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Content or context: Which matters more in information processing on microblogging sites

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ABSTRACT

With a framework based on the heuristic–systematic model of information processing, this study examined the effects of both content and contextual factors on the popularity of microblogging posts. The popularity of posts was operationalized as the re-tweeting times and number of comments received by posts, which are users' behavioral outcomes after processing information. The data of the study were 10,000 posts randomly drawn from a popular microblogging site in China. Content factors were found to outperform contextual ones in accounting for the variance in post popularity, which suggests that systematic strategy dominates users' information processing in comparison with heuristic strategy. Our findings implied that re-tweeting and commenting are distinct types of microblogging behaviors. Re-tweeting aims to disseminate information in which the source credibility (e.g., users' authoritativeness) and posts' informativeness play important roles, whereas commenting emphasizes social interaction and conversation in which users' experience and posts' topics are more important.

1. Introduction

Social media has taken its place alongside traditional media as a major force for information diffusion. In social media, each user acts simultaneously as a consumer and producer of information, with the ability to create and contribute content. In turn, content is consumed, or rated, by being voted on (e.g., Digg), forwarded (e.g., Twitter), and commented on (e.g., Facebook). Thus, social media has "facilitated new ways of interacting with information" (Lerman, 2007, p. 1), and it is important to know which factors cause users (i.e., information consumers) to filter, process, exchange, and distribute information and opinions within this free marketplace of ideas.

Social media has loosened the constraints of information acquisition and distribution, both psychologically and physically, due to their features of real-time sharing, unboundedness of space in communication, 24/7 access, frequent updating and ease of access (Van Cuilenburg, 1999). Thus it is assumed that users of social media can process information with their free will, simply by judging the information quality. However, social media also poses a great challenge for users because they might process too many messages to which they are exposed. This task leads to information overload for users by exceeding the upper limit of their cognitive capacity (as predicted by zero-sum theory of agenda-setting, Zhu, 1992); as a result, they may choose an economic strategy for information processing (Morris, Counts, Roseway, Hoff, & Schwarz, 2012). Empirical research has yet to provide a clear picture of how users choose which messages to focus on, respond to, and share, or of why some messages are more likely to be acted upon than others. In this study, we draw on different areas of research, for example, the dual processing theory of information processing, to try to build up this picture.

Microblogging, thanks to its great ability to incite participation, is one of the most popular types of social media. Users generate millions of messages (known as "posts") per day via Twitter and other similar sites. On microblogging sites, users can use the "retweet" function to forward or re-address a post and can also use the "comment" function to register their comments in response to a post. The current study aims to examine factors that will influence users' information-processing behavior, taking a Chinese microblogging site as the context of the study.

2. Conceptual framework and research hypotheses

The study draws on the heuristic–systematic model of information processing (HSM) (Chaiken, 1980) to explain why some posts are more popular than others. It is assumed that the more a post is

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re-tweeted or commented on by users in a microblogging site, the more popular it is. Users' re-tweeting or commenting behavior represents their behavioral decisions after they are exposed to posts and process those posts (Liu, Liu, & Li, 2012).

Different from other heuristic processing models (e.g., the Elaboration Likelihood model), HSM argues that people use two *parallel*, *co-occurring*, rather than *competing* modes to process information: systematic and heuristic. Systematic mode is a deliberative processing mechanism in which message- and topic-relevant cognition plays a critical role in forming judgments (Chaiken, 1987). Users who adopt the strategy of systematic information processing will make behavioral decisions (i.e., to re-tweet or comment) based on their evaluation of the information quality (Zhang & Watts, 2008) that is manifested in the message content (e.g., Flanagin & Metzger, 2007; Metzger, Flanagin, & Medders, 2010; Taraborelli, 2008).

However, information overload on the Internet may prevent users from always devoting their full mental capacity to scrutinizing information in detail (Fogg, 2003; Lang, 2000). On microblogging sites, users are likely to employ a cognitive heuristic strategy to process information by considering the cost of information-seeking. In heuristic mode, users will process messages based on their assessments of messages' contextual features (e.g., characteristics of communicators) (Chaiken, 1987; Zhang & Watts, 2008). A conceptual framework is therefore proposed in Fig. 1 that includes two sets of factors to explain the popularity of posts: content and contextual.

2.1. Content factors that influence the popularity of posts

Content factors are the topics of posts and the semantic manifestations of argument quality within posts (Petty & Cacioppo, 1986; Stone & Hoyt, 1974). Because microblogging sites contain diverse user-generated content, they function as a niche for providing various types of information (Wang & Huberman, 2012). Previous studies have found that various categories of information receive different levels of attention. Zhao et al. (2011) found that world events and travel information are the two most popular topics on Twitter, followed by technical and science topics, sports, arts, family and life, health, business, and education. Bandari et al. (2012) found that the most popular posts on Twitter belong to the categories of technology, health, fun stuff, and programming. Therefore, it is hypothesized that:

H1. Posts with different content foci will vary in their popularity.

Researchers have argued that informativeness is a critical dimension in the assessment of information quality (Ballou & Pazer, 1985; DeLone & McLean, 1992; Wang & Strong, 1996). When people engage in message- or issue-relevant thinking, their behavioral decisions (i.e., re-tweeting and commenting) depend on the level of informativeness offered by the message. Liu et al. (2012) found that the amount of information contained in a post positively correlates with the number of times it is re-tweeted. As the length of messages is positively associated with their informativeness (Otterbacher, 2009), it is reasonable to argue that individuals are more responsive to longer messages. Therefore, it is hypothesized that:

H2. The length of a post will positively affect its popularity.

Information completeness is another critical dimension in the assessment of information quality (Ballou & Pazer, 1985; DeLone & McLean, 1992; Wang & Strong, 1996). In the context of microblogging, the average length of a single post is about 14 words or 78 characters (Go, Bhayani, & Huang, 2009), which may not provide sufficient information compared with other types of social media (Ehrlich & Shami, 2010). To improve the completeness of information, users on microblogging sites are allowed to insert a URL into their posts which can direct audiences to external webpages for

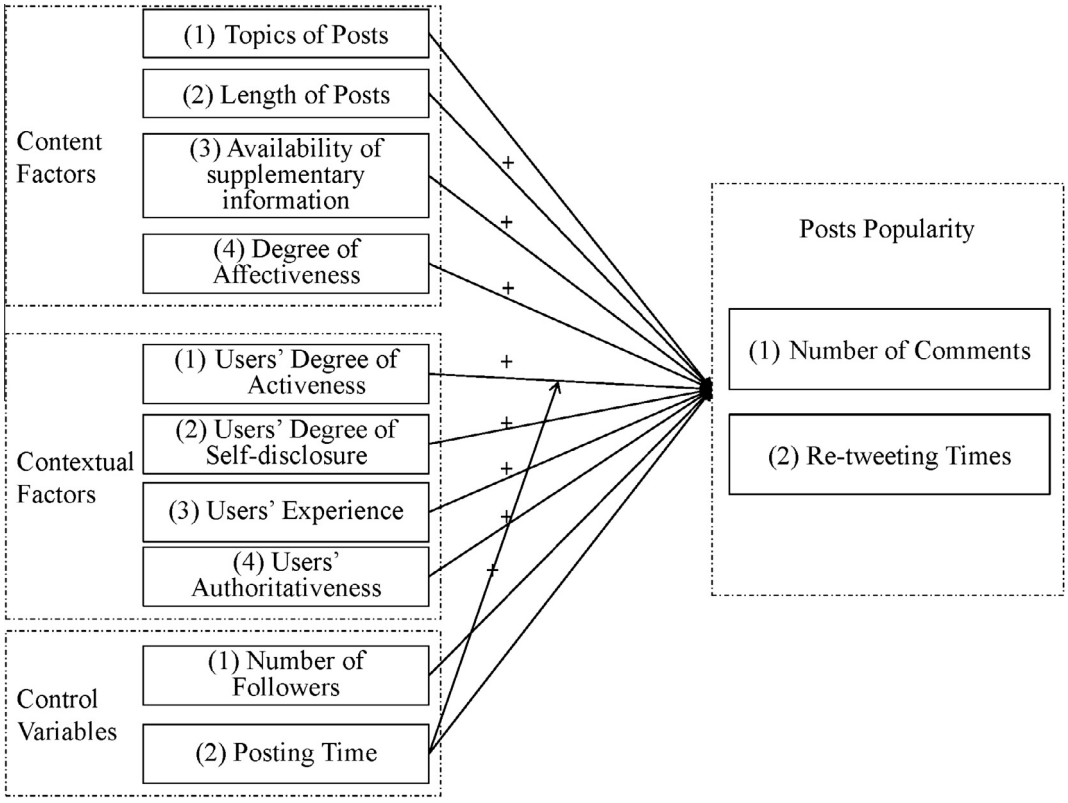

Fig. 1. Conceptual framework.