

A Value Based Analysis of Web 2.0 Usage of Chinese Young Users

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Received January 03, 2020; Revised February 12, 2020; Accepted March 03, 2020

Abstract The paper reports a study that investigates continued use of Web 2.0 technologies by applying customer values as theoretical lens. In prior research, both utilitarian and hedonic values of IT are recognized. Web 2.0 technologies provide users these values too. Furthermore, we posit that user perceived value has a positive effect on continued use of Web 2.0 sites. Two factors, system quality and information quality, are hypothesized to affect customer values. A survey study is conducted to test proposed research model. This research furthers the research stream by focusing on young users in China.

Keywords: *Web 2.0, customer values, website quality, social media, China*

Cite This Article: Yi Maggie Guo, "A Value Based Analysis of Web 2.0 Usage of Chinese Young Users." *American Journal of Information Systems*, vol. 8, no. 1 (2020): 1-7. doi: 10.12691/ajis-8-1-1.

1. Introduction

Web 2.0 is a collection of technologies that enable users to interact, share, communicate, collaborate, and generate contents. In comparison, users' role was more passive in the last generation of Web, in which users mainly receive information provided. To some extent, the communication was dictated by websites. Users participate in Web 2.0 for different purposes, mostly voluntarily with personal motives, such as entertainment, communication, and information acquisition. Their continued use is the goal of websites and benchmark of site success. In this paper we propose a study to understand this phenomenon via the lens of customer values since spending time and effort online is not too much different from other types of consumption experience from which consumers gain various values. More and more traditional websites, such as online retailing sites, are incorporating Web 2.0 components. For example, user comments on products and interactive Q&A and live chat have been included as part of the web sites. Although the current research focuses on private use of Web 2.0 technologies, it can also provide insights on how business utilizes Web 2.0 technologies to benefit their customers.

Another aspect of the research was our focus on young users in China. They are important part of online population and in a very different online environment. How they view and use Web 2.0 technologies and social media is an interesting question and this research would like to shed some light on this issue.

2. Literature Review and Research Model

The phenomenon of Web 2.0 and social media has generated great research interest. A stream of research focused on adoption and then continued use of Web 2.0 and social media by individuals. Technology acceptance model has been extended to study user behavior of social media [1,2,3,4]. Other theories also have been applied, such as expectation-confirmation theory [5,6], motivation theory [7], task-technology fit theory [8], social cognitive theory [9], and social capital theory [10]. Various factors have been proposed to affect intention to continued use; these factors include satisfaction, habits, sense of belonging, enjoyment, network externalities, social influence, trust, perceived risk, and maturity [4,6,7,10,11,12,13]. In this research we examine the user's intention to continued use through the lens of consumer values. Most of the factors in prior studies can be organized in terms of the two different aspects of consumer values: *utilitarian* and *hedonic* [12,14,15,16,17], which provide the foundation of our study. In addition, we focus our attention on a lesser studied group: Chinese young users.

2.1. Young Users in China

In China, the number of users of the Internet was .83 billion in December 2018 [18]. Majority of them are young and urban. Over a quarter of the online population are students. Users from rural areas only represent 26.7% of the total online population in China.

As in most countries, social media is a huge and integral part of online life for Chinese users. It is the tool to learn, to entertain, and to connect. Over 95% engage in using instant messaging and 42.3% in microblogging (e.g., Weibo). However, the unique cultural and societal environment of China makes the experiences different from that of users in Western societies. First of all, the major social media sites of the world, such as YouTube,

Google, Facebook, and Twitter, are blocked. General public has no access to them. Home-grown sites dominate the market, such as Weibo (for Twitter), We Chat (for WhatsApp), and You Ku (for YouTube) to name a few. Second, government exercises heavy control on content both offline and online, including search engines and social media sites. Censorship and self-censorship are common practice that users are keenly aware of.

Chinese users perceived information quality of both traditional and Internet sources differently from those in US and Mexico [19]. General speaking, Chinese user trusted online information more than traditional sources, such as books, newspapers, and magazines, which is in contrast to the opposite found in US and Mexico. It is shown that user perceptions change along the shifts in society. Over last ten to fifteen years, Chinese society experienced a relatively loosened and freer atmosphere followed by a tightening period starting about five years ago. User perceptions were worsened for both traditional and online information sources [20]. In such a different environment, how young users in China perceive their use of Web 2.0 technologies and social media?

In recent past, Information Systems research in China has gained more attention. In a review of papers published in mainstream MIS journals in 2000 to 2013, more research is called for in the context of China, particularly in five research streams. Social media, digital collaboration, and group support is one of them [21]. It is stated that distinctive nature of social and cultural environment of China may provide unique research opportunities to either discover new or generalize previous findings.

2.2. Consumer Values

Why do people voluntarily use a service, such as Web 2.0 and social media? We believe it is because users get something back in return. In a world full of competing distractions for attention, it is this something that makes it worthwhile the time and effort for users to spend time on social media over other choices. This something can be different to different people. This something is value. The concept of consumer value has been used as a way of analyzing the benefits, which users gain from engaging in social media technologies [22].

Perceived value has been defined and studied from a number of approaches [23,24]. It has been treated as unidimensional or multi-dimensional. Several typologies of value were proposed. Five consumption values of functional, emotional, social, conditional, and epistemic are proposed by Sheth et al [25] and further studied by Pihlstrom and Brush [26] and Sweeney and Soutar [27]. Another theorization includes three dimensions: emotional, practical, and logical [28,29,30].

Another categorization of values that received quite attention is utilitarian and hedonic values [31,32]. Utilitarian value is instrumental and task-related. The product or service performs a function and fulfills a need. Utilitarian value is rational and cognitive. On the other hand, hedonic value is experiential and affective, reflecting the non-instrumental side of a product or service [15,33,34]. For example, as trivial as shopping to some people, it can provide entertainment and emotional

worth to someone else. This categorization recognizes the complexity of consumer value and at the same time, it is simple enough to be applied in various contexts, such as software acquisition [15], online shopping [35], online social commerce [36] and social media [37,38]. It provides a theoretical lens for this research, in that we examine the customer values in two aspects: utilitarian and hedonic.

Utilitarian aspect of consumer values addresses the issue of functionality. Whether a service is useful, in the sense of facilitating in completing a task and/or providing convenience, to the work or life of a customer is an important consideration in the decision-making process for future usage. In our study, we focus on Web 2.0 and social media services. We know people use these services for communication, collaboration, sharing, blogging, and so on. Students may use them to carry out research for assignment and team projects. The utilitarian value of the services is reflected in the users' mind as how useful they are. It leads to customer loyalty [36,39]. Thus, we use perceived usefulness as the indicator of the functional and utilitarian value brought by the service. In IS research, ample evidence supports the impact of perceived usefulness on end user intention to continued use of information system [12]. Thus, we posit the following hypothesis:

Hypothesis 1: Perceived usefulness has a positive effect on users' continued use of Web 2.0 services.

In terms of the hedonic aspect of information systems, quite a few studies link its impact on continued use [36]. If the activities are fun and the experience is enjoyable, users will develop a desire to continue. In addition to being a tool to accomplish tasks, Web 2.0 and social media play another important role as a leisurely pastime, fulfilling emotional needs of users. Perceived enjoyment is found to impact customer satisfaction and continuance intention in mobile app use [12] and social network service [38]. Research show that emotional values contribute to actual use of messaging service [40], drive intention to purchase in e Commerce [41], and lead to loyalty [39]. As indicated in Chinese Internet usage report, Chinese users seek entertainment via online activities such as online videos including user uploaded short videos, online music, and online and mobile games [18]. Content is the main battle field of competition. In a study of Weibo (a similar service as Twitter in China) users, the motivation of young users includes both information and entertainment needs [42]. In this research we would like to see what role emotional value plays in continuance intention of young Chinese Internet users. Thus, we posit the following hypothesis:

Hypothesis 2: Emotional value has a positive effect on users' intention to continued use of Web 2.0 services.

2.3. Consumer Values

In this research we recognize two aspects of website quality: system quality and information quality [43]. System quality is how effective and efficient the website performs. It should be reliable and easy to use. Information quality is the quality of website content. High quality information should be accurate, up-to-date, useful, complete, secure, and easy to access. A high - quality

website with accurate and helpful information provides users with a range of values, especially functional, and epistemic values. Thus users will find the site and service useful. A reliable and caring provider, here the web 2.0 site, sends out the signal of hospitality, making users “feel at home.” It fosters a sense of belonging in its members and connects users emotionally. In prior research a third component of website quality, service quality, was proposed and tested [44]. Service quality is driven mainly by system and information quality [44], thus, in our research, we focus on system and information quality as the main components of website quality.

In prior research, it has found that website quality, including information quality and system quality, has a positive effect on perceived values, which in turn leads to positive outcomes, including satisfaction and web site loyalty in online retailing, mobile services, and e-government services [44,45,46,47,48]. Thus, we posit the following hypotheses:

Hypothesis 3a: Website information quality has a positive effect on perceived usefulness.

Hypothesis 3b: Website information quality has a positive effect on emotional values.

Hypothesis 4a: Website system quality has a positive effect on perceived usefulness.

Hypothesis 4b: Website system quality has a positive effect on emotional value.

Research model with hypotheses is presented in Figure 1.

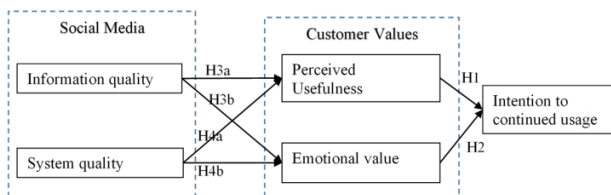


Figure 1. Research Model

3. Research Methodology and Data Analysis

A survey study was conducted to collect data. At beginning, questions about usage of Web 2.0 services were included. Respondents were asked to think about the type of Web 2.0 service they used the most and focus the attention on this for the next part of the questionnaire, which targeted on website quality, perceived usefulness, emotional value, and continued use. Measures of constructs were based on previously validated instruments. Items measuring website quality, both system quality and information quality, were based on Lin and Lee [43]. Measures for customer emotional value were adapted from Pihlstrom and Brush [26], Sweeney and Soutar [27], and Turel et al [40]. Perceived usefulness and intention to continued use were adapted from Davis [49]. All items were constructed using a 5-point Likert-Scale ranging from strongly disagree to strongly agree (1 = strongly disagree; 5 = strongly agree).

At last, demographic questions and questions about experience of using computer and Internet were included. Questions were translated into Chinese by an expert. It

was tested among a couple of native speakers to ensure understandability. In the questionnaires, questions in both English and Chinese were presented to enhance readability and clarity.

3.1. Sample Profile

Data were collected in a mid-sized city in China with a focus on college students. A total of 308 useable questionnaires were collected. Respondents profile is listed in Table 1. Since the college was a normal college in the past, the student population were skewed towards more female students and education related majors. Students were with little to none working experience. The most used Web 2.0 service was photo and video sharing. They, on average, visited the website 7 times per week and spent almost 8 hours per week.

Table 1. Respondent Profile

Demographic Profile	
Average age:	20.9 years
Gender:	Female: 212 (68.8%) Male: 83 (27%)
Major	Psychology: 105 (34.1%) Elementary Education: 75 (24.4%) English: 37 (12%) Physics: 35 (11.4%) PE Education: 30 (9.7%)
Level of study	Junior: 107 (34.7%) Sophomore: 185 (60.1%)
Computer usage	On average 6.8 years
Internet usage	On average 5.4 years
Experience level:	Very experience: 8 (2.6%) Experienced: 100 (32.5%) Somewhat experienced: 176 (57.1%) Inexperienced: 8 (2.6%) Very inexperienced: 1 (.3%)
Web 2.0 and Social media usage	
Active level	Very active: 9 (2.9%) Quite active: 40 (13.0%) Active: 34 (11.0%) Rarely active: 147 (47.4%) Not at all active: 54 (18.2%)
Popular services	Online photo and video sharing
Time spent	7.66 hours per week
Visit frequency	7.2 times per week

3.2. Measurement Validity

Partial Least Squares (PLS) with software Smart PLS [50] was used to test our research model. Measurement properties are listed in Table 2. Construct reliability was determined by Cronbach’s alpha and composite reliability. Both met the minimum requirements in that Cronbach’s alpha ranges from .72 to .85, higher than suggested cutoff value of .70 [51] and composite reliability ranges from .83 to .87, higher than suggested cutoff value of .70 [52].

To establish convergent validity, standardized loadings of item to supposed factor should exceed the suggested value of .60 [53]. In this study, standardized loadings ranged from .66 to .89, meeting the requirement to ensure convergent validity. In addition, the average variance extracted (AVE) estimates should be greater than 0.5 [52].

In this study, the AVE ranged from .55 to .70. Hence, the convergent validity was supported.

Table 2. Measurement Properties

	Standardized Loading
System Quality (SYQ) (Cronbach's alpha=.75, AVE=.57, Composite Reliability=.84)	
SYQ1 The web site is reliable.	.70
SYQ2 The web site is convenient to access.	.83
SYQ3 The web site is easy to use.	.80
SYQ4 The web site is flexible.	.68
Information Quality (INQ) (Cronbach's alpha=.72, AVE=.55, Composite Reliability=.83)	
INQ1 The web site provides accurate information.	.66
INQ2 The web site provides timely information.	.74
INQ3 The web site provides useful information.	.80
INQ4 The web site provides complete information.	.75
Perceived usefulness (PU) (Cronbach's alpha=.81, AVE=.7, Composite Reliability=.88)	
PU1 Using this web site saves me effort to accomplish my task.	.86
PU2 Using this web site makes it easier for me to accomplish my task.	.84
PU3 Using this web site enables me to accomplish my task more quickly.	.81
Emotional value (EMO) (Cronbach's alpha=.85, AVE=.60, Composite Reliability=.88)	
EMO1 Using this Web 2.0 service gives me pleasure.	.79
EMO2 Using this Web 2.0 service makes me feel good.	.79
EMO3 Using this Web 2.0 service makes me feel relaxed.	.73
EMO4 This Web 2.0 services are ones that I enjoy.	.79
EMO5 This Web 2.0 services are ones that makes me want to use it.	.79
Continued Use (CU) (Cronbach's alpha=.78, AVE=.69, Composite Reliability=.87)	
CU1 based on my experience I am very likely to use the web site in the future.	.88
CU2 I would like to discontinue my use of the service and the site (reversed question)	.71
CU3 I expect to continue using the service provided by this web site.	.89

Furthermore, we assessed discriminant validity of measures by Fornell-Larcker Criterion. In Table 3, the square roots of all AVEs are great that the off-diagonal elements, which demonstrate that discriminant validity had been achieved.

Table 3. Correlation of Constructs

	CU	EMO	INQ	PU	SYQ
CU	0.83				
EMO	0.63	0.78			
INQ	0.57	0.60	0.74		
PU	0.53	0.53	0.62	0.84	
SYQ	0.67	0.69	0.65	0.60	0.76

3.3. Structured Model

Next, we tested our proposed research model. Results of model estimation are shown in Figure 2. The model

explains 45% of the variance in intention to continued use. Information and system quality account for 52% of the variance in perceived usefulness and 45% for emotional value. All path coefficients are significant at $p < .01$ level. Thus, all hypotheses are supported.

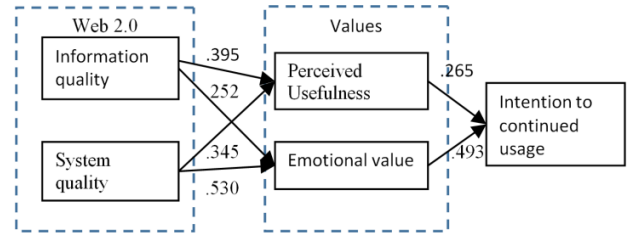


Figure 2. Structured Model with Path Coefficients

Table 4 shows total and indirect effect of information quality and system quality on intention to continued use.

Table 4. Total and Indirect Effects

	Indirect Effect	Total Effect
INQ -> PU -> CU	0.104	
INQ -> EMO -> CU	0.124	
INQ->CU		0.229
SYQ -> PU -> CU	0.091	
SYQ -> EMO -> CU	0.261	
SYQ->CU		0.353

4. Discussion

4.1. Theoretical Implication

Continued use of a service is a complex issue. Various theories have been applied to understand factors impacting user decision and behavior. In the current study, we looked into the issue through the lens of consumer values. Although users normally do not pay for Web 2.0 services, they do have to make choices in regard of time spent on a certain service. Attention is a scarce resource nowadays with so many distractions competing for users' "eyeballs." Whether users continue to use a technology is mainly because they judge whether the technology or a service provides them with values worthy of the time they spend on it.

We extended the customer value theory into the context of Web 2.0 usage. In spite of voluntary nature of most Web 2.0 services, users extract both utilitarian and hedonic values from the experience, which lead to continued use. In the past, voluntary use of IT technologies more or less related to hedonic value, such as computer and online gaming. In a study of both informational and entertainment use of mobile services, users experience pleasure and develop emotional attachment to both types of services and in turn lead to positive future behavior [26]. It is also true in our study in that emotional value is a great contributor to intention to continued use.

On the other hand, although Web 2.0 usage in our study is not mandatory or for work, users nevertheless receive utilitarian value by using them. Furthermore, how useful the service is to the users plays a role in continued use.

This demonstrates the dual nature of Web 2.0 usage. If we put utilitarian and hedonic as two ends on a line, Web 2.0 values are neither pure utilitarian nor only hedonic, but rather at a point on this spectrum, a combination of both. If we expand to include other types of values, that is the values are multi-faceted, it may well be that what users experience is a combination of various types of values with different degrees. Our research is a step toward such a theorization and will continue this stream of research in the future.

Young users are a major part of online population in China. However in the past studies focusing on their experience was limited. In this research, we sampled younger generation of Chinese Internet users. Our results show that the consumer value theory is applicable. The data collected provide a baseline for future reference and cross-cultural investigation.

4.2. Practical Implication

In this research we investigate how Web 2.0 characteristics impact user's perceived values and lead to intention to continued use. Both system quality and information quality are important in creating consumer values. These aspects are under the control of service providers thus the findings provide practitioners valuable insights on how they can bring more values to their customers.

First of all, practitioners have to recognize the complexity of customer values and only focusing on one thing may not be enough to maintain user loyalty. On the other hand, in the case of web 2.0 and social media, between utilitarian and hedonic values, emotional value has a bigger share of contribution. It could be that these types of services are mostly considered past-time and hobby, user perception of the experience itself is the main drive. Understand users' need is the first step. Companies can arrange resources to deal with the priorities of users. Our study shows that emotional value deserves more attention, thus companies should try to work on making sure users have a relaxing and enjoyable experience when using the service.

Secondly, in terms of factors leads to both perceived usefulness and emotional values, information quality and system quality are quite comparable. The effect of system quality is straightforward in that without a reliable and accessible system, how can users experience the service and derive values from using it? The findings show that system quality plays an important role in user perception of usefulness and emotional value. It may not be too surprise to see that information quality affects perceived usefulness, but it also leads to emotional values. It may be that truthful content is a baseline requirement for users to enjoy and trust the website. The eventual total effects of system and information quality on user intention to continued use is also similar. That means, these two aspects of website are complementary to each other. Company should work hard on maintain a high-quality website and on top of that provide high quality content. For example, when providing live chat service using chatbot, an attempt to increase interactivity of a website, company should make sure the service is reliably accessible and helpful in solving customers' problems. In

addition, if the experience is smooth, customers will find the novelty enjoyable and interesting.

4.3. Limitation and Future Research

A few future research directions can address the limitations of the current study. First, the categorization of values into two: utilitarian and hedonic, may be too simplified. Other types of consumer values, such as social value and epistemic value [36,40,54] have been proposed. In a Web 2.0 and social media context, the social value seems a natural outcome. We would like to continue the same line of research to investigate other types of values in the context of connected environments.

Another direction of research includes investigating the relationship among various consumer values in different contexts. These components of values are not mere separate paths to positive outcomes, it may well be that they work together and impact one another. These relationships may also change from context to context. How a business orchestrates its effort is a challenge.

China's Web 2.0 and social media ecosystems are closed in the sense that access to Western services are mostly blocked and home-grown versions substitute major Web 2.0 technologies. Comparative studies of user experiences and behaviors in open and close environments would show interesting insights in user values and priorities.

5. Conclusion

The research investigates continued use of Web 2.0 technologies using customer values as the theoretical lens. In prior research, both utilitarian and hedonic values of IT are recognized as key factors influencing end users' intention to continued use. This research advanced the research stream by looking at the impact of website quality (information quality and system quality) on perceived usefulness and emotional value. Young users in China acquire both aspects of values when using Web 2.0 and social media, which in turn lead to continued use.

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