Microblogging Reposting Mechanism: An Information Adoption Perspective

Wei Yan
School of Economics and Management, Tsinghua University, Beijing 100084, China.

Jinghua Huang
School of Economics and Management, Tsinghua University, Beijing 100084, China.

Follow this and additional works at: https://tsinghuauniversitypress.researchcommons.org/tsinghua-science-and-technology

Part of the Computer Sciences Commons, and the Electrical and Computer Engineering Commons

Recommended Citation

Microblogging Reposting Mechanism: An Information Adoption Perspective

Wei Yan and Jinghua Huang*

Abstract: This study uses the Elaboration Likelihood Model (ELM) and social presence theory to examine the microblogging reposting mechanism. Subjective and objective data were collected from 216 respondents in a field experiment. The results indicate that information quality and source credibility of microblogging messages affect users' reposting intention by affecting their perceptions of the usefulness and enjoyment of the information. Perceived enjoyment has a greater impact on reposting intention than perceived usefulness. Furthermore, users are able to perceive social presence when interacting with microblogging messages. Social presence plays a full mediating role between information quality and perceived enjoyment, and a partial mediating role between information quality and perceived usefulness.

Key words: microblogging; reposting; information adoption; elaboration likelihood model; social presence; field experiment

1 Introduction

Microblogging is a platform for information publishing, sharing, and access which is based on user relationships. Microblogging allows users to publish and receive messages of 140 characters or less through a website or mobile application. By providing a simple, instant, and flexible way to communicate, microblogging lowers the threshold for user participation, which promotes its popularity among users[1]. The main activities on microblogging include posting, reading, reposting, and commenting—among which reposting is the most important[2]. There are two reasons for this. First, reposting is a mildly social information dissemination mechanism. When reposting microblogging messages, users participate in the dialogue indirectly[3]. The number of repostings reflects the scale of information dissemination and the popularity of the information[4]. Second, reposting facilitates dissemination of information among different groups. Due to group homogeneity, information is always disseminated more easily within a group than it is among different groups[5]. Reposting allows information to easily cross borders between groups. This is because followers and fans of microblogging users usually belong to different groups. When microblogging messages are reposted by users, they are disseminated among different groups[6]. Scholars have begun to study the factors affecting users' microblogging reposting behavior. The factors they have found can be divided into two categories: one is related to the features of microblogging messages, such as hashtags[7] and URLs[8]; the other is related to microblogging authors, and includes factors such as source credibility[9] and similarity[10]. However, few studies have been conducted on the impacts that distinctive properties of microblogging messages and sources have on reposting, and the action mechanism is not yet known.

From the perspective of information adoption,

● Wei Yan and Jinghua Huang are with the School of Economics and Management, Tsinghua University, Beijing 100084, China. E-mail: yanw.09@sem.tsinghua.edu.cn; huangjh@sem.tsinghua.edu.cn.
∗ To whom correspondence should be addressed.

some scholars have found that both information quality and source credibility affect users' information adoption behavior by affecting their perceptions of the usefulness of the information[11, 12]. These studies mostly use the Elaboration Likelihood Model (ELM), and they unilaterally emphasize the impact of perceived usefulness on information adoption, while ignoring the impact of perceived enjoyment. These studies ignore the dual-purpose nature of microblogging, which provides users with both utilitarian and hedonic benefits[13]. In addition, existing studies have not considered users' social beliefs to be formulated in their interaction with microblogging messages. Although microblogging allows a limited number of characters, it supports various forms of media, such as images, hashtags, URLs, mentions (referring to other users with @username), etc. A combination of these forms can build social interaction between microblogging messages and users, thus providing the users with strong social presence[14]. As a social media, microblogging is not only a technical system but also a social system, so social factors must be taken into account in studies of microblogging reposting. This study adopts both ELM and social presence theory to examine the microblogging reposting mechanism.

2 Theoretical Background

2.1 Elaboration likelihood model

ELM is a dual-process model of information processing[11, 15]. The model assumes that the information recipient has two paths of information processing: the central path and the peripheral path. The two paths have different degrees of elaboration in information processing. When using the central path to process information, the recipient pays more attention to the content of the information and forms judgments through careful examination and evaluation. Therefore, the central path has a higher degree of elaboration in information processing. When using the peripheral path, the recipient depends more on heuristic cues, such as source credibility, attractiveness, etc. and pays less attention to content. Therefore, the peripheral path has a lower degree of elaboration in information processing.

In recent years, scholars have begun to use ELM to study the issue of information adoption[12, 16]. It has been found that just as users form perceptions about information systems, they also form perceptions and

adoption intentions toward information, comments, and opinions. The factors affecting users' adoption of an information system will also affect their information adoption behavior. Although the applicability of ELM has been validated in empirical studies on information adoption, there is still a lack of microblogging studies using this model. Therefore, we prefer to examine users' microblogging reposting behavior based on ELM.

2.2 Social presence theory

Social presence theory describes the warmth, sensitivity, personalness, and sociability features of media, and reflects the extent to which users are allowed to establish personal contacts[17]. The degree of social presence is affected by media richness, i.e., the ability of media to transfer information within a certain time[18]. It is generally considered that face-to-face communication has the highest degree of media richness and creates stronger social presence than Computer-Mediated Communication (CMC)[19]. In CMC, many of the cues present in face-to-face communication (mainly verbal and non-verbal cues) are filtered out[20]. Removal of verbal and non-verbal cues results in the lack of social presence[19]. However, in recent years, this viewpoint has been challenged by a number of scholars who assert that CMC still retains certain cues, such as source credibility. People can rely on these heuristic cues to process information via the peripheral path[12]. Moreover, even limited cues can guarantee adequate information processing ability. According to Social Information Processing theory, although the cue-carrying capacity of CMC cannot help users establish personal relationships quickly, CMC users are able to establish personal relationships as close as those in face-to-face communication when given enough time and when an increased number of cues are transmitted[21]. Furthermore, although CMC reduces some social cues, it creates new ones[22]. We can consider microblogging as an example. Users can insert images, videos, music, emoticons, and URLs into text message and can also mark hashtags and mention other users. The number of repostings, comments, and favorites reflects the popularity of the information. These cues can also provide strong social presence to microblogging users who are able to establish similar social interactions as they do in face-to-face communication[14]. Therefore, we introduce

social presence theory to examine microblogging users' social beliefs formed in the process of interacting with microblogging messages and to understand their impacts on reposting behavior.

3　Research Hypotheses

3.1　Perceived usefulness

Perceived usefulness refers to the instrumental value obtained by users in using an information system[23]. The instrumental value may include money, reputation, social relations, and improved work efficiency. Users' perception of information usefulness affects their information adoption behavior[24]. In this study, the perceived usefulness of microblogging messages refers to the degree to which the microblogging message is perceived to be valuable, informative, and helpful[12]. With microblogging messages, users can obtain valuable information as well as deal with tasks related to work or study. In addition, microblogging allows users to set up their own social network, which allows them to interact with friends[25, 26]. Hence, we hypothesize the following:

H1: Perceived usefulness of microblogging messages has a positive impact on users' microblogging reposting intention.

3.2　Perceived enjoyment

Unlike perceived usefulness, which is an efficiency-oriented motivation, perceived enjoyment is an internal motivation emphasizing the pleasure obtained by users in using information systems[27]. Perceived enjoyment of microblogging messages is defined as the extent to which microblogging messages are perceived to be personally enjoyable apart from any instrumental value. van der Heijden[28] categorized information systems into utilitarian systems and hedonic systems. Utilitarian information systems are mainly used in working environments, designed to provide instrumental value to users and emphasize perceived usefulness. Hedonic information systems help users achieve self-satisfaction in entertainment and leisure, and focus more on perceived enjoyment. Microblogging is a kind of dual-purpose information system[13], so perceived enjoyment is an important factor that affects users' microblogging reposting intention. If users feel relaxed and satisfied while using microblogging, their level of satisfaction[29] and trust[30] in microblogging will increase, and they will develop a more positive attitude and higher

intention to use it[31]. Therefore, we hypothesize the following:

H2: Perceived enjoyment of microblogging messages has a positive impact on users' microblogging reposting intention.

3.3　Social presence

Social presence describes the warmth, sensitivity, personalness, and sociability features perceived by users of a media[17]. Existing empirical studies have shown that social presence has a significant impact on perceived enjoyment. The stronger the social presence, the higher users' perceived enjoyment will be[29, 32, 33]. The reason for this is that social presence enables users to have an intimate feeling psychologically[34]. This emotional connection is an important factor affecting users' perceived enjoyment[35]. On the contrary, lack of social presence will reduce users' experience and ultimately affect their perception of enjoyment[36]. Therefore, we hypothesize the following:

H3a: Social presence has a positive impact on perceived enjoyment.

Motivation can be divided into external and internal motivations. When users perceive their informative or other instrumental goals can be achieved, their external motivation is satisfied[37]. In the case of microblogging, this perception is closely related to social presence. First, microblogging provides users with a platform for information sharing, communication, and interaction. The intimacy and social interaction formed from users' social presence are conducive to their information sharing behavior[38]. Second, social presence will also help enhance their perception of their social capital. Through microblogging, users can always be informed of the updates and daily activities of those they follow and interact with, and therefore acquire stronger social presence and social interaction, which in turn enhance the perception of social capital[14]. This shows that social presence plays a positive role in either achieving information goals or enhancing social capital. Therefore, we hypothesize the following:

H3b: Social presence has a positive impact on perceived usefulness.

3.4　Information quality

Information quality can be measured from information richness and media richness. Information richness

refers to the number of concepts embedded in the information. Goh et al.[39] studied social media brand community and found that in the cases of both Marketer-Generated Content (MGC) and User-Generated Content (UGC), information richness has a large impact on users' purchasing behavior. This is because the higher the information richness, the lower the uncertainty that users will face when making decisions. Given that users are mostly averse to losses, richer information is considerably more helpful for users[40]. In addition, information quality is also determined by the richness of information[41]. This is especially true for microblogging messages that contain various types of media, including images, videos, music, emoticons, URLs, hashtags, and mentions. With the fusion of various forms of media, microblogging messages provide high quality information within a limited length of 140 characters. Hence, we hypothesize the following:

H4a: Information quality of microblogging messages has a positive impact on perceived usefulness.

The impact of information quality on perceived enjoyment is also confirmed by a number of studies. Ahn et al.[42] studied online retailing and found that information quality has a significant impact on users' perceived enjoyment. Shin[43] also found that information quality can enhance users' attitudes towards IPTV usage by affecting their perceived enjoyment. Microblogging messages provide both rich content and sufficient communication tools. Users can feel relaxed and satisfied by reading microblogging messages themselves, as well as sharing and discussing microblogging messages with their friends[25, 26]. This suggests that high quality microblogging messages can provide users with good experiences and result in improved perceived enjoyment. Hence, we hypothesize the following:

H4b: Information quality of microblogging messages has a positive impact on perceived enjoyment.

Social presence of information is generated from the media richness it contains. These features include socially rich text[44], socially rich pictures[34], personalized greeting[45], human audio[46], and so on. Microblogging messages are usually featured by media richness. On one hand, the combined use of various forms of media can transmit multiple clues. This helps information senders to emphasize key points and express certain attitudes when transmitting information, which allows information recipients to understand

received information more accurately[47]. On the other hand, such a combination can improve immediacy of feedback. Immediate feedback helps senders accurately judge recipients' responses, and make adjustments accordingly[48]. Multiple clues and feedback immediacy enable microblogging users to establish social interactions as they do in face-to-face communication, which leads to a stronger social presence[14]. Hence, we hypothesize the following:

H4c: Information quality of microblogging messages has a positive impact on social presence.

3.5 Source credibility

Source credibility refers to the trustworthy and expertise of information senders[49]. In microblogging, users often process information by referring to source credibility. One reason for this is that microblogging users receive large numbers of messages from the users they follow, which often causes information overload. When information overload occurs, users often use peripheral cues, such as source credibility, to quickly evaluate the usefulness of messages[50]. On the other hand, while displaying messages, microblogging platforms also provide a large amount of information related to microblogging authors, such as the number of messages they have posted, the number of fans or followers they have, and whether they are authenticated or not. This information reflects microblogging authors' information sharing history and knowledge contributions, which is an important reflection of source credibility[22]. Microblogging platforms also present some information about the relationship between microblogging authors and users, e.g., the number of friends or followers they have in common. Such information shows the strength of the relationship between microblogging authors and users and can also reflect the authors' source credibility[51]. This leads to the following hypothesis:

H5: Source credibility of microblogging messages has a positive impact on perceived usefulness.

4 Methodology

4.1 Research design

This study selected Sina Weibo to examine the microblogging reposting mechanism, and a field experiment approach was employed to validate the hypotheses. An experimental website was developed and registered as a third-party application of the Sina Weibo open platform, which obtained respondents'

microblogging messages through the Application Programming Interface (API) provided by the open platform.

A field experiment is an empirical research method lying between a field study and a lab experiment. It is conducted under the natural state of the research object and can control interference factors effectively[52]. After authorization by respondents, the experimental website accessed and presented their latest microblogging message. Respondents were required to fill in questionnaires based on these microblogging messages. In this way, a relation was established between the microblogging message (information quality and source credibility) and users' reposting behavior. The experimental website also displayed the microblogging messages of respondents on the website page instead of letting them visit their Sina Weibo homepage. This avoided the impact of other factors of Sina Weibo (e.g., website quality, advertisements, etc.) on users' reposting behavior. For these reasons, we selected a field experiment as the most appropriate method for this study.

4.2 Measurement

In measurement development, existing mature scales were adopted, and some indicators were adapted according to the context of this study (Table 1). Intention to repost, perceived usefulness, perceived enjoyment, and social presence were measured using a 5-point Likert scale, and information quality and source credibility were calculated with objective data. Information quality is a formative factor measured by information richness and media richness. The number of concepts contained in each microblogging message was calculated using ICTCLAS 2014, which is a Chinese word segmentation tool. Media richness was measured by the total number of images, URLs, hashtags, and mentions contained in every microblogging message. Source credibility was measured by four indicators: the number of messages the microblogging author had posted, the number of fans he or she had, whether he or she was an authenticated user, and the number of common friends between the microblogging author and the respondent. These indicators reflected the trustworthiness and expertise of the microblogging authors.

4.3 Data collection

Data were collected using the snowball sampling method. Sina Weibo and instant messaging software (like QQ and MSN) were used to send a link to the experimental website to respondents who were invited to fill in questionnaires and were required to send the

Table 1   Construct measures and sources.

Construct		Indicator	Source
Intention to repost	IR1	I will repost this microblogging message.	Self-developed
	IR2	I will repost this microblogging message and @ my friends.	
	IR3	I will repost and comment this microblogging message.	
Perceived usefulness	PU1	This microblogging message is valuable.	Sussman and Siegal[12]
	PU2	This microblogging message is informative.	
	PU3	This microblogging message is helpful.	
Perceived enjoyment	PE1	Reading this microblogging message is enjoyable.	van der Heijden[28]; Al-Natour et al.[53]
	PE2	Reading this microblogging message is exciting.	
	PE3	Reading this microblogging message is pleasant.	
	PE4	Reading this microblogging message is interesting.*	
Social presence	SP1	I feel this microblogging message is warm.*	Short et al.[17]; Hess and Fuller[54]; Wang et al.[29]
	SP2	I feel this microblogging message is sociable.	
	SP3	I feel this microblogging message is sensitive.	
	SP4	I feel this microblogging message is personal.*	
Information quality	IQ1	The information richness of this microblogging message	Adapted from Goh et al.[39]
	IQ2	The media richness of this microblogging message	
Source credibility	SC1	Posted messages of this microblogging author	Adapted from Sussman and Siegal[12], Bhattacherjee and Sanford[55]
	SC2	Fans of this microblogging author	
	SC3	Whether or not this microblogging author is authenticated.*	
	SC4	Common friends between this microblogging author and the respondent	

Note: * The item was deleted in the final questionnaire.

link to their friends, classmates, colleagues, etc. The entire data collection process spanned from July 22, 2013 to July 28, 2013, a total of seven days. In total, 328 users visited the experimental website, and 216 valid questionnaires were completed and submitted. The effective questionnaire response rate was 65.9%.

5 Results

5.1 Measurement model

Before validation of the model, the reliability and validity of the scale were assessed. SPSS 17.0 was used for Exploratory Factor Analysis (EFA), and the factors were extracted by Varimax rotation. A total of five constructs were extracted, including intention to repost, perceived enjoyment, perceived usefulness, social presence, and source credibility. Five constructs explained 74.2% of the variance, and the loading of each indicator on its corresponding construct was much higher than its cross loading on other factors.

Reliability describes the internal consistency of each construct. In this study, Composite Reliability (CR) was examined to assess the reliability of the measurement model. Confirmatory Factor Analysis (CFA) using Smart PLS 2.0 (see Table 2) showed that the composite reliability of all constructs ranged from 0.705 to 0.951, which was larger than the minimum requirement of 0.7[56]. Therefore, the measurement model had good reliability.

Validity consists of convergent validity and discriminant validity. Table 2 shows that the loadings of all indicators on their corresponding constructs

Table 2 Reliability and convergent validity.

Construct	Indicator	Loading	Composite reliability	AVE
Intention to repost	IR1	0.935	0.951	0.866
	IR2	0.937		
	IR3	0.920		
Perceived usefulness	PU1	0.905	0.888	0.727
	PU2	0.720		
	PU3	0.918		
Perceived enjoyment	PE1	0.932	0.950	0.864
	PE2	0.932		
	PE3	0.924		
Social presence	SP2	0.782	0.828	0.617
	SP3	0.747		
	SP4	0.826		
Source credibility	SC1	0.736	0.705	0.570
	SC2	0.753		
	SC4	0.959		

were higher than 0.7, and the Average Variance Extracted (AVE) of all constructs ranged from 0.570 to 0.866, which exceeded the cutoff value of 0.5. The results show that the measurement model had good convergent validity[56]. Discriminant validity was assessed by comparing the square root of AVE for each construct with its correlation between other factors. Table 3 showed that the square roots of AVE for all constructs were higher than correlation with other factors. Therefore, the validity of the measurement model met the requirements[56].

Common Method Variance (CMV) was another issue to be considered. When all measurement indicators in a questionnaire are filled in by the same respondent, CMV can appear[57]. The combined use of objective and subjective data can avoid CMV. In this study, information quality and source credibility were calculated using objective data, and social presence, perceived usefulness, perceived enjoyment, and reposting intention were measured with subjective data. Harman's single-factor test was also employed to assess the potential for CMV. The test results showed that five factors were extracted through principal component analysis, which explained 74.2% of the variance, and the explanation rate of the first factor was 34.4%, which did not exceed the upper limit of 50%[58]. More than one factor was extracted by principal component analysis, and there was no single factor explaining most of the variance, so there was no significant CMV in our data[59].

5.2 Hypotheses testing

Partial Least Square (PLS) regression was employed to test the structural model. As suggested by Chin[60], bootstrapping was performed to estimate the statistical significance of each path coefficient. The

Table 3 Construct correlations and discriminant validity.

	IR	PU	PE	SP	IQ	SC
IR	**0.931**					
PU	0.363	**0.853**				
PE	0.436	0.505	**0.929**			
SP	0.214	0.320	0.561	**0.785**		
IQ	0.094	0.182	0.142	0.286	**NA**	
SC	0.050	0.156	0.004	0.064	0.098	**0.755**

Notes: Square root of AVE of reflective construct is shown on the diagonal of the matrix. IR, Intention to Repost; PU, Perceived Usefulness; PE, Perceived Enjoyment; SP, Social Presence; IQ, Information Quality; SC, Source Credibility.

research model contained both reflective constructs and formative constructs. Because LISRE cannot handle formative constructs, Smart PLS 2.0 was used.

Figure 1 shows the results of PLS analysis. The model explained 31.7% of the variance in microblogging reposting intention. Except for H4b, the remaining seven hypotheses were all supported at the 0.05 level of significance. Specifically, intention to repost was strongly affected by both perceived usefulness ($\beta = 0.191$, $p < 0.01$) and perceived enjoyment ($\beta = 0.339$, $p < 0.001$), supporting H1 and H2. Social presence was significantly associated with perceived enjoyment ($\beta = 0.566$, $p < 0.001$) and perceived usefulness ($\beta = 0.380$, $p < 0.001$). Therefore, H3a and H3b were supported. Perceived social presence was determined by microblogging information quality ($\beta = 0.286$, $p < 0.01$), supporting H4c. Information quality ($\beta = 0.175$, $p < 0.05$) and source credibility ($\beta = 0.163$, $p < 0.05$) had a positive impact on perceived usefulness, supporting H4a and H5.

5.3   Test of mediating effect

The results of PLS analysis validated the impact of information quality on social presence and the impact of social presence on perceived enjoyment. However, the impact of information quality on perceived enjoyment was not significant, thus H4b was not supported. This might be caused by the mediating effect between information quality, social presence, and perceived enjoyment. In order to analyze the mediating effect of social presence on information quality and perceived enjoyment, three analyses were performed. First, the impact of information quality on perceived enjoyment was calculated. The path coefficient was 0.182, which was significant at the 0.05 level. Then, partial mediating effect[61] was tested. The impact of information quality on social presence was 0.286 at the 0.01 level. Finally, full mediating effect[62] testing was performed. The impact of information quality on perceived enjoyment was examined under controlled social presence, and the result was not significant (Table 4). We concluded that social presence played a full mediating role between information quality and perceived enjoyment. The direct explanation of information quality on perceived enjoyment was only 11.9%, although it increased to 31.5% due to the mediating effect of social presence.

The mediating effect of social presence between information quality and perceived usefulness was also analyzed using the same method (Table 5). The results showed that information quality affected perceived
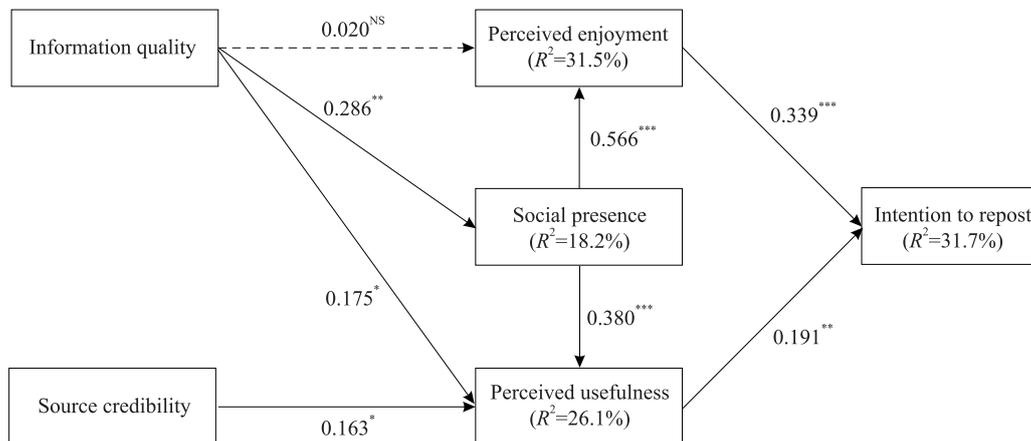
Notes: ***$p<0.001$; **$p<0.01$; *$p<0.05$; NS $p>0.05$

Fig. 1   Results of hypotheses testing.

Table 4   Mediating effect of social presence on perceived enjoyment.

Step	Path	Coefficient	Standard errors	R^2 (%)
1	Information quality → Perceived enjoyment	0.182*	0.062	11.9
2	Information quality → Social presence	0.286**	0.108	18.2
3	Social presence → Perceived enjoyment	0.566***	0.045	31.5
	Information quality → Perceived enjoyment	0.020[NS]	0.095	

Notes: ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; NS $p > 0.05$

Table 5 Mediating effect of social presence on perceived usefulness.

Step	Path	Coefficient	Standard errors	R^2 (%)
1	Information quality → Perceived usefulness	0.296*	0.068	11.5
2	Information quality → Social presence	0.286**	0.108	18.2
3	Social presence → Perceived usefulness	0.374***	0.060	13.5
	Information quality → Perceived usefulness	0.189*	0.085	

Notes: ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$

usefulness directly ($\beta = 0.189$, $p < 0.05$) and indirectly through social presence ($\beta = 0.374$, $p < 0.001$). Social presence played a partial mediating role between information quality and perceived usefulness.

6 Discussion

This study employed ELM and social presence theory to examine the microblogging reposting mechanism from the perspective of information adoption.

We found that perceived usefulness is an important determinant affecting microblogging reposting intention (H1). This finding supports previous studies that found a significant relationship between perceived usefulness and intention to continue using microblogging[63], as well as information adoption behavior[9]. This means that more valuable, informative, and helpful microblogging messages are more likely to be reposted by users.

We also found that microblogging users' reposting intention is influenced by perceived enjoyment (H2). The higher the users' perceived enjoyment of microblogging messages, the stronger their reposting intention will be. This finding is in line with the work of Cocosila and Igonor[64] and Hu et al.[65], who each found that microblogging behavior is largely driven by the perception of enjoyment.

The results also indicate that perceived enjoyment has a greater influence on users' reposting intention than perceived usefulness ($\beta_{PE} = 0.339$, $\beta_{PU} = 0.191$). Both internal and external motivations influence information system adoption by users[27]. Which type of motivation is more significant depends on whether the information system is utilitarian or hedonic[28]. Microblogging can help users realize their instrumental values, such as accessing information and building their reputation or developing relationships; it can also satisfy users' need for enjoyment and relaxation. Therefore, microblogging is a kind of dual-purpose information system[13]. This study provides evidence that the internal motivation represented by perceived enjoyment has a significant influence on microblogging reposting intention.

As expected, information quality (H4a) and source credibility (H5) of microblogging messages affect perceived usefulness. ELM posits that users not only process information according to its content, but also refer to heuristic cues such as source credibility. Both the central and the peripheral paths can cause changes in user attitude[12]. In this study, we found that the higher the information and media richness of microblogging messages, the greater the perceived usefulness. We also found that perceived usefulness was increased by the number of reposted messages, fans, and common friends of microblogging authors. We conclude that ELM is applicable in the microblogging context.

Another important finding is that information quality of microblogging messages does not only affect perceived usefulness, but also leads to social presence (H4c). Microblogging is a kind of social media, so the interaction between users and microblogging messages is a critical factor for microblogging reposting. Microblogging can embed images, emoticons, videos, music, URLs, hashtags, and mentions within a limited length of 140 characters, which brings users with strong social presence and thus improves perceived enjoyment and usefulness. To a certain extent, this finding is consistent with structuration theory. Technology, users, and social structure interact with each other, and determine microblogging usage behavior jointly[66].

Lastly, we found that social presence plays different mediating roles between information quality and perceived enjoyment (H3a) and usefulness (H3b). Social presence fully mediates the impact of information quality on perceived enjoyment, and partially mediates its impact on perceived usefulness. That is, information quality completely depends on social presence to affect perceived enjoyment. However, for perceived usefulness, information quality does not only have a direct influence on it, but also has an indirect influence through social presence, in which the influence of social presence is limited (R^2 is only improved from

11.5% to 13.5%).

7 Conclusions

This study made five important contributions to our understanding of microblogging user behavior.

First, it examined the microblogging reposting mechanism from the perspective of information adoption, and found that information quality and source credibility affect microblogging users' reposting intention by affecting their perceived usefulness and perceived enjoyment. This finding explains why information quality and source credibility of microblogging messages affect reposting.

Second, this study categorized users' microblogging reposting motivations as internal and external motivations. The external motivation represented by perceived usefulness and the internal motivation represented by perceived enjoyment both affect microblogging reposting intention, but perceived enjoyment has the most significant effect. The results indicate that microblogging is a hedonic-dominated dual-purpose information system.

Third, this study validated and enriched the application of ELM to microblogging. We found that microblogging information quality and source credibility affect users' reposting intention by affecting their perceived usefulness. This validates the applicability of ELM for microblogging. We also extended the use of ELM beyond perceived usefulness and information adoption behavior by discovering that microblogging information quality can also affect users' reposting behavior by affecting their perceived enjoyment.

Fourth, this study examined the mediating effect of social presence from a social-technical perspective. We found that social presence fully mediates the impact of information quality on perceived enjoyment and partially mediates its impact on perceived usefulness. The two mediating effects of social presence reflect microblogging's social aspect and provide us with a more profound understanding of the microblogging reposting mechanism.

Fifth, this study used a field experiment approach to examine microblogging reposting behavior, providing a new method for information adoption research. Each respondents' latest microblogging message was obtained by an experimental website, and their subjective beliefs and reposting intentions were measured at the same time. This greatly reduced the difficulty of respondents' participation in the study and resulted in an excellent response rate (216 valid questionnaires were collected, with a response rate of 65.9%). More importantly, this experimental method was used to measure respondents' real attitude toward the microblogging message without interference from external factors such as the website itself or any advertisements on the page. Thus, the microblogging reposting mechanism model was truly validated from the perspective of information adoption. This method also allowed the collection of both subjective and objective data. The use of the two types of data provides better support for our conclusions.

However, there are some limitations to this study. First, this study may not include all potential factors. Stieglitz and Dang-Xuan found that emotional factors in microblogging messages also affect sharing and dissemination[67]. Consideration of these factors may enhance the explanatory power of the model. Second, this study used cross-sectional data. They can only be used to explain the microblogging reposting mechanism, not for investigating whether the mechanism will change over time. Our future study may consider using panel data to deepen our understanding with respect to this issue.

References

[1] J. Cheng, A. Sun, D. Hu, and D. Zeng, An information diffusion-based recommendation framework for microblogging, *Journal of the Association for Information Systems*, vol. 112, no. 7, pp. 463-486, 2011.

[2] Q. Li and X. Guo, The shadow of microblogging use: Relationship between usage types and addition, in *Proceedings of the 33rd International Conference on Information Systems*, Orlando, USA, 2012.

[3] D. Boyd, S. Golder, and L. Gilad, Tweet, tweet, retweet: Conversational aspects of retweeting on twitter, in *Proceedings of the 43rd Hawaii International Conference on System Sciences*, Hawaii, USA, 2010, pp. 1-10.

[4] H. Kwak, C. Lee, H. Park, and S. Moon, What is twitter, a social network or a news media? in *Proceedings of the 19th International Conference on World Wide Web*, Raleigh, USA, 2010, pp. 591-600.

[5]   J. M. McPherson, L. Smith-Lovin, and J. M. Cook, Birds of a feather: Homophily in social networks, *Annual Review of Sociology*, vol. 27, pp. 415-444, 2001.

[6]   B. Zhu and M. Chau, Understanding awareness diffusion in microblogging, in *Proceedings of the 16th Americas Conference on Information Systems*, Lima, Peru, 2010.

[7]   M. Nagarajan, H. Purohit, and A. Sheth, A qualitative examination of topical tweet and retweet practices, in *Proceedings of the 4th International Conference on Weblogs and Social Media*, Washington DC, USA, 2010, pp. 295-298.

[8]   B. Suh, L. Hong, P. Pirolli, and E. H. Chi, Want to be retweeted? Large scale analytics on factors impacting retweet in twitter network, in *Proceedings of the IEEE 2nd International Conference on Social Computing*, Minneapolis, MN, USA, 2010, pp. 177-184.

[9]   S. Ha and J. Ahn, Why are you sharing others' tweets? The impact of argument quality and source credibility of information sharing behavior, in *Proceedings of the 32nd International Conference on Information Systems*, Shanghai, China, 2011.

[10] S. A. Macskassy and M. Michelson, Why do people retweet? Anti-homophily wins the day! in *Proceedings of the 5th International Conference on Weblogs and Social Media*, Catalonia, Spain, 2011, pp. 209-216.

[11] R. E. Petty, J. T. Cacioppo, and R. Goldman, Personal involvement as a determinant of argument-based persuasion, *Personality and Social Psychology*, vol. 41, no. 5, pp. 847-855, 1981.

[12] S. W. Sussman and W. S. Siegal, Informational influence in organizations: An integrated approach to knowledge adoption, *Information Systems Research*, vol. 14, no. 1, pp. 47-65, 2003.

[13] H. Sun and P. Zhang, Causal relationships between perceived enjoyment and perceived ease of use: An alternative approach, *Journal of the Association for Information Systems*, vol. 7, no. 9, pp. 618-645, 2006.

[14] Y. Ding, L. Qiu, and D. Li, Celebrity-following and social capital: A study of user behavior in microblogging, in *Proceedings of the 16th Pacific Asia Conference on Information Systems*, Hochiminh, Vietnam, 2012.

[15] R. E. Petty and J. T. Cacioppo, *Communication and Persuasion: Central and Peripheral Routes to Attitude Change*. New York, USA: Springer-Verlag, 1986.

[16] M. E. Greiner and H. Wang, Building consumer-to-consumer trust in e-finance marketplaces: An empirical analysis, *International Journal of Electronic Commerce*, vol. 15, no. 2, pp. 105-136, 2010.

[17] J. Short, E. Williams, and B. Christie, *The Social Psychology of Telecommunications*. London, UK: Wiley, 1976.

[18] R. L. Daft and R. H. Lengel, Organizational information requirments, media richness and structural design, *Management Science*, vol. 32, no. 5, pp. 554-571, 1986.

[19] R. E. Rice, Media appropriateness: Using social presence theory to compare traditional and new organizational media, *Human Communication Research*, vol. 19, no. 4, pp. 451-484, 1993.

[20] K. Burke and L. Chidambaram, How much bandwidth is enough? A longitudinal examination of media characteristics and group outcomes, *MIS Quarterly*, vol. 23, no. 4, pp. 557-580, 1999.

[21] J. B. Walther, Interpersonal effects in computer mediated interaction: A relational perspective, *Communication Research*, vol. 19, no. 1, pp. 52-90, 1992.

[22] W. Zhang and S. A. Watts, Capitalizing on content: Information adoption in two online communities, *Journal of the Association for Information Systems*, vol. 9, no. 2, pp. 73-94, 2008.

[23] F. D. Davis, R. P. Bagozzi, and P. R. Warshaw, User acceptance of computer technology: A comparison of two theoretical models, *Management Science*, vol. 35, no. 8, pp. 983-1003, 1989.

[24] X. Jin, C. M. K. Cheung, M. K. O. Lee, and H. Chen, How to keep members using the information in a computer-supported social network, *Computers in Human Behavior*, vol. 25, no. 25, pp. 1172-1181, 2009.

[25] C. M. K. Cheung and M. K. O. Lee, A theoretical model of intentional social action in online social networks, *Decision Support Systems*, vol. 49, no. 1, pp. 24-30, 2010.

[26] H. Krasnova, S. Spiekermann, K. Koroleva, and T. Hildebrand, Online social networks: Why we disclose, *Journal of Information Technology*, vol. 25, no. 2, pp. 109-125, 2010.

[27] F. D. Davis, R. P. Bagozzi, and P. R. Warshaw, Extrinsic and intrinsic motivation to use computers in the workplace, *Journal of Applied Social Psychology*, vol. 22, no. 14, pp. 1111-1132, 1992.

[28] H. van der Heijden, User acceptance of hedonic information systems, *MIS Quarterly*, vol. 28, no. 4, pp. 695-704, 2004.

[29] W. Wang, J. Hsieh, and B. Song, Understanding user satisfaction with instant messaging: An empirical survey study, *International Journal of Human-Computer Interaction*, vol. 28, no. 3, pp. 153-162, 2012.

[30] Y. Hwang and D. J. Kim, Customer self-service systems: The effects of perceived web quality with service contents on enjoyment, anxiety, and e-trust, *Decision Support Systems*, vol. 43, no.3, pp. 746-760, 2007.

[31] H. van der Heijden, Factors influencing the usage of websites: The case of generic portal in the Netherlands, *Information & Management*, vol. 40, no.6, pp. 541-549, 2003.

[32] K. N. Shen and M. Khalifa, Exploring multidimensional conceptualization of social presence in the context of online communities, *International Journal of Human-Computer Interaction*, vol. 24, no. 7, pp. 722-748, 2008.

[33] L. Qiu and I. Benbasat, Online consumer trust and live help interfaces: The effects of text-to-speech voice and three-dimensional avatars, *International Journal of Human-Computer Interaction*, vol. 19, no. 1, pp. 75-94, 2005.

[34] A. Animesh, A. Pinsonneault, Y. Sung-Byung, and O. Wonseok, An odyssey into virtual worlds: Exploring the impacts of technological and spatial environments on intention to purchase virtual products, *MIS Quarterly*, vol. 35, no. 3, pp. 789-810, 2011.

[35] V. Venkatesh and P. Johnson, Telecommuting technology implementations: A within- and between- subjects longitudinal field study, *Personnel Psychology*, vol. 55, no. 3, pp. 661-687, 2002.

[36] K. Hassanein and M. Head, Manipulating perceived social presence through the web interface and its impact on attitude towards online shopping, *International Journal of Human-Computer Studies*, vol. 65, no. 8, pp. 689-708, 2007.

[37] R. P. Bagozzi and U. M. Dholakia, Goal setting and goal striving in consumer behavior, *Journal of Marketing*, vol. 63, no. 4, pp. 19-32, 1999.

[38] N. Chung and C. Koo, Knowledge sharing in social networking sites for e-collaboration: Identity and bond theory perspective, in *Proceedings of the 18th Americas Conference on Information Systems*, Seattle, USA, 2012.

[39] K. Goh, C. Heng, and Z. Lin, Social media brand community and consumer behavior: Quantifying the relative impact of user- and marketer-generated content, *Information Systems Research*, vol. 24, no. 1, pp. 88-107, 2013.

[40] D. Kahneman and A. Tversky, Prospect theory: An analysis of decision under risk, *Econometrica*, vol. 47, no. 2, pp. 263-291, 1979.

[41] A. Srinivasan, Alternative measures of system effectiveness: Associations and implications, *MIS Quarterly*, vol. 9, no. 3, pp. 243-253, 1985.

[42] T. Ahn, S. Ryu, and I. Han, The impact of web quality and playfulness on user acceptance of online retailing, *Information & Management*, no. 44, pp. 263-275, 2007.

[43] D. H. Shin, An empirical investigation of a modified technology acceptance model of iptv, *Behaviour & Information Technology*, vol. 28, no. 4, pp. 361-372, 2009.

[44] D. Gefen and D. Straub, Managing user trust in b2c e-services, *E-Service Journal*, vol. 2, no. 2, pp. 7-24, 2003.

[45] N. Kumar and I. Benbasat, The influence of recommendations and consumer reviews on evaluations of websites, *Information Systems Research*, vol. 17, no. 4, pp. 425-439, 2006.

[46] M. Lombard and T. Ditton, At the heart of it all: The concept of presence, *Journal of Computer Mediated Communication*, vol. 3, no. 2, pp. 1-43,1997.

[47] E. Williams, Experimental comparisons of face-to-face and mediated communication: A review, *Psychology Bulletin*, vol. 84, no. 5, pp. 963-976, 1977.

[48] M. S. Clark, J. Mills, and M. C. Powell, Keeping track of needs in communal and exchange relationships, *Journal of Personality and Social Psychology*, vol. 52, no. 2, pp. 333-338, 1986.

[49] S. Chaiken, Heuristic versus systematic information processing and the use of source versus message cues in persuasion, *Journal of Personality and Social Psychology*, vol. 39, no. 5, pp. 752-766, 1980.

[50] C. Forman, A. Ghose, and B. Wiesenfeld, Examining the relationship between reviews and sales: The role of reviewer identity disclosure in electronic markets, *Information Systems Research*, vol. 19, no. 3, pp. 291-313, 2008.

[51] Y. Ren, F. Harper, and R. Kraut, Building member attachment in online communities: Applying theories of group identity and interpersonal bonds, *MIS Quarterly*, vol. 36, no. 3, pp. 841-864, 2012.

[52] S. Ji, Q. Mi, and W. Han, Information systems research in China: An empirical study, *Journal of Global Information Management*, vol. 15, no. 1, pp. 1-17, 2007.

[53] S. Al-Natour, I. Benbasat, and R. Cenfetelli, The adoption of online shopping assistants: Perceived similarity as an antecedent to evaluative beliefs, *Journal of the Association for Information Systems*, vol. 12, no. 5, pp. 347-374, 2011.

[54] T. Hess and M. Fuller, Designing interfaces with social presence: Using vividness and extraversion to create social recommendation agents, *Journal of the Association for Information Systems*, vol. 10, no. 12, pp. 889-919, 2009.

[55] A. Bhattacherjee and C. Sanford, Influence processes for information technology acceptance: An elaboration likelihood model, *MIS Quarterly*, vol. 30, no. 4, pp. 805-825, 2006.

[56] C. Fornell and D. F. Larcker, Evaluating structural equation models with unobservable variables and measurement error, *Journal of Marketing Research*, vol. 18, no. 1, pp. 39-50, 1981.

[57] P. M. Podsakoff and D. W. Organ, Self-reports in organizational research: Problems and prospects, *Journal of Management*, vol. 12, no. 4, pp. 531-544, 1986.

[58] H. H. Harman, *Modern Factor Analysis*. Chicago, USA: University of Chicago Press, 1967.

[59] P. M. Podsakoff, S. B. MacKenzie, J. Y. Lee, and N. P. Podsakoff, Common method biases in behavioral research: A critical review of the literature and recommended remedies, *Journal of Applied Psychology*, vol. 88, no. 5, pp. 879-903, 2003.

[60] W. W. Chin, Issues and opinion on structural equation modeling, *MIS Quarterly*, vol. 22, no. 1, pp. 7-16, 1998.

[61] R. M. Baron and D. A. Kenny, The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations, *Journal of Personality and Social Psychology*, vol. 51, no. 6, pp. 1173-1182, 1986.

[62] C. M. Judd and D. A. Kenny, Process analysis: Estimating mediation in treatment evaluations, *Evaluation Review*, vol. 5, no. 5, pp. 602-619, 1981.

[63] R. Agrifoglio, S. Black, C. Metallo, and M. Ferrara, Extrinsic versus intrinsic motivation in continued twitter usage, *Journal of Computer Information Systems*, vol. 53, no. 1, pp. 33-41, 2012.

[64] M. Cocosila and A. Igonor, Perceived value of social media: An empirical investigation, in *Proceedings of the International Conference on Information Resources Management*, Vienna, Austria, 2012.

[65] T. Hu, R. S. Poston, and W. J. Kettinger, Nonadopters of online social network services: Is it easy to have fun yet? *Communications of the Association for Information Systems*, vol. 29, pp. 441-458, 2011.

[66] W. J. Orlikowski and S. R. Barley, Technology and institutions: What can research on information technology and research on organizations learn from each other? *MIS Quarterly*, vol. 25, no. 2, pp. 145-165, 2001.

[67] S. Stieglitz and L. Dang-Xuan, Emotions and information diffusion in social media - sentiment of microblogs and sharing behavior, *Journal of Management Information Systems*, vol. 29, no. 4, pp. 217-247, 2013.

Wei Yan is a PhD candidate of the School of Economics and Management, Tsinghua University. He received his BS degree from Communication University of China in 2001 and MS degree from Communication University of China in 2004. He has published more than 20 papers in international and Chinese academic journals and conferences. He is also author or co-author of several books including *Media Transformation* (CRTP, 2014), *Digital Media Asset Management* (CUCP, 2009) and so on. He has been awarded the Best Paper Award in the 5th Annual Meeting of China Association for Information Systems in 2013. He serves as Member of AIS (Association for Information Systems) and CNAIS (China Association for Information Systems). His research interests focus on Information Systems and Social Media.

Jinghua Huang is a full professor at the Department of Management Science and Engineering in the School of Economics and Management, Tsinghua University. She is also the Vice Chair of Department of Management Science and Engineering. She received her BS degree in 1986, MS degree in 1988 and PhD degree in 2004 from Tsinghua University. She has been Fulbright Scholar to conduct research at University of Illinois-Champaign-Urbana, visiting scholar at University of Waterloo, MIT Sloan Management School, UBC Business School, Canada. She has published tens of articles in international journals, such as *Information & Management, Communications of AIS, Computers & Industrial Engineering*, etc., and Chinese journals including *Journal of Management Science, System Engineering Theory and Practice* and so on. She is author or co-author of several books including *Electronic Commerce* (TUP, 2010), *Critical Success Factors for Corporate E-commerce Systems Research* (TUP, 2009), etc. She has also been the project leader for several key or general research projects and projects for international cooperation and communication granted by National Natural Science Foundation of China (NSFC). She has been awarded the Excellent Achievement in Philosophy and Social Science in Beijing in 2000. She serves on several academic organizations, such as the Executive Editor CJIS (*China Journal for Information Systems*), Member of the director board of Chinese Association of Systems Engineering, CNAIS (China Association for Information Systems) and Chinese Association of Information and Economy as well as Member of the Standing Committee of Decision Making and Information Systems Sub-Society of CSOOPEM. Her research interests focus on Information Systems and Electronic Business.