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Chua, Alton Yeow Kuan; Deng, Shengli; Chen, Xiaoyu

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**Comparing the web and mobile platforms of a social Q&A service
from the user's perspective**

1. Xiaoyu Chen, Wee Kim Wee School of Communication and Information

Nanyang Technological University, Singapore, XIAOYU001@e.ntu.edu.sg

2. Alton Y.K. Chua, Wee Kim Wee School of Communication and Information

Nanyang Technological University, Singapore.

3. Shengli Deng, School of Information Management, Wuhan University, Wuhan,
430072, China.

Abstract:

Purpose: As an increasing number of users have acquired information across the web and mobile platforms for social question and answering (Q&A), it is of interest to explore whether there exist differences in social Q&A usage between the two platforms. This study seeks to compare web and mobile platforms of a social Q&A service from the user's perspective in terms of three dimensions, namely, demographics, individual-based constructs, and information-based constructs.

Design/methodology/approach: Zhihu.com is one of the most popular social Q&A sites in China, so we used online questionnaires to investigate registered Zhihu.com users' perceptions of these three dimensions. From January to March 2016, we obtained 278 valid responses in total through snowball and convenient sampling. Collected data

is analysed through descriptive statistics and inferential statistics.

Findings: The results indicate that there exist significant differences between web users and mobile users on Zhihu.com in terms of gender, affinity, and information seeking. More specifically, compared to the male users, more female users rely on the mobile platform to access the information service; mobile users perceive a higher affinity with Zhihu.com than with web users; and mobile users perceive a higher information-seeking intention than web users do.

Originality/value: Regarding the theoretical aspect, this study proposes a conceptual framework for comparison between the web and mobile platforms of social Q&A from the user's perspective. Regarding the practical aspect, the comparative results of this study could give social Q&A service providers useful information about users' differences between web and mobile platforms of social Q&A services.

Keywords: social Q&A; comparative study; the user's perspective; web service; mobile service; Zhihu.com

Paper type: Research paper

Introduction

Social question and answering (Q&A) provides an avenue for internet users to share information through a question and answer mechanism (Gazan, 2011; Choi and Shah, 2017). The appeal of social Q&A services lies in the ease of use and acceptable turnaround time (Chua and Banerjee, 2013). Meanwhile, along with the explosive

adoption of mobile services, traditional web-based social Q&A services have begun to venture into the mobile space (Lee *et al.*, 2012; Lee *et al.*, 2013). As a result, users can post questions or answer them via a mobile platform anytime and anywhere (Shen *et al.*, 2014). The mobile platform of social Q&A refers to any service platform based on mobile devices such as smartphones, tablets, etc. (Zhao *et al.*, 2015). For example, Zhihu.com, which is one of the most popular social Q&A services in China, has both web-based and mobile-based platforms (henceforth web and mobile platforms). The website had 18.5 million daily active users seeking information in 2016^[1].

With the increasing number of users acquiring information across web and mobile platforms, researchers have been interested in comparing the two platforms from the user's perspective (Zha *et al.*, 2015a). From this viewpoint, researchers tend to investigate differences between web and mobile platforms based on the individual differences of users (e.g., demographics) and their perceptions of specific constructs related to web and mobile services (e.g., perceived benefits and risks and related behavioural intentions) (Wang *et al.*, 2013; Zha *et al.*, 2015a). The contexts of these investigations primarily include e-commerce, banking, instant messaging and entertainment services (e.g., Ha *et al.*, 2007; Ghose *et al.*, 2012; Tan and Goh, 2015). Since mobile platforms are increasingly important tools for accessing social Q&A services (Lee *et al.*, 2013), this area needs to be explored as well.

Among the few works undertaken on social Q&A from the user's perspective, three primary dimensions have yet to be jointly considered. The first is the user demographics. Indeed, demographics have been a crucial aspect associated with user

choice of a specific social media platform (Kim *et al.*, 2014). For example, male users prefer web e-commerce, while female users prefer mobile e-commerce (Wang *et al.*, 2013). Thus, it would be worthwhile to study if this holds true when users choose web and mobile social Q&A platforms.

The second dimension is the individual-based constructs related to the individual factors influencing social Q&A use. In this study, individual-based constructs include self-efficacy for the critical thinking, affinity, and satisfaction of social Q&A users. Although some of these individual-based constructs have been investigated in related literature (e.g., Chen and Deng, 2014; Lee *et al.*, 2012; Lee *et al.*, 2013; Zha *et al.*, 2015b), to the best of our knowledge, investigations on user perceptions of these constructs and on comparisons between web and mobile platforms have not been considered under one umbrella. This connection is significant because these two aspects can jointly help understand user perception differences in the constructs between web and mobile social Q&A platforms.

The third dimension is the information-based constructs that refer to information-related factors influencing individual social Q&A use. In this study, information-based constructs include information need, information seeking, and information adoption. Despite some existing studies having investigated the users' perceptions of these constructs when using social Q&A services (e.g., Agichtein *et al.*, 2009; Chen and Deng, 2014; Choi and Shah, 2017); similarly, the investigations combining user perceptions of these constructs with the comparison between the web and mobile social Q&A platforms are limited. Hence, this is an area that demands empirical evidence as well.

Overall, on one hand, the three dimensions are significant to the studies of social Q&A services from the user's perspective. On the other hand, among the extant studies comparing the web and mobile platforms of social Q&A (e.g., Lee *et al.*, 2012; Lee *et al.*, 2013; Shen *et al.*, 2014; Zhao *et al.*, 2015), these parallel dimensions have not been examined together to investigate this issue. For these reasons, this paper seeks to investigate web and mobile social Q&A platforms based on a framework for comparison. The framework is composed of three dimensions, namely, demographics, individual-based constructs, and information-based constructs. Moreover, Zhihu.com is chosen as the social Q&A service for the investigation due to its popularity among Chinese social Q&A users (Jin *et al.*, 2015). Specifically, the following three research questions are investigated:

RQ1: How do web and mobile social Q&A platforms differ in demographics based on their respective users?

RQ2: How do web and mobile social Q&A platforms differ in individual-based constructs based on the perceptions of their respective users?

RQ3: How do web and mobile social Q&A platforms differ in information-based constructs based on the perceptions of their respective users?

This study holds significance for both theory and practice. On the theoretical aspect, it proposed a framework for comparison between web and mobile social Q&A platforms from a user's perspective. On the practical aspect, the results of this study could give useful information to social media practitioners about user differences between web and mobile social Q&A platforms.

The remainder of this paper is structured as follows. The next section reviews the related literature. Then, the research methods and the data analysis results are described. After that, the key findings gleaned from the results are discussed. Finally, the limitations and the future work are highlighted.

Literature Review

Web and mobile social Q&A platforms

Social Q&A has become a favourite Internet information source that can complement other search engines such as Google and Baidu (Chua and Banerjee, 2013). Basically, social Q&A provides an outlet for users to seek information on the web, and in turn, users can directly or indirectly connect with each other through asking and answering questions as well as to look through those already answered questions and to comment and rate the quality of answers on social Q&A sites (Jin *et al.*, 2015).

With respect to the web social Q&A platform, users can quickly post long questions and offer detailed descriptions; meanwhile, other users can contribute comprehensive and informative answers through such a platform (Liu and Jansen, 2016; Shah *et al.*, 2009). Additionally, users on the web social Q&A platform can share professional knowledge efficiently because web-based platforms have the advantage in processing large-scale content sharing (Sun *et al.*, 2016). Last but not the least, compared to the mobile version, web social Q&A platforms tend to update their services functions on time because websites can provide adequate spaces for social Q&A

providers to develop such functions (Liu and Jansen, 2016).

With respect to the mobile social Q&A platform, it typically has a smaller screen than does the web platform (Lee *et al.*, 2013). In this case, mobile platform users tend to browse information rather than input information into the social Q&A platform (Lee *et al.*, 2012; Lee *et al.*, 2013; Zhao *et al.*, 2015). On the other hand, the mobile platform is portable and is not fixed to a certain location (Ghose *et al.*, 2012). Hence, users have unique requirements when using the mobile version of an information service, such as focusing on the responsiveness of answers rather than the quality of answers (Chua *et al.*, 2012; Shen *et al.*, 2014). Furthermore, the mobile social Q&A platform is likely the domain of those experienced users, who are familiar with mobile Internet technology as well as mobile search engines (Komaki *et al.*, 2012; Zhao *et al.*, 2015).

Despite such scholarly efforts, users perception of the differences between web and mobile social Q&A platforms has not been comprehensively investigated. This calls for a conceptual framework to investigate web and mobile social Q&A platforms from a user's perspective. In the next section, we propose the framework for comparison according to related literature.

Framework for comparison

As shown in Table 1, this framework is derived from the related literature and contains three dimensions, namely, demographics, individual-based constructs, and information-based constructs. Each dimension is further divided into respective components and reference sources.

-- INSERT TABLE 1 HERE -

Demographics

User demographics are associated closely with their choices of specific media (Aharony, 2016; Kim *et al.*, 2014). As such, this study argues that demographics can provide a “fact book” to determine user differences between web and mobile social Q&A platforms as well. Three components, including age, gender, and usage experience, are taken into account to explore the differences in user demographics.

With respect to age, young people have been called “digital natives”, which means they are profoundly influenced by contemporary technology changes such as web-mobile service transitions (Park *et al.*, 2012; Zhao *et al.*, 2014). Compared to these digital natives, adults who are early adopters of web technologies tend to prefer interaction with others through web platforms (Park *et al.*, 2012). Hence, it is interesting to study whether different age ranges are an indicator for differentiating users of the web and mobile social Q&A platform services.

In addition to age, gender has been regarded as another dimension for comparison of social media use (Kim *et al.*, 2014). For instance, some researchers found that female users have stronger behavioural intentions to use mobile services than male users (Sun *et al.*, 2010). However, the previous investigation contexts have not considered social Q&A. Thus, it could be interesting to investigate whether this situation holds true between web and mobile social Q&A platforms.

With respect to usage experience, it is a crucial factor that impacts users’ choices

of web or mobile services (Wang *et al.*, 2013). Prior research shows that senior users of social media tend to accept new functions of the social media more readily than junior users (Yang and Brown, 2013). Another study indicates that it seems difficult for users with rich usage experience to adapt to the service transition from a web platform to a mobile platform because these users have already formed specific habits on the web platform (Sun *et al.*, 2016). Likewise, it is worthwhile to test if usage experience could be an indicator for differentiating users of the web and mobile platforms of social Q&A.

Individual-based constructs

Individual-based constructs refer to the individual factors influencing social Q&A uses (Choi and Shah, 2017). Prior research has shown that users based on mobile and web services perceived intrinsic factors differently (e.g., Ghose *et al.*, 2012; Sun *et al.*, 2016). In this vein, we are interested to see whether there exist differences between mobile and web social Q&A platforms in terms of individual-based constructs. Three main components, including self-efficacy for critical thinking, affinity, and satisfaction respectively, are considered to investigate the differences in user perceptions.

Informed by self-efficacy theory (Bandura, 1982), this study uses the term *self-efficacy for critical thinking* to show how confident users are in their critical thinking when they search for information on social Q&A sites. Previous studies indicate that self-efficacy for critical thinking is appropriate to depict individual capacities to make sound judgements of information (Celuch *et al.*, 2010; Zhang, 2003). Self-efficacy for critical thinking serves as an intrinsic motivation driving users to enjoy social Q&A

services because users with a high level of self-efficacy for critical thinking tend to be clear about their information needs as well as know how to meet them (Weiler, 2005). Thus, they usually have stronger behavioural intention to use social Q&A services. In our research context, self-efficacy for critical thinking is a kind of capacity that allows users to carefully deconstruct a situation relevant to their information needs, to reveal its hidden issues that hinder their progress in searching for information, and then to develop corresponding information-seeking strategies (Weiler, 2005; Zhang, 2003). However, it remains unknown if users based on different types of social Q&A platforms remain consistent in self-efficacy for critical thinking.

Affinity refers to the extent to which users place importance on social Q&A sites (Ferguson and Perse, 2000). It can reflect how much a user looks forward to being involved in such an online community (Ferguson and Perse, 2000) as well as the closeness with social Q&A (Zha *et al.*, 2015b). Prior studies have examined the effect of affinity on the individual's use of various types of social media, such as virtual communities (Barnes and Pressey, 2011), electronic word-of-mouth (Cheung *et al.*, 2008) and YouTube (Haridakis and Hanson, 2009). Nonetheless, it is unclear if the different degree of affinity can help predict the use of various types of platforms in social Q&A.

Satisfaction refers to an affective state resulting from the overall evaluation of the user experience (Zhan *et al.*, 2016). User satisfaction with social Q&A services ought to be viewed as “cumulative satisfaction” as opposed to “transaction-specific satisfaction” (Liu *et al.*, 2016) because user satisfaction with social Q&A services

contains many aspects, such as information quality, service quality, and system quality (Choi and Shah, 2017; Gazan, 2011; Zha *et al.*, 2015b). On the other hand, mobile and web social Q&A platforms differ in these aspects, as the two versions have their respective unique characteristics in usages (Goes *et al.*, 2012; Lee *et al.*, 2012; Wang *et al.*, 2013). Some investigations show that there exist differences in user satisfaction across the two platforms. For example, social media users seem to be more satisfied with the mobile platform in term of seeking information (Chua *et al.*, 2012). However, it remains unknown about the differences of user satisfaction with social Q&A services between the web and mobile platform.

Information-based constructs

Information-based constructs refer to user information-related factors that are relevant to their social Q&A uses (e.g., Choi and Shah, 2017; Kim and Oh, 2009). Specifically, we focus on information needs, information seeking and information adoption because these components can represent the primary information-related factors in social Q&A uses (Chua and Banerjee, 2013; Jeon and Rieh, 2015; Savolainen, 2017). Prior research has found that users of mobile services tend to show inconsistent features compared to users of web services in terms of the three components (Ghose *et al.*, 2012; Ha *et al.*, 2012; Komaki *et al.*, 2012; Sun *et al.*, 2016). Therefore, we are also interested to see whether there exist differences between mobile and web social Q&A platforms in terms of the information-based constructs.

Information need is defined as “a recognition that your knowledge is inadequate

to satisfy a goal that you have” (Case and Given, 2016: p.78). It is typically regarded as the primary intrinsic motivation driving users to search for information in social Q&A (Chua and Banerjee, 2013). However, few investigations delve deeply into the issue of what the user information needs are in the context of social Q&A (Lee *et al.*, 2013). Informed by the related works (e.g., Jeon and Rieh, 2015; Savolainen, 2017), we can understand the user information needs in social Q&A from the following four aspects: the need to fill knowledge gaps, the need to satisfy curiosities, the need to solve problems, and the need to seek opinions or suggestions to make a decision. It could be interesting to investigate if there exist differences between web and mobile social Q&A platforms in terms of user perceptions of information needs.

Information seeking is defined as “the purposive seeking for information as a consequence of a need to satisfy some goal” (Wilson, 2000: p. 49). In other words, information seeking is triggered by information needs. Given that social Q&A is full of rich and complex interactions of information activities, users tend to choose it as one ideal source to seek information to fill cognitive gaps (Agichtein *et al.*, 2009; Jeon and Rieh, 2015). On the other hand, in the context of social Q&A, information seeking is influenced by the information quality, system quality and service quality of such communities (e.g., Chua and Banerjee, 2013; Gazan, 2011; Lou *et al.*, 2013). Hence, context is suggested as one of the main criteria measuring usages of social Q&A as well (Zha *et al.*, 2015b). However, there is limited understanding of the difference between web and mobile social Q&A platforms in terms of user perceptions of information seeking.

Information adoption is defined as “a process in which users purposefully engage in using information” (Sussman and Siegal, 2003: p.50). The concept of information adoption is built upon theories of adoption and informational influence that can explain what factors driving users to adopt information in virtual communities (Chen and Deng, 2014; Cheung *et al.*, 2008). In our research context, information adoption can also be seen as an essential indicator to reflect positive feedback from users towards the information generated in social Q&A. Additionally, it is a crucial point to assess usage of social Q&A services (Chen and Deng, 2014; Lou *et al.*, 2013). Since there could exist inconsistent information between web and mobile platforms (Lee *et al.*, 2013; Tan and Goh, 2015; Zhao *et al.*, 2015), users may show different degrees of information adoption across different social Q&A platforms. Therefore, it is worthwhile to test if information adoption could be an indicator for differentiating users of the web and mobile social Q&A platforms.

Method

Research setting

We posted questionnaires on www.sojump.com to collect data, and the respondents were all registered users on Zhihu.com. Our respondents satisfy two requirements. First, they ought to belong to typical users of Zhihu.com. The typical users of Zhihu.com are between 18 and 30 years old and have achieved at least a senior high school or equivalent education level ^[2]. Thus, it is appropriate for us to obtain data

from university students who use Zhihu.com. Second, the respondents should have usage experience across different Zhihu.com platforms. Thus, in order to obtain trustworthy data, we can ask them to choose their preferred platform according to their two-fold experience (on both web and mobile platforms). In this way, we can accurately compare the differences of web and mobile social Q&A platform services from the user's perspective because the comparative results are from the same target population (Abelson, 1995; Wang and Sun, 2016).

The data collection was conducted from January to March 2016 through two channels. Initially, we offered a detailed instruction about the survey to postgraduate students (who are registered users on Zhihu.com) in one university based in Central China and invited the students to participate in the survey. Through the snowball sampling method, we encouraged these students to forward the survey URL link to their friends and friends of friends who use the services of Zhihu.com; they could further forward the URL link to other peers. This approach helps to obtain appropriate data efficiently and promptly (Zhan *et al.*, 2016).

Subsequently, we invited the followees and followers of one user's account of Zhihu.com^[3] to voluntarily participate in the survey. This user was selected because he has attracted a large number of followers to focus on his updates on Zhihu.com, as well as has previous active and high-quality information contributions. This approach helps to obtain more credible data from these respondents. An invitation message with the URL link to the online questionnaire was posted through the Zhihu.com inbox^[4], which can provide users with a private space to communicate with each other.

Finally, we obtained 278 valid responses and used them for further data analysis.

Measures

The survey contents included three sections. The first part is about the demographics of respondents including gender, age, and education level and usage experience as well as the service platforms (either web or mobile platform) they prefer to use. The second is about user perceptions of each component of individual-based constructs when they used certain Zhihu.com platform. The last is about user perceptions of each component of information-based constructs when they used a particular Zhihu.com platform.

The measure of each item (22 items in total) is adapted from extant related literature and an explorative study conducted previously (see Table 2). For each item, a 7-point Likert scale, ranging from “Strongly disagree” to “Strongly agree”, was used. Specifically, four items are used to measure the “self-efficacy for critical thinking” because these items have been applied to related psychological research (Celuch *et al.*, 2010). Three items are used to measure “affinity”, and these items have been confirmed with high reliability to measure a user affinity with virtual communities (Zha *et al.*, 2015b). Four items are used to measure “satisfaction” because these items are widely adopted to assess user satisfaction (Bhattacharjee, 2001). Four items are used to measure “information need” in social Q&A according to the analysis of its definition (Wilson, 2000). Four items are used to measure “information seeking” (Zha *et al.*, 2015b), while three items are used to measure “information adoption” (Sussman and

Siegal, 2003).

-- INSERT TABLE 2 HERE --

Given that the survey was conducted in China, all the instruments ought to be translated into Chinese, adopting a translation committee approach (Van de Vijver and Leung, 1997). Specifically, to ensure the face validity of the measurement items, we invited two postgraduates who majored in Information Science to participate in translation, and both of them were fluent in English and Mandarin.

Results

Reliability and validity test

The reliabilities and convergent and discriminant validities of all the components of the individual-based and information-based constructs are assessed. These analyses are conducted using Smart-PLS 2.0 ^[5] and SPSS version 21.0 software. The reliability of each sub-dimension can be assessed by checking its Cronbach's α , composite reliability (CR) and average variance extracted (AVE) values (Fornell and Larcker, 1981). As shown in Table 3, the α values for all the sub-dimensions are above 0.84, and the CR values are above 0.89, and the AVE values are above 0.67, beyond the suggested threshold values of 0.7, 0.7 and 0.5 (Fornell and Larcker, 1981), indicating that these constructs have good reliabilities.

-- INSERT TABLE 3 HERE --

The discriminant validities can be evaluated by comparing the square roots of

AVEs and their correlations. As shown in Table 4, the square roots of AVEs for all dimensions are higher than the correlations, confirming that these constructs had good discriminant validities (Fornell and Larcker, 1981).

-- INSERT TABLE 4 HERE --

Descriptive statistics

Collected data are analysed both through descriptive statistics and inferential statistics. Specifically, descriptive statistics included general information about demographics of the respondents and the correlations of the individual-based and information-based constructs across the Zhihu.com mobile and web platforms.

The demographic information for the respondents is reported in Table 5. Among these respondents, 51.8% of the respondents were female. Further, 76.98% of the respondents ranged in age from 23 to 28, and 98.92% of the respondents had an education level of a bachelor's degree or above. Nearly 69.06% of the respondents had a usage experience of more than one year on Zhihu.com. Additionally, it is worth noting that most of the respondents preferred to use the services of Zhihu.com via the mobile platform rather than via the web platform, with 70.86% and 29.14% respectively.

-- INSERT TABLE 5 HERE --

The correlations of the constructs across the web and mobile platforms of Zhihu.com are shown in Table 6 and Table 7, respectively. Overall, the correlations of the constructs across the web and mobile platforms are lower than at least 0.05 significance level, indicating that most of the constructs have strong positive

connections with each other. However, no significant correlation exists between self-efficacy for critical thinking and information adoption for web users of Zhihu.com ($r=0.158$, $p>0.1$). In contrast, for mobile users, there is a significant correlation between self-efficacy for critical thinking and information adoption ($r=0.271$, $p<0.01$).

-- INSERT TABLE 6 HERE --

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Inferential statistics

Inferential statistics included Chi-square tests for comparing demographics of the respective users and analysis of variance (ANOVA) tests for comparing the user perceptions of individual-based and information-based constructs across the two types of platforms. These analyses were conducted using R language ^[6] and SPSS version 21.0 software.

Comparison between web and mobile platforms based on demographics of the respective users

As shown in Table 8, the Chi-square test suggested that there are no significant differences in age ($\chi^2 = 2.791$, $p>0.1$) or usage experience ($\chi^2=2.021$, $p>0.1$), while gender ($\chi^2=6.240$, $p<0.05$) had a significant difference between mobile users and web users. It is apparent that compared to male users, more female users choose the mobile platform to access information services on Zhihu.com.

-- INSERT TABLE 8 HERE --

Comparison between web and mobile platforms based on individual-based constructs

The differences across the web and mobile platforms in user perceptions of individual-based constructs are tested with a one-way ANOVA (see Table 9). The results show that there are no significant differences in terms of self-efficacy for critical thinking ($F=0.841$, $p>0.1$) and satisfaction ($F=0.017$, $p>0.1$), while a significant difference in terms of affinity ($F=4.336$, $p<0.05$) is found in this study. Thus, we can confirm that mobile users perceive higher affinity with Zhihu.com than do web users.

-- INSERT TABLE 9 HERE --

Comparison between web and mobile platforms based on information-based constructs

The differences across web and mobile platforms for user perceptions of information-based constructs are tested using a one-way ANOVA (see Table 10). The results indicate that there are no significant differences in terms of information needs ($F=0.841$, $p>0.1$) and information adoption ($F=1.159$, $p>0.1$), whereas a significant difference in terms of information seeking ($F=4.315$, $p<0.05$) is found in this study. Thus, we can conclude that mobile users of Zhihu.com perceive higher information-seeking intention than web users.

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Discussion

Analysis of Results

Three main findings could be culled from this cross-platform comparative study of Zhihu.com. First, there is a statistically significant difference in gender between mobile and web users of Zhihu.com. Compared to prior research (e.g., Wang and Sun, 2016; Sun *et al.*, 2010), this result also confirms that gender differences exist in platform service preference of virtual communities. Specifically, males often depend on a subset of highly available and salient cues in place of detailed information elaboration, while females prefer intuitive and feeling-based thinking (Sun *et al.*, 2010). In this study, the social Q&A web platform could give users more detailed information, but the mobile platform performs more quickly to access and acquire information.

Second, web users lag behind regarding affinity with Zhihu.com vis-à-vis mobile users. Affinity represents the cognitive and affective connection of users to social Q&A, and it can be one of the descriptors of effectiveness success of social Q&A information services (Zha *et al.*, 2015b). In this study, for mobile users, they tend to perceive higher levels of affinity with Zhihu.com than that of web users. The mobile platform provides a convenient way of acquiring information sources from virtual communities. The social Q&A mobile platform has greatly improved the accessibility of social networks and has given users a significant level of freedom in terms of mobility (Lee *et al.*, 2012). It also explains why more people choose to use mobile Q&A to some extent.

Third, mobile users seem to have higher degrees of information seeking intention

than that of web users on Zhihu.com. These results indicate that the mobile platform is more appropriate for users to search for social Q&A information (Lee *et al.*, 2013). Although physical restrictions of mobile platforms such as display size and changes of user context exist (Ghose *et al.*, 2012; Komaki *et al.*, 2012), our results also show that mobile platforms are increasingly important tools for accessing social Q&A services.

Theoretical Implications

On the theoretical front, this study enhances the available literature about social Q&A research and web-mobile comparisons of social media platforms by developing a conceptual framework for the comparison between web and mobile social Q&A platforms. Specifically, building on prior studies (e.g., Bhattacharjee, 2001; Celuch *et al.*, 2010; Kim *et al.*, 2014; Yang and Brown, 2013; Zha *et al.*, 2015b), this framework identifies 9 features related to user demographics, individual-based and information-based constructs that could be associated with user preferences of a specific social Q&A platform services.

Practical Implications

On the practical front, this study offers insights into user differences between web and mobile social Q&A platform services. This useful information could help social Q&A providers design unique attributes for users based on different social Q&A platform services. For example, this study finds that mobile users tend to search for information more frequently in social Q&A compared to web users. Based on this

finding, related social Q&A designers can consider how to make mobile devices better facilitate users to seek information.

Limitations and future research

This paper was not without limitations. First, this paper conducted the comparison only based on users of a Chinese social Q&A site. Other social Q&A sites with non-Chinese languages or uniformity in system features are not taken into consideration. For example, Kin-Naver is the well-known Korean Q&A website with both web-based and mobile-based platforms; Baidu Knows is a Chinese social Q&A website that only allows askers themselves to accept satisfactory answers, whereas other users cannot vote for their answers. Different social Q&A services could exert various findings of user perceptions of web and mobile platforms.

Second, the results of this paper are constrained by the methodology and sample size. An essential premise of this paper is to have access to actual users on Zhihu.com. Thus, it might be difficult to obtain a large number of user responses through a self-report survey. Future works can consider acquiring actual usage information of social Q&A users to compare the differences between the web and mobile platforms. Additionally, our sample is based on the investigation of students from one university in Central China. Despite some approaches having applied to ensure the external validity of the sample, future work can consider widening the investigation range to make the data more representative.

Third, this paper is a kind of descriptive comparison between web and mobile

social Q&A platforms from a user perspective. Indeed, it is the first stage of investigating users' differences based on web and mobile platforms of social Q&A. It currently may lack understanding of some other salient characteristics of the platforms (e.g., mobility, screen size, and informativeness). Future work should be explored with respect to these issues such as why people choose one platform over the other and which features could influence users to prefer a particular platform.

This study opens potential directions for future social Q&A research. One possible area could be the cross-lingual investigations from different social Q&A sites to evaluate the differences between web and mobile platforms. The second area of research could centre on exploring which factors could have salient impacts on people using the social Q&A mobile platform. Such a study could offer insights into the performance of mobile Q&A services and their practical implications.

Conclusion

This study compares web and mobile platforms of social Q&A based on a framework including user demographics, individual-based constructs, and information-based constructs. Specifically, demographics include three components, namely, gender, age, and usage experience; individual-based constructs include three components, namely, self-efficacy for critical thinking, affinity and satisfaction; and information-based constructs include three components, namely, information need, information seeking and information adoption. The results indicate that there exist significant

differences between web and mobile users on Zhihu.com in terms of gender, affinity, and information seeking.

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Tables:

Table 1 Framework for the comparison

Dimension	Component	Source
Demographics	Age	Park <i>et al.</i> , 2012
	Gender	Kim <i>et al.</i> , 2014
	Usage experience	Yang and Brown, 2013
Individual-based constructs	Self-efficacy for critical thinking	Celuch <i>et al.</i> , 2010; Zhang, 2003
	Affinity	Zha <i>et al.</i> , 2015b
	Satisfaction	Bhattacharjee, 2001
Information-based constructs	Information need	Wilson, 2000
	Information seeking	Zha <i>et al.</i> , 2015b
	Information adoption	Sussman and Siegal, 2003

Table 2 Measures

Constructs	Variables	Items	Sources
Self-efficacy for critical thinking	SCT1	I have confidence in my ability of critical thinking	Celuch <i>et al.</i> , 2010
	SCT2	I am competent at making critical thinking	
	SCT3	I think I do well in critical thinking	
	SCT4	I have the expertise needed to conduct critical thinking.	
Affinity	AFF1	Seeking information on Zhihu.com is one of my main daily activities	Zha <i>et al.</i> (2015b)
	AFF2	Zhihu.com is important in my everyday life	
	AFF3	I cannot go for several days without seeking information on Zhihu.com	
Satisfaction	<i>Q: "How do you feel about your overall experience of Zhihu.com?"</i>		Bhattacharjee (2001)
	SAC1	Very dissatisfied/Very satisfied	
	SAC2	Very displeased/Very pleased	
	SAC3	Very frustrated/Very contented	
Information need	SAC4	Absolutely terrible/Absolutely delighted	Wilson (2000)
	IN1	I feel lack of some domain knowledge on Zhihu.com	
	IN2	I feel desired to acquire some information to satisfy my curiosity on Zhihu.com	
	IN3	I am in need of solving some problems or questions when using Zhihu.com	
	IN4	I am in need of some suggestions or advices to make decisions when using	

Constructs	Variables	Items	Sources
Information seeking		Zhihu.com	
	IS1	I often seek information on Zhihu.com	Zha <i>et al.</i> (2015b)
	IS2	I frequently seek information on Zhihu.com	
	IS3	I spend a lot of time seeking information on Zhihu.com	
	IS4	I seek information on Zhihu.com regularly.	
Information adoption	IA1	I trust the information on Zhihu.com	Sussman and Siegal (2003)
	IA2	I would adopt information on Zhihu.com	
	IA3	If possible, I would like to apply the information on Zhihu.com to my daily life.	

Table 3 Descriptive statistics and reliabilities

Component	No. of Items	Mean $\pm$ SD	Cronbach's α	CR	AVE
SCT	4	4.701 $\pm$ 1.509	0.842	0.893	0.678
AFF	3	3.394 $\pm$ 1.400	0.893	0.943	0.825
SAC	4	4.906 $\pm$ 0.848	0.879	0.917	0.733
IN	4	5.268 $\pm$ 0.965	0.908	0.917	0.733
IS	4	3.739 $\pm$ 1.446	0.913	0.940	0.798
IA	3	4.860 $\pm$ 1.100	0.893	0.934	0.825

Note: SCT= self-efficacy for critical thinking; AFF=affinity; SAC=satisfaction;

IN=information need; IS=information seeking; IA= information adoption

Table 4 Discriminant validity and correlations

	SCT	AFF	SAC	IN	IS	IA
SCT	0.823					
AFF	0.174**	0.908				
SAC	0.188**	0.420**	0.856			
IN	0.181**	0.385**	0.626**	0.887		
IS	0.181**	0.801**	0.479**	0.445**	0.893	
IA	0.204**	0.427**	0.557**	0.770**	0.485**	0.908

Note: SCT= self-efficacy for critical thinking; AFF=affinity; SAC=satisfaction;

IN=information need; IS=information seeking; IA= information adoption

The boldfaced numbers in the diagonal row are square roots of the AVEs

extracted

**means the significant level less than 0.01

n.s means no significance

Table 5 Demographics

Variables	Levels	Frequency	Percentage
Gender	Male	134	48.20%
	Female	144	51.80%
Age	<=18	1	0.36%
	18-22	60	21.58%
	23-28	214	76.98%
	>28	3	1.08%
Education	High school or below	1	0.36%
	Three-year college	2	0.72%
	Bachelor	140	50.36%
	Master or above	135	48.56%
Usage experience	<= 1 year	86	30.94%
	1-2 years	110	39.57%

Variables	Levels	Frequency	Percentage
	3-4 years	57	20.50%
	>4 years	25	8.99%
Service platforms	Web	81	29.14%
	Mobile	197	70.86%

Table 6 The correlations of the constructs for web users of Zhihu.com

	SCT	AFF	SAC	IN	IS	IA
SCT	1.000	0.224*	0.251*	0.233*	0.318**	0.158(n.s)
AFF		1.000	0.370**	0.362**	0.838**	0.354**
SAC			1.000	0.692**	0.426**	0.547**
IN				1.000	0.460**	0.765**
IS					1.000	0.473**
IA						1.000

Note: n.s means no significance

* means the significant level less than 0.05

** means the significant level less than 0.01

Table 7 The correlations of the constructs for mobile users of Zhihu.com

	SCT	AFF	SAC	IN	IS	IA
SCT	1.000	0.218**	0.172*	0.174*	0.177*	0.271**
AFF		1.000	0.431**	0.333**	0.749**	0.408**
SAC			1.000	0.559**	0.513**	0.516**
IN				1.000	0.397**	0.726**
IS					1.000	0.439**
IA						1.000

Note: n.s means no significance

* means the significant level less than 0.05

** means the significant level less than 0.01

Table 8 Chi-square test results

	Mobile-based^a	Web-based^a	Chi-square test^b
Gender			6.240 (0.012*)
Male	85(43.15%)	49(60.49%)	
Female	112 (56.85)	32(39.51%)	
Age			2.719(0.257)
<=22	46(22.84%)	15(18.52%)	
23-28	150(76.14)	64(79.01%)	
<28	1 (0.51%)	2(2.47%)	
Usage experience			2.021(0.568)
<= 1 year	56 (28.43%)	30(37.04%)	
1-2 years	81 (41.12%)	29(35.80%)	
3-4 years	42 (21.32%)	15(18.52%)	
>4 years	18 (9.14%)	7(8.64%)	

Note: * means the significant level less than 0.05;

^a The number out of parentheses describes the frequency, while the number in the parentheses indicates the ratio;

^b The number out of parentheses is the Chi-square value, while the number in the parentheses is the p value.

Table 9-ANOVA test for the comparison regarding individual-based constructs

	Web-based platform	Mobile-based platform	Web VS Mobile	
	Mean $\pm$ SD	Mean $\pm$ SD	F	<i>p</i>
SCT	4.852 $\pm$ 1.293	4.638 $\pm$ 1.043	2.346	0.127
AFF	3.123 $\pm$ 1.710	3.506 $\pm$ 2.029	4.336	0.038*
SAC	4.895 $\pm$ 0.676	4.910 $\pm$ 0.741	0.017	0.895

Note: SCT= self-efficacy for critical thinking; AFF=affinity; SAC= satisfaction

* means the significant level less than 0.05

Table 10 ANOVA test for the comparison regarding information-based constructs

	Web-based platform	Mobile-based platform	Web VS Mobile	
	Mean $\pm$ SD	Mean $\pm$ SD	F	<i>p</i>
IN	5.185 $\pm$ 0.981	5.302 $\pm$ 0.912	0.841	0.360
IS	3.460 $\pm$ 2.021	3.854 $\pm$ 2.085	4.315	0.039*
IA	4.749 $\pm$ 1.593	4.905 $\pm$ 1.053	1.159	0.283

Note: IN= information need; IS= information seeking; IA= information adoption

* means the significant level less than 0.05