people publishing and disseminating information through the Internet within China. For example, decisions to build the "great firewall" and to hire people to post online comments in support of the Chinese government and communist party have been motivated by domestic and international events (Shao, Lu, & Wu, 2012; What China doesn't want social media users to see, 2013; Xu, 2012). The Chinese government has deployed a large and complex filtering system to limit the information consumers are able to read and view on the Internet (Fu, Chan, & Chau, 2013). In addition, Chinese providers of information on the Internet are forced to self-censor information content. For example, in order to keep their licenses from the government they must screen user written content, delete posts, and disable user accounts to conform to governmental policy directives. Information providers have also adopted strategies such as encouraging users to report controversial posts and committing to the government that they will delete controversial material within five minutes (Fu, Chan, & Chau, 2013). Additionally, in late 2011 the Chinese government implemented a regulation requiring that users generating content on microblogs use their real names when registering their accounts. Internet users and experts interpreted this regulation as a means of monitoring and censoring online discussions of sensitive topics following online discussions of a high-speed train crash in 2011 in which micro-bloggers were perceived to have a strong effect on public opinion (Wines, 2012).

The implementation of these restrictions is relatively transparent to information consumers in China, and generally speaking information consumers know that certain types of websites are blocked and that postings on certain topics are likely to be deleted. Research has found that many information consumers in China understand these restrictions and do not express strong dissatisfaction about restrictions blocking their access to certain websites (Guo & Wu, 2009). Interestingly Chinese information consumers both engage in "work arounds" to deal with these restrictions and also express support for them. For example, proxy sites are used to access blocked websites and users understand special code words that are widely used as substitutes for terms that are not allowed. Formal news organizations widely employ self-censorship when reporting stories about events linked to social problems (Tong, 2009). Yet despite this subtle resistance and the inconvenience of "work arounds," Chinese information consumers, especially the younger ones, express support of these restrictions (Guo & Feng, 2012).

As shown in prior studies, government policy and actions taken to restrict the dissemination of and access to information through the Internet affect not only the perceptions and beliefs but also some of the behaviors of information consumers in China. Chinese users are aware of the restricted access and are sensitive to it (Guo & Feng, 2012) with some expressing the belief that self-censorship is a good strategy for increasing media freedom (Tong, 2009). Although not yet studied directly in the literature, these perceptions and beliefs may extend to information consumer ratings of the importance of the dimensions of information quality.

The perceptions and beliefs of Chinese information consumers have received attention in the research literature. Among the main conclusions drawn are that large numbers of information consumers trust government websites and view government control of the Internet favorably (Guo, 2007), that they tend to trust and view positively information disseminated through the Internet (Guo & Wu, 2009; Loiacono & Lin, 2003), that they view the information attributes of richness, timeliness, accuracy, and authority as important (Dong, 2003), that they view information disseminated through the Internet as general, commercial, static, and unreliable (Fang & Yen, 2006; Lu, Fu, Zhang, Ma, & Le, 2002), and that their perceptions of the reliability of information disseminated through the Internet have become more negative over time (Fallows, 2008). Additionally, Chinese information consumers' perceptions of information quality have been found to have shifted over time along the dimensions of objectivity, accuracy, completeness, and accessibility (Klein, Guo, & Zhou, forthcoming).

2.2 Information Consumption and the Dimensions of Information Quality

By addressing the stability of information consumer ratings of the importance of information quality dimensions this study contributes to the literature on information quality generally (e.g., Mezzanzanica, Boselli, Cesarini, & Mercorio, 2015; Sha & Zeadally, 2015; Talburt, Williams, Redman, & Becker, 2014) while building on and applying the literature on understanding and measuring the dimensions of information quality. The question of the quality of

information disseminated through the Internet has been addressed in a large number of studies (e.g., Cappiello, Daniel, Matera, & Pautasso, 2010; Clausen, 1996; Kane, 2011; Kargar, 2011; Keltner, 1998; Notess, 2011; Pack, 1999; Saha, Nath, & Salehi-Sangari, 2012; Shen, Cheung, & Lee, 2012; Stvilia, Twidale, Smith, & Gasser, 2008; Yaari, Baruchson-Arbib, & Bar-Ilan, 2011). The relationship between the quality of information and business and social outcomes has been highlighted by others (e.g., Christoulakis, Spruit, & Van Dijk, 2015; Fuld, 1998; Gelle & Karhu, 2003; Khovanova-Rubicondo, 2011; Madnick, Wang, Lee, & Zhu, 2009; Song & Zhang, 2015; Varshney, Wei, Ramamurty, & Mojsilovic, 2015; Xu, 2015). Recent studies have focused on the information quality issues in the context of user generated content (Lukyanenko & Parsons, 2015), healthcare systems (Basole, Braunstein, & Sun, 2015; Chinnaswamy, Balisane, Nguyen, Naguib, Trodd, Marshall, Yaacob, Santos, Vallar, Galvez, Shaker, Wickramasinghe, & Ton, 2015; Sha & Zeadally, 2015), and smart cities (Barnaghi, Bermudez-Edo, & Tonjes, 2015).

Despite early claims that information consumers are generally not aware of information quality problems (e.g., Ricketts, 1990), a body of evidence has been built suggesting that at least under some conditions users of information systems are sensitive to information quality problems (e.g., Klein, Goodhue, & Davis, 1997). Rieh & Belkin (1998) demonstrated that information consumers find information accessed through the Internet to be less credible and authoritative than information accessed in other ways. More recent studies have shown that perceptions of information quality are affected by occupation and that users view the quality of information accessed through the Internet differently than information accessed in more traditional ways (Klein, 2001; Klein & Callahan, 2007; Klein, Guo, & Zhou, 2011a; Klein, Valero, & Guo, 2011b). For example, in a study of Internet users in Mexico information accessed through the Internet was found to be less believable, accurate, and objective and more timely and accessible than information accessed in more traditional ways (Klein, Valero, & Guo, 2011b).

As researchers became interested in understanding perceptions of information quality and the effects of information quality on business and social outcomes, it was recognized that information quality is a multi-dimensional construct. Research on the dimensions of information quality has led to the development of a number of generalized frameworks of information quality (e.g., Arazy & Kopak, 2011; Davis & Olson, 1985; Fox, Levitin, & Redman, 1993; Helfert & Foley, 2009; Huh, Keller, Redman, & Watkins, 1990; Todoran, Lecornu, Khenchaf, & Le Caillec, 2015). Recent efforts have also led to the creation of more narrowly focused frameworks of information quality (e.g., Alkhattabi, Neagu, & Cullen, 2010; McKemmish, Manaszewicz, Burstein, & Fisher, 2009; Schaal, Smyth, Mueller, & MacLean, 2012; Stvilia, Mon, & Yi, 2009).

This study applies a robust information quality framework developed by Wang and Strong (1996). The framework was created by having information consumers generate a large list of attributes of information. Survey respondents then provided importance ratings for these information attributes. Finally, these importance ratings were used to develop a framework of information quality consisting of fifteen dimensions of information quality. The fifteen dimensions are believability, accuracy, objectivity, reputation, value-added, relevancy, timeliness, completeness, appropriate amount of data, interpretability, ease of understanding, representational consistency, concise representation, accessibility, and access security (Wang & Strong, 1996). Each dimension is measured using one or more data attributes as shown in Appendix A. This framework has been used in a number of studies seeking to understand perceptions of information quality and other information quality phenomena. For example, perceptions of information quality of Internet-based information have been found to be affected by occupational and geographical context (Klein, 2001; Klein & Callahan, 2007; Klein, Guo, & Zhou, 2011a; Klein, Valero, & Guo, 2011b).

The study reported in this paper seeks to fill a gap in the literature on information quality by comparing the importance ratings of information consumers over a five year period using the framework of information quality developed by Wang and Strong (1996). This allows us to improve our understanding of the stability of these importance ratings.

2.3 Importance Ratings

The use of importance ratings is well established psychometrically (Griffin & Hauser, 1993; Mowder & Shamah, 2011; Nunnally, 1978), and importance ratings have been applied in a wide variety of domains such as marketing research (Griffin & Hauser, 1993; Sharma & Negi, 2014), human resources management (Frone & Yardley, 1996; Miller & Carducci, 2015), service management (Rao & Kelkar, 1997); higher education (Roszkowski, 2003); human development (Demaray, Malecki, Rueger, Brown, & Summers, 2009), healthcare (Giovannelli, Cash, Henson, & Engle, 2008), and public policy (Beams, Belski, & Briggs, 2008).

The information quality framework developed by Wang and Strong (1996) is based on an analysis of the importance

ratings of 118 data attributes provided by 355 alumni of an M.B.A. program. The importance ratings were collected using a nine-point scale where 1 meant "extremely important" and 9 meant "not important." The importance ratings were analyzed using factor analysis, and fifteen dimensions of information quality were derived from the analysis.

The study reported here adds to the literature on importance ratings by using the Wang and Strong (1996) framework to examine changes in importance ratings for the dimensions of information quality by Chinese consumers of information over time.

3. Research Question and Hypotheses

The central research question addressed in this study is:

> *Have Chinese information consumer ratings of the importance of the dimensions of information quality changed over time?*

Responses to a set of survey questions asking information consumers to rate the importance of the information attributes identified in the work of Wang and Strong (1996) were used to answer this question. The survey was first administered in 2007 and then administered again in 2012. The hypotheses tested in the study examine changes in information consumer ratings of the importance of the fifteen dimensions of information quality over this time period. The hypotheses tested to address the research question are stated below in the alternative form.

Hypothesis 1: There is a difference in Chinese information consumer ratings of the importance of the **believability** of information from 2007 to 2012.

Hypothesis 2: There is a difference in Chinese information consumer ratings of the importance of the **accuracy** of information from 2007 to 2012.

Hypothesis 3: There is a difference in Chinese information consumer ratings of the importance of the **objectivity** of information from 2007 to 2012.

Hypothesis 4: There is a difference in Chinese information consumer ratings of the importance of the **completeness** of information from 2007 to 2012.

Hypothesis 5: There is a difference in Chinese information consumer ratings of the importance of the **reputation** of information from 2007 to 2012.

Hypothesis 6: There is a difference in Chinese information consumer ratings of the importance of the **value-added** by information from 2007 to 2012.

Hypothesis 7: There is a difference in Chinese information consumer ratings of the importance of the **relevancy** of information from 2007 to 2012.

Hypothesis 8: There is a difference in Chinese information consumer ratings of the importance of the **timeliness** of information from 2007 to 2012.

Hypothesis 9: There is a difference in Chinese information consumer ratings of the importance of the **appropriate amount** of information from 2007 to 2012.

Hypothesis 10: There is a difference in Chinese information consumer ratings of the importance of the **interpretability** of information from 2007 to 2012.

Hypothesis 11: There is a difference in Chinese information consumer ratings of the importance of the **ease of understanding** of information from 2007 to 2012.

Hypothesis 12: There is a difference in Chinese information consumer ratings of the importance of the r**epresentational consistency** of information from 2007 to 2012.

Hypothesis 13: There is a difference in Chinese information consumer ratings of the importance of the **concise**

representation of information from 2007 to 2012.

Hypothesis 14: There is a difference in Chinese information consumer ratings of the importance of the **accessibility** of information from 2007 to 2012.

Hypothesis 15: There is a difference in Chinese information consumer ratings of the importance of the **access security** of information from 2007 to 2012.

4. Methodology

The study reported in this paper adopts a nonpanel longitudinal approach by collecting survey data at the beginning and end of a five year period of time. The nonpanel longitudinal approach involves the collection of data over a period of time without collecting data from the same subjects at multiple points in time. Rather, similar subjects are used as data are collected at different points in time (Venkatesh & Vitalari, 1991). In this study, a survey was administered to measure Chinese information consumer ratings of the importance of the fifteen dimensions of information quality identified in the Wang and Strong (1996) framework. The fifty data attributes proposed and validated by Wang and Strong (1996) to measure the fifteen dimensions of information quality were used in the survey (see Appendix A). Subjects responded to fifty questions using a 9-point Likert scale. An example is shown below for the "accurate" data attribute.

How important is it to you that your data are:

	Extremely Important				**Important**				**Not Important At All**
Accurate	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**

The survey was written in both Chinese and English. Chinese students enrolled in an MIS course offered by a major university in Beijing were invited to participate in the study. The survey was administered first in a course offered in 2007 and then in a course offered in 2012. In 2007, 253 students completed the survey with valid responses; and in 2012, 200 students completed the survey with valid responses. As shown in Table 1, the demographics, academic background, and computer experience of the students completing the survey were similar in the 2007 and 2012 surveys except that the students reported roughly two more years of computer and Internet experience in 2012 than in 2007. This difference is to be expected given the trend toward increasing exposure to computers and the Internet among young children.

Table 1. Sample Size, Demographics, Academic Background, and Computer Experience of Survey Respondents

	2007 Survey	**2012 Survey**
Number of valid responses	253	200
Average age	21	21
Male/Female	185 male 68 female	112 male 88 female
Most common level	Junior	Junior
Most common major	Telecommunications	Telecommunications
Years of computer experience	Almost 6	A little over 8
Years of Internet experience	5	Almost 7

Chinese college students were selected as subjects for a number of reasons. First, they will become the consumers of all types of goods and services. Second, a subset of them will become economic and political decision makers within China, and their perceptions related to information quality will influence their future personal and professional decision making processes. Third, Chinese college students are representative of a large subset of Chinese information consumers generally.

Subjects were asked to think about data they have used for class assignments, work assignments, and personal projects and to consider both Internet sources of data and traditional text sources of data (e.g., books, magazines, journals, and newspapers) while responding to the survey questions. They were also instructed that the terms data and information

are used interchangeably in the survey.

5. Empirical Results

Table 2 presents Cronbach's alpha for the eleven dimensions of information quality measured with more than one data attribute. Results are presented for the 2007 and 2012 surveys, separately. The results indicate that the survey measures performed better in 2012 than in 2007 in terms of the reliability of the measures. In 2007 the information quality dimensions of objectivity, reputation, and value-added were low; whereas in 2012 ten of the dimensions have a higher value for Cronbach's alpha and all of the dimensions except reputation have a Cronbach's alpha higher than 0.7.

Table 2. Cronbach's alpha for the 2007 and 2012 Surveys

	Cronbach's Alpha	
Dimensions of Information Quality	**2007 Survey**	**2012 Survey**
Accuracy	.877	.891
Objectivity	.560	.710
Completeness	.696	.786
Reputation	.578	.662
Value-added	.545	.708
Relevancy	.650	.717
Ease of Understanding	.689	.751
Representational Consistency	.654	.735
Concise Representation	.844	.861
Accessibility	.706	.814
Access Security	.725	.715

Mean ratings for the importance of each of the fifteen dimensions of information quality are presented in Table 3 for both 2007 and 2012. A rating of 1.0 indicates "extremely important," while a rating of 9.0 indicates "not important at all." Table 3 also indicates whether there is a statistically significant difference between the mean importance ratings for each dimension of information quality from 2007 to 2012. As shown in Table 3, statistically significant differences were found for the dimensions of believability, reputation, value-added, representational consistency, and concise representation. Believability reputation, and value-added were found to be less important in 2012 than in 2007, while representational consistency and concise representation were found to be more important in 2012 than in 2007.

Table 3 also shows the magnitude of the change in the mean importance rating for each of the fifteen dimensions of information quality from 2007 to 2012. A positive value in the "Magnitude of Change from 2007 to 2012" column in Table 3 indicates that Chinese information consumers rated the dimension of information quality to be more important in 2012 than in 2007, whereas a negative value indicates that they rated the information quality dimension to be less important in 2012 than in 2007. For example, the mean importance rating for the believability dimension was 1.95 in 2007 and 2.29 in 2012 for a decrease in the mean importance rating of 0.34 from 2007 to 2012.

6. Discussion

We begin our discussion of the empirical results of the study by commenting on the statistically significant differences in mean importance ratings from 2007 to 2012. We then discuss the dimensions of information quality rated highest and lowest by Chinese information consumers and the range of mean importance ratings in 2007 versus 2012.

On the surface, the finding that the information quality dimensions of believability, reputation, and value-added have lower importance ratings in 2012 than in 2007 is puzzling. However, it is possible that the maturation of the online journalism industry in China has made information consumers somewhat less concerned about the risk of accessing misleading information. As the number of information providers has increased in recent years in China, competition may have led to the demise of information providers with poor reputations.

The finding that the information quality dimensions of representational consistency and concise representation have higher importance ratings in 2012 than in 2007 suggests that Chinese information consumers may have become more concerned with issues related to the presentation of information as they have been able to access greater quantities of information. It is possible that an increased focus on the importance of information presentation issues has developed as

information consumers have sought easier ways to comprehend greater amounts of information.

Table 3. Mean Rating of Importance of the Dimensions of Information Quality in 2007 and 2012 and Magnitude of Change in Importance Ratings from 2007 to 2012

Dimensions of Information Quality	2007 Rating	2012 Rating	Significant Difference (at p<.05)	Magnitude of Change from 2007 to 2012
Believability	1.95	2.29	Yes	-0.34
Accuracy	2.58	2.80	No	-0.22
Objectivity	3.54	3.37	No	+0.17
Completeness	3.79	3.89	No	-0.10
Reputation	2.76	3.30	Yes	-0.54
Value-added	2.71	3.19	Yes	-0.48
Relevancy	3.61	3.44	No	+0.17
Timeliness	3.92	3.80	No	+0.12
Appropriate Amount	3.88	3.83	No	+0.05
Interpretability	3.66	3.37	No	+0.29
Ease of Understanding	2.97	3.18	No	-0.21
Representational Consistency	4.15	3.77	Yes	+0.38
Concise Representation	4.27	3.92	Yes	+0.35
Accessibility	3.28	3.48	No	-0.20
Access Security	3.36	3.56	No	-0.20

Table 4 shows the five dimensions of information quality rated the most important in both 2007 and 2012. Within the top five, the dimensions are listed in order from most important to least important. For example, the believability dimension is rated the most important dimension of information quality in both 2007 and 2012. As shown in Table 4, the five dimensions rated the most important by Chinese consumers are identical in 2007 and 2012, and the dimensions of believability and accuracy are rated the most important and second most important, respectively, in both years. The dimensions of information quality rated the most important in both years focus on issues of truth and trust (i.e., Is information believable, accurate, and of good reputation?), understandability, and value.

Table 4. Top Five Information Quality Dimensions by Mean Importance Rating

2007	2012
Believability	Believability
Accuracy	Accuracy
Value-Added	Ease of Understanding
Reputation	Value-Added
Ease of Understanding	Reputation

Table 5 shows the five dimensions of information quality rated the least important in both 2007 and 2012. Within the bottom five, the dimensions are listed from least important to most important. For example, the "concise representation" dimension is rated the least important dimension of information quality in both 2007 and 2012. As shown in Table 5, the five dimensions rated the least important by Chinese consumers are identical in 2007 and 2012, and the "concise representation" dimension is rated the least important in both years. The dimensions of information quality rated the least important in both years focus on the way in which information is presented (i.e., concise representation and representational consistency), the timeliness of information, the amount of information available, and the completeness of information.

An examination of the five dimensions of information quality with statistically significant differences in mean importance rating from 2007 to 2012 in conjunction with the analysis of "top five" and "bottom five" information quality dimensions shown in Tables 4 and 5 reveals an interesting pattern. We note that the three dimensions of information quality that were found to be less important in 2012 than in 2007 (believability, reputation, and value-added) were all rated among the five most important dimensions of information quality in both 2007 and 2012 (see Table 4). In contrast, the two dimensions of information quality found to be more important in 2012 than in 2007 (representational consistency

and concise representation) were both rated among the five least important dimensions of information quality in both 2007 and 2012.

Table 5. Bottom Five Information Quality Dimensions by Mean Importance Rating

2007	2012
Concise Representation	Concise Representation
Representational Consistency	Completeness
Timeliness	Appropriate Amount
Appropriate Amount	Timeliness
Completeness	Representational Consistency

We also note that, in general, the range of importance ratings for the fifteen dimensions of information quality is narrower in 2012 than in 2007. In 2007, the mean importance ratings for the fifteen dimensions of information quality vary from 1.95 to 4.27 for a range of 2.32. In 2012, the mean importance ratings for the fifteen dimensions of information quality vary from 2.29 to 3.92 for a range of 1.63. This suggests that Chinese information consumers may be concerned with more dimensions of information quality now than in the past and that they may now have a richer and more nuanced awareness of the dimensions of information quality.

The central question addressed in this paper is whether Chinese information consumer ratings of the importance of the dimensions of information quality have changed over time. In other words, are their importance ratings stable? We find considerable stability in the results of the study, although some shifts are also noted. For two-thirds (ten out of fifteen) of the dimensions of information quality we did not find statistically significant differences in the mean importance ratings over time. Additionally, our analysis of the five most important and five least important dimensions of information quality reported in Tables 4 and 5 suggests considerable temporal stability in the ratings of Chinese information consumers. On the other hand, we did find statistically significant differences for one-third (five out of fifteen) of the dimensions of information quality with believability, reputation, and value-added having lower mean importance ratings in 2012 than in 2007 and representational consistency and concise representation having higher mean importance ratings in 2012 than in 2007. We also found a narrower range of mean importance ratings for the fifteen dimensions of information quality in 2012 than in 2007.

Prior research has examined the importance ratings of information technology professionals and data consumers in the United States (Klein & Callahan, 2007). The subjects of the Klein and Callahan (2007) study were older than the subjects used in the study reported here and were also located in a different country. Even so, some similarities were found across the two studies. Accuracy and ease of understanding were very important for subjects in both studies, while completeness and concise presentation were less important in both studies. While there are some commonalities across the two studies, it is difficult to draw firm conclusions because the subjects of the two studies had very different profiles. This suggests the need for additional cross-cultural research in the area.

The findings of the study contribute to and have implications for both research and practice. First, the study contributes to the limited body of longitudinal research studies in the information systems discipline (Venkatesh & Vitalari, 1991) and provides a model for scholars interested in contributing further. Second, it is among the first to investigate perceptions of information quality held by Chinese information consumers. The study applies validated measures of the importance of the dimensions of information quality in a novel setting by collecting data in China. China provides an interesting setting for the study because of its dynamic cultural, social, and political environment in the early twenty-first century (Haan & Cheung, 2012; Osnos, 2012; Shenkar, 2005). Additionally, China presents a rather unique setting for the study because the Chinese media is tightly controlled by the national government (Dowell, 2006; Feng & Guo, 2013; Guo & Feng, 2012; King, Pan, & Roberts, 2013; MacKinnon, 2008; Wang & Hong, 2010). We suggest future studies taking a longitudinal approach and research in less commonly studied settings such as China. Continuing this research stream by collecting data in China over a longer period of time will allow us to trace future temporal changes there as society and information consumption continue to evolve.

Several key implications for practice stem from the findings of this study. First, information providers should focus on the believability and accuracy of information in order to build their reputations as creditable sources of information. Second, user needs and preferences may shift over time. This is seen in our finding that at least among information consumers in China, issues of representational consistency and concise representation are becoming more important over time and importance ratings across the dimensions of information quality are becoming closer to one another. This suggests that information providers should be vigilant in responding to shifts in user perceptions and focus on a wider

variety of dimensions of information quality as they allocate limited resources to content generation. This also suggests that an exclusive focus on those dimensions of information quality such as believability and accuracy which have traditionally been viewed as the most important elements of information quality may be misguided.

The study reported here focuses on educated, young adult information consumers in China. We acknowledge that ideally research within China would focus on a wider spectrum of people within society (e.g. older people and less educated people). However, the realities of collecting data on topics even tangentially related to government censorship of information make it challenging to collect data using a wider spectrum of research subjects. For example, it would not be realistic to recruit research subjects on the topic of information quality by advertising in print or online media (Guo & Feng, 2012). Nevertheless, we suggest that future research recruit a broader spectrum of subjects if and when this becomes politically feasible in China.

7. Conclusion

The study reported here is the first to examine the stability of information consumer ratings of the importance of the dimensions of information quality. The results of a survey administered to Chinese college students first in 2007 and then five years later in 2012 show that importance ratings are more stable than not. Ten of fifteen dimensions of information quality show no statistically significant differences in mean importance ratings, and the most important and least important dimensions of information quality remaining stable over time. Some instability over time is also present. Specifically, five of the fifteen dimensions of information quality exhibit statistically significant differences in mean importance ratings, and the range of mean importance ratings across the fifteen dimensions of information quality narrows from 2007 to 2012. The longitudinal research approach adopted in this study allows us to examine the stability of information consumer ratings dynamically in a rapidly changing, modern Chinese society. The results of the study not only contribute to the literature on information quality generally, but also provide a model for scholars interested in pursuing a less commonly applied research strategy in a less commonly studied setting.

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Appendix A

Dimensions of Information Quality and Data Attributes from Wang and Strong (1996)

Dimensions of Information Quality	Data Attributes
Believability	Believable
Accuracy	Data are certified error-free Error free Accurate Correct Flawless Reliable Errors can be easily identified The integrity of the data Precise
Objectivity	Unbiased Objective
Completeness	The breadth of information The depth of information The scope of information
Reputation	The reputation of the data source The reputation of the data
Value-added	Data give you a competitive edge Data add value to your operations
Relevancy	Applicable Relevant Interesting Usable
Timeliness	Age of data
Appropriate Amount	The amount of data
Interpretability	Interpretable
Ease of Understanding	Easily understood Clear Readable
Representational Consistency	Data are continuously presented in same format Consistently represented Consistently formatted Data are compatible with previous data
Concise Representation	Well-presented Concise Compactly represented Well-organized Aesthetically pleasing Form of presentation Well-formatted Format of the data
Accessibility	Accessible Retrievable Speed of access Available Up-to-date
Access Security	Data cannot be accessed by competitors Data are of a proprietary nature Access to data can be restricted Secure

Author Biographies

Barbara D. Klein is Professor of Management Information Systems and Information Technology Management at the University of Michigan-Dearborn. She received her Ph.D. in Information and Decision Sciences from the University of Minnesota, her M.B.A. from the State University of New York at Albany, and her B.A. from the University of Iowa. Professor Klein has published in the *Journal of the Midwest Association for Information Systems*, *MIS Quarterly*, *Omega*, *Database*, *Information & Management*, *Information Resources Management Journal*, and other journals. Her research interests include information quality, user error behavior, and information systems pedagogy. Professor Klein has also worked in the information systems field at IBM, Exxon, and AMP

Yi Maggie Guo is an Associate Professor of Management Information Systems at University of Michigan – Dearborn. She received her Ph.D. from Texas A&M University and her MS from the University of Nebraska at Omaha. Her research interests include user behavior and new technologies, information quality, flow theory, online shopping experience, and business education. Her work has appeared in *Decision Support Systems*, *Information Systems Journal*, *Communications of AIS*, *Decision Sciences Journal of Innovative Education*, *Information Resources Management Journal*, *Journal of Organizational and End User Computing*, *International Journal of Information Quality*, *Service Industries Journal*, and other journals.

Chunyue Zhou is Associate Professor of Communication & Information Systems at the Beijing Jiaotong University. She received her Ph.D. and MS in Information & Communication Engineering from the University of Beijing Jiaotong in China. She worked as network and software application designer for Railroad Ministry in China. Her research interests include Frame of Information Network, Network Connection and Router, Network Quality of Service (QoS) analysis, NGN Technologies, Management Information System, Applications of Computer Network, and so on. Her work has appeared in *Beijing Jiaotong University Transaction*, *Journal of Computer Engineer and Application*, Proceedings of 7th International Conference on Signal Processing (ICSP), Proceedings of 9th International Conference on Control, Automation, Robotics and Vision, and her IETF draft document has been presented at 63rd IETF Meeting at Paris. She also participated in writing a textbook Conspectus of the Communication and Network Technology (China Railway Publishing House, 2000).