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The Influences of Online Cultural Capital on Social Tagging Behavior

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Abstract

This study examines the influences of online cultural capital on social tagging behavior in Delicious.com. The researchers identified three online cultural capital-related variables (understanding of social tagging, understanding of Delicious' social functionalities, and quantity of tags and bookmarks) via factor analysis of a survey dataset and analyzed their influences on tagging motivations (information organization-oriented vs. social-oriented) and tagging strategies (object-based tagging vs. situation-based tagging). An existing dataset from a previous survey of Delicious users was used for the analysis. Multiple regression analysis was used to examine the influences of the three variables on tagging motivations and strategies. The study found that understanding of social tagging has a significant positive influence on information organization-oriented tagging; understanding of Delicious' social functionalities has a significant positive influence on social-oriented tagging. In tagging strategies, understanding of Delicious' functionalities significantly influenced how strategic respondents are in situation-based tagging. Quantity of tags and bookmarks influenced both types of tagging strategies.

Keywords: Social Tagging; Social Bookmarking Service; Cultural Capital; Delicious

1. Introduction

Social tagging is a popular Web 2.0 technology. It allows Web users to freely describe information resources with keywords or symbols and has been widely applied in e-commerce and social networking sites. Some prior studies have explored how people tag, but rarely did they approach this online behavior from theoretical perspectives. Furthermore, existing studies often relied on Web transaction logs or tag collections obtained from social tagging sites to draw inferences on tagging motivations and tagging behavior (e.g., Angelova, Lipczak, Milios, & Pralat, 2010; Golder & Huberman, 2006; Heckner, Muhlbacher, & Wolff, 2008; Kipp & Campbell, 2006; Li, Guo, & Zhao, 2008; Mika, 2007; Munk & Mork, 2007a, 2007b). Fewer studies have collected data from end-users (some exceptions are: Chang, 2008; Nov & Ye, 2010; Yang, 2006). This study uses an existing dataset on social tagging behavior that we collected

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directly from 400 end-users of Delicious.com, a large social bookmarking site that allows users to collect and tag Web pages. The concept of cultural capital is used to analyze what influenced tagging motivations and tagging strategies.

This paper builds on a previous research in which we explored the relations between online and offline cultural capital and social capital as well as their influences on social tagging behavior (Lin & Chen, 2012). Cultural capital is a person's knowledge, taste, and/or other tangible/intangible intellectual assets that contribute to and characterize the distinction of styles among the actors of a field. Social capital is the relational assets one can mobilize to achieve certain ends (Bourdieu, 1986). Cultural capital and social capital together shape a person's social status and the ability to make a difference. Our previous research focused on whether Delicious.com users' possession of cultural capital and social capital influenced their social tagging activities and resulted in a stratified social structure among the online taggers who contributed to the collectively-built folksonomy. The answers were positive. Cultural capital was influential when the tagging motivation was to create a well-organized collection; social capital was influential when a tagger aimed to promote a resource or to express something via the tags he/she created. The former also influenced tagging strategies significantly. People with higher cultural capital were more capable of strategic tagging in response to various situations and purposes (Lin & Chen, 2012).

The previous study examined the two kinds of capital in online and offline forms. Of the various forms of capital, the influence of online cultural capital on tagging behavior was particularly evident. The current study thus continues to examine its influences, using the same dataset, on tagging motivations (i.e., information organization-oriented tagging vs. social-oriented tagging) and tagging strategies (i.e., object-based tagging vs. situation-based tagging). It identified three online cultural capital-related variables (i.e., understanding of social tagging, understanding of Delicious' social functionalities, and quantity of tags and bookmarks) via factor analysis of the dataset and examined their influences. The analysis reveals why and how people tag in a large social networking site like Delicious, and the findings may sheds lights on the design and management of social tagging Web sites.

2. Literature Review

Existing literatures on social tagging cover a wide range of topics, for examples, the applications of social tagging in various types of information systems and content repositories,

interface designs and search mechanisms, automation and semantic enhancement of social tags, comparisons of novice tags and subject expert classification, etc. This paper does not attempt at an extensive review of this body of literatures but focuses on research of social tagging behavior that informed the current study, in particular, those on motivations and tagging strategies.

2.1 Motivations of social tagging

A number of studies have explored why people tag, although most of them employed indirect data, i.e., studying transaction logs or tag collections to make inferences on tagging motivations (Angus, Thelwall, & Stuart, 2008; Gupta, Li, Yin, & Han, 2010; Marlow, Naaman, Doyd, & Davis, 2006; Nov & Ye, 2010; Yang, 2006). Two general tagging motivations were identified in these studies: tag to organize personal collections and tag for social purposes. Korner (2009) used *categorizers* and *describers* to denote taggers of the two different motivations. Categorizers are *information organization-oriented*. They tag to facilitate future recall of an item added to their personal collections, and they tend to develop a personal tag system that is organic, structured, and capable of distinguishing different objects. Describers are *social-oriented*. They tag to alert others of the resources, and they may use diverse descriptors on a single item to facilitate the discovery and sharing of that object. Zoller (2007) further indicated that social-oriented tagging may serve multiple purposes. Aside from sharing or promoting a specific resource, it can also be a form of expression (to show one's taste, preference, judgment, individuality, etc.) or activism (to advocate certain views and values such as environmentalism).

2.2 Strategies of social tagging

Other research examined how people tag. For examples, Kipp and Campbell (2006) studied Del.icio.us (the precedent of Delicious) tags and identified four types of tagging strategies, i.e., tags indicating topics (showing *aboutness*), tags expressing a response from the user, tags that are time-sensitive, and tags indicating user tasks. Yang (2006) observed how users tagged in Del.icio.us and Digg alike in an experimental setting and identified eight different tagging strategies. Golder and Huberman (2006) and Munk and Mork (2007b) each identified a set of tagging strategies from examined a large collection of Delicious tags. Heckner et al. (2008) studied another social tagging site called Connotea and differentiated tags that describe a tagged object and tags that describe the taggers' subjective perception of an object or the temporal/task relations with the object.

Summarizing from the studies, we categorized ten distinctive tagging strategies. One can easily identify two major types of the strategies: those based on the physical or objective attributes of the tagged object and those based on the perception and judgment of the taggers. It was consistent with Saracevic's (2007) theory of relevance judgment which contends that a person's perception of relevancy is either based on the characteristics of the information object or on the user's individualistic concerns. We thus categorized the strategies into two major types: *object-based tagging strategies* (describing the characteristics of the information content and/or object) and *situation-based tagging strategies* (describing taggers' perception, judgment, and/or use of that particular resource). This categorization will be used in our later analyses where we examined whether online cultural capital influenced taggers' capability in the two types of tagging.

Table 1. Tagging Strategies Synthesized from Previous Studies

Tagging strategy	Example
Object-based tagging strategies	
Tag by the topic of the resources	"cloudcomputing" for resources on cloud computing
Tag by media format	"video" for Youtube films
Tag by author/owner name	"B.Gates" for articles written by Bill Gates
Tag by the copyright status of the resource	"free" or "opensource" for free/open source downloads
Tag by date/time	using "2010Spring" for some organizing purposes
Situation-based tagging strategies	
Tag by personal judgment	funny, excellent, thissucks, etc.
Tag for self reference	"mystuff" for resources created/owned by yourself, "mycomments" for reviews you posted on the Web, etc.
Tag by task	"toread" for pages you plan to read, "japantrip" for travel planning, etc.
Tag by numbers or symbols	A heart symbol for something one likes or number of stars for rating/recommendation, etc.
Tag by character strings that make sense to no one else	

2.3 Influences of aptitudes, knowledge, and experiences on tagging behavior

What was missing in the previous literatures is how the social tagging participants' aptitudes, knowledge, and prior experiences influence their social tagging behavior. Part of our previous study analyzed how one's cultural capital influenced his/her social tagging behavior in Delicious. Cultural capital in our conceptualization was the totality of a Delicious user's existing knowledge and aptitudes in information technologies, understanding of social tagging and Delicious' system functionalities, as well as the bookmarks and tags one has accumulated, which indicate his/her experience and engagement with Delicious (Lin & Chen, 2012). While the focus of our previous study was to show how cultural capital and social capital together resulted in a stratified tagging community in which taggers contributed to the Delicious folksonomy differentially, the analyses showed how taggers' prior knowledge and experiences influenced their behavior. It echoes numerous information system use studies that concern the influences of users' prior knowledge, e.g., familiarity, expertise, past experiences (Khosrowjerdi & Iranshahi, 2011).

The results of our previous study showed that cultural capital influenced mainly the information organization-oriented tagging and strategic tagging. People in Delicious may tag to organize personal bookmark collections or to promote the sharing of the bookmarks. Cultural capital influenced mainly the former. A person with more understanding of information technologies and social tagging has stronger motivation to organize his/her information and is better at organizing strategically (Lin & Chen, 2012). But specifically, what of the cultural capital (e.g., knowledge of social tagging, expertise with the system, prior experiences) influenced which aspect of tagging behavior was not analyzed. The current study therefore re-examined that part of the data to uncover the relations between the constituents of cultural capital and tagging motivation as well as tagging strategies.

3. Research Framework

This study, therefore, is to observe the relations between taggers' aptitudes, knowledge, and experiences with Delicious and their social tagging behavior. We drew our previous data on Delicious users' online cultural capital, which represented the variables of aptitudes, knowledge, and experiences, to see how they influenced tagging motivations and strategies. The three research constructs, i.e., online cultural capital, tagging motivation, and tagging strategy, are explained as follow (see the Methodology section for the survey questions representing the constructs).

3.1 Online cultural capital

We drew on Bourdieu's (1986) theory of cultural capital to develop our measurement of Delicious users' aptitudes, knowledge, and experiences with social tagging. Cultural capital, according to Bourdieu, is a person's knowledge, abilities, and possession of cultural goods that together constitute one's disposition in a field. It manifests in three forms. *Embodied cultural capital* is one's capabilities in understanding and appreciating cultural manifestations. It is acquired via education or socialization and is accumulated over time to form one's habitus (dispositions and ways of thinking that distinguish one social class from the others). *Objectified cultural capital* is physical artifacts that carry cultural content and values, e.g., books, CDs, works of art. It is an indication of one's aptitudes and tastes. *Institutionalized cultural capital* is socially valued qualifications and credentials earned via education or other formal procedures. It indicates one's capabilities and statuses. But the applicability of this third concept in online research is limited by whether a Web site endows users with different statuses/qualifications. Delicious lacked such status recognition mechanisms, so this idea was dropped from our research design. In this study, we defined online cultural capital as follow:

- *The embodied state*: Delicious users' understanding of what social tagging is, how it works, and their knowledge of Delicious' system functionalities.
- *The objectified state*: the numbers of Delicious users' bookmarks and tags (the quantity of tag and bookmark collections indicates a person's experiences, understanding, and command of social tagging).

3.2 Tagging motivation

As reviewed earlier, we conceptualized two types of tagging behavior based on tagging motivations – *information organization-oriented tagging* versus *social-oriented tagging*. It should be noted that the two tagging orientations may not necessarily contradict each other. A person may demonstrate one or both tagging motivations (Pu, 2007). We assessed whether a respondent demonstrated a stronger or weaker motivation in organizing information and in enhancing sociality. The former was assessed by a single indicator: the intention to facilitate future recall. The latter was assessed by three indicators together: the intention to share resources, to express oneself, and to advocate something.

3.3 Tagging strategy

As reviewed earlier, we identified ten distinct tagging strategies and categorized them into two types of strategies: object-

based tagging versus situation-based tagging. We assessed whether a respondent is highly strategic in the two types of tagging behavior by observing how many different strategies he/she has used.

4. Methodology

The data used in this study are the online survey responses of 400 Delicious users. The study site, Delicious.com, is a social bookmarking service formerly known as "del.icio.us" debuted in 2003. It was acquired by Yahoo! in 2005 and was re-sold to AVOS in 2011. The current Delicious as of the end of 2012 has been re-designed (Delicious, 2012). This study was undertaken while the site was under the ownership of Yahoo!. At the time of this study, it was among the largest social bookmarking services in the world. In 2008, it had more than 5.3 million users who together stored 180 million unique bookmarks in the site (Hood, 2008). We chose Delicious for our study because the site had been existent for several years and had attracted a critical mass of users. It was thus an ideal setting for examining end-user behavior. Further, a previous study suggested that Delicious was semantically richer in its tags in comparison to Flickr and YouTube (Ding, Jacob, Cleverlee, Fried, & Zhang, 2009). While this may be a result from the different natures of the tagged objects, i.e., textual resources versus images and audiovisual resources, the diversity of Delicious users and tags helped to sensitize our analyses.

The online survey was conducted from the August to October, 2010. We recruited voluntary respondents by posting messages on public forums and social networking sites and by sending out invitations via interpersonal networks. We used a quota sampling strategy and set to collect a minimum of 400 effective responses for higher validity in inferential statistical analyses (Wu, 2009) (see Table 2 for the sample demographics).

The original survey contained 69 questions on respondents' demographic features, possession of online and offline social capital and cultural capital, and social tagging behavior in Delicious. The survey was pretested with the assistance of three subject experts, three native English speakers, and three Delicious end-users to ensure its readability and content validity.

The questions related to capital possession and tagging motivations were measured in a Likert 10-point scale. Capital possession and social-oriented tagging were assessed by multiple questions. We assumed that each question was of equal weighting in the assessment. In data analysis, we converted the answer to each of the questions into a score (from 1-10) and averaged the resulted score to indicate a respondent's level of

Table 2. Sample Demographics (N=400)

Measure	Items	No.	Percentage
Gender	Male	217	54.2
	Female	183	45.8
Age	Under 20	013	3.2
	21~30	158	39.5
	31~40	118	29.5
	41~50	065	16.2
	51+	046	11.5
Education	some high school	008	2.0
	high school diploma	025	6.2
	college/university degree	159	39.8
	Master's degree	169	42.2
	Ph. D. and above	039	9.8
Internet use (years)	Under 10	071	17.8
	11~15	194	48.5
	16~20	120	30.0
	21+	015	2.8
Occupation	Business / Management	041	10.2
	Advertising / News / Information	029	7.2
	Architecture / Design / Recreation	028	7.0
	Science / Technology / Programming	062	15.5
	Research	026	6.5
	Education	111	27.8
	Student	057	14.2
	Unemployed / Retired / Homemaker	015	3.8
	Other	031	7.8
Geographic location	Asia	045	11.2
	Europe	098	24.5
	North America	201	50.2
	Latin America	023	5.8
	Africa	003	0.8
	Oceania	030	7.5

capital possession (high or low) and tagging motivations (strong or weak) (score above 5 was considered as high/strong).

In the original questionnaire, 18 questions were designed to assess the possession of online cultural capital based on Bourdieu's theorizing of embodied and objectified capital as previously explained. For the current study, we used factor analysis to re-analyze this part of the data, purging questions that were of lower factor loading and reliability, and identified three online cultural capital-related variables: (A) *understanding of social tagging*, (B) *understanding of Delicious' social functionalities*, and (C) *quantity of tags and bookmarks*. The three variables correspond well to our original theorizing of embodied and objectified capitals, which reaffirms the content validity of our questionnaire (Table 3-4).

The assessment of tagging strategies was based on frequency count. We asked the respondents to check all tagging strategies (see Table 1) they had used to create tags in Delicious. A person who has used three or more strategies of the object-based or situation-based tagging is considered to have higher capability in that type of tagging. In other word, the assessment was about how strategic a tagger was in object-based and situation-based tagging.

5. Study Results

5.1 Delicious users' tagging motivations and tagging strategies

As Table 5 shows, a predominant proportion (95%) of the respondents tagged to organize their bookmark collections for future recall. Nearly half of the respondents (46%) tagged for social purposes. Those who tagged mainly to organize information and less for enhancing sociality constituted the largest group (50.75%). But respondents who were high both in information organization and social motivations also accounted for a rather large proportion of the sample (44.25%).

In terms of tagging strategies, nearly half of the respondents (42.25%) were highly strategic in object-based tagging, but only 23.75% were as strategic in situation-based tagging. Respondents employing few tagging strategies, either object-based or situation-based, constituted the largest group in the sample (50.5%). It was surprising to see a rather large proportion of respondents (57.75%) who were low in object-based tagging. This type of tagging makes use of the physical attributes of an information object and is often considered a more intuitive way to categorize things. This suggests that while many taggers may have frequently used one or two specific object-based tagging strategies, they were not very strategic in employing different attributes to create social tags.

Table 3. Online Cultural Capital-Related Variables Based on Factor Analysis

Variable Derived from Factor Analysis	Original			Modified		Capital Type
	Number of Questions	Loading	α	Number of Questions	α	
Understanding of social tagging	5	.728~.886	.885	(not modified)		Embodied
Understanding of Delicious' social functionalities	7	.699~.905	.916	(not modified)		
Quantity of tags and bookmarks	3	.559~.886	.641	2	.709	Objectified
--	3	.414~.792	.425	Abandoned		

Table 4. Research Constructs, Variables, and the Corresponding Survey Questions

Research Construct	Variable	Survey Question
Online cultural capital	understanding of social tagging	● I understand how a social tagging system works. ● I understand that different users may interpret a tag differently. ● I understand the meaning of "Recommended Tags" in Delicious. ● I understand the meaning of "Popular Tags" in Delicious. ● I understand the meaning of "All My Tags" in Delicious.
	knowledge of Delicious' social functionalities	● I understand the meaning of "Fresh Bookmarks" in Delicious. ● I understand the meaning of "Hotlist" in Delicious. ● I understand the function of "Subscriptions" in Delicious. ● I understand the function of "Network" in Delicious. ● I understand the function of "Tag Bundles" in Delicious. ● I understand the function of "Network Bundles" in Delicious. ● I understand the function of "Subscription Bundles" in Delicious.
	the quantity of tags and bookmarks	● Please tell us your number of bookmarks. ● Please tell us the number of tags shown in "All Tags." ● *In average, how many tags do you assign to each bookmark? (purged)
	(Purged)	● *I frequently write "Tag Descriptions" in Delicious. ● *I am usually the first person who adds a particular bookmark in Delicious. ● *My bookmarks cover a wide range of topics.
Information organization-oriented tagging	Future recall	● When I assign tags, I consider whether the tags will facilitate my future recall of the bookmarks being tagged.
Social-oriented tagging	Sharing	● When I assign tags, I consider whether the tags will promote the sharing of my bookmarks with the other Delicious users.
	Expressive	● When I assign tags, I consider whether the tags will show people how I think or feel about the bookmarks being tagged.
	Advocating	● When I assign tags, I consider whether the tags are capable of connecting other Delicious users who share my concerns about certain social issues (e.g., promoting fair trade, antitrust actions, etc.).

Table 5. Sample Distribution by Tagging Motivation

Tagging Motivations		Information organization-oriented		Total
		High	Low	
Social-oriented tagging	High	177 (44.25%)	7 (1.75%)	184 (46%)
	Low	203 (50.75%)	13 (3.25%)	216 (54%)
Total		380 (95.00%)	20 (5.00%)	400 (100%)

Table 6. Sample Distribution by Tagging Strategy

Tagging Strategy		Object-based tagging		Total
		High	Low	
Situation-based tagging	High	66 (16.50%)	29 (7.25%)	95 (23.75%)
	Low	103 (25.75%)	202 (50.50%)	305 (76.25%)
Total		169 (42.25%)	231 (57.75%)	400 (100.00%)

5.2 Online cultural capital and tagging motivations

Table 7 shows the regression analysis result of online cultural capital and tagging motivation. Understanding of social tagging had a significant positive influence on information organization-oriented tagging (β=.563, p<.001). Understanding of Delicious' social functionalities also had a significant positive influence on social-oriented tagging (β=.328, p<.001). All other relations between the variables did not achieve the significance level, including the influences of objectified capital (quantity of tags and bookmarks).

Interestingly, the first two variables respectively showed a negative influence on social-oriented and information organization-oriented tagging, although the influences did not achieve statistical significance. It suggests that people who understand social tagging better may tend to use it more as an information organization device. But the more they know about Delicious' social functionalities, which were designed to promote sharing of bookmarks and tags, the more likely they would use tags as a means of social communication.

Table 7. Regression Analysis – Online Cultural Capital & Tagging Motivations

	Information organization-oriented	Social-oriented
	β	
Understanding of social tagging	.563***	-.036
Understanding of Delicious' social functionalities	-.095	.328***
Quantity of tags and bookmarks	.061	.028
F	49.825***	14.616***
R^2	.274	.100
CI	18.549	

*Note.*****p*<.001

Table 8. Regression Analysis – Online Cultural Capital & Tagging Strategies

	Object-based tagging	Situation-based tagging
	β	
Understanding of social tagging	.046	-.089
Understanding of Delicious' social functionalities	.075	.240***
Quantity of tags and bookmarks	.367***	.249***
F	24.708***	18.426***
R^2	.158	.122
CI	18.549	

Note. ****p*<.001

5.3 Online cultural capital and tagging strategies

As Table 8 shows, understanding of Delicious' social functionalities had a significant positive influence on situation-based tagging (β=.240, p<.001). Quantity of tags and bookmarks had a significant positive influence on both object-based (β=.367, p<.001) and situation-based tagging (β=.249, p<.001). Surprisingly, the influence of one's understanding of social tagging on the command of the two types of tagging strategies was not statistically significant.

The significant positive influences of the second and third variables on strategic tagging may be explained as follow. As previously described, 95% of the respondents tagged to organize information. If we assume classification by physical attributes as a more intuitive way for people to categorize things, then people need more training in situation-based tagging to achieve at a similar level of command as of object-based tagging. When a tagger understands Delicious' social functionalities well, he/she is possibly more knowledgeable of others' tags and has more opportunities to learn situation-based strategies from others. Similarly, if someone has accumulated a larger quantity of tags and bookmarks, it suggests that he/she is more experienced both in social tagging and Delicious.com and therefore has had the chances to acquire situation-based tagging abilities as well more object-based tagging strategies.

6. Discussion and Conclusion

This paper used an existing dataset to explore the influences of online cultural capital-related variables on tagging motivations and tagging strategies in Delicious. Three variables were identified through factor analysis on the questionnaire data: understanding of social tagging, understanding of Delicious' social functionalities, and the quantity of tags and bookmarks. Multiple regression analyses revealed that, in tagging motivations, understanding of social tagging positively influenced information organization-oriented tagging; understanding of Delicious' social functionalities influenced social-oriented tagging. In tagging strategies, understanding of Delicious' social functions positively contributes to better command of situation-based tagging, while the quantity of one's tags and bookmarks positively influenced the command of both object-based and situation-based strategies.

Although our user sample was based on a non-random, self-selection sampling strategy, the findings have several implications for social networking sites. First, if a site wishes to encourage its users to share their resources, a well-designed user orientation to the site's social functions may help to achieve this goal as understanding a site's social functionalities will promote social-oriented tagging. For example, a site may place the social functionalities aiming to enhance the networking of the users at the center of the homepage, in highly visible locations, or prioritize such functionalities in the help menu. User-friendly social functionalities will also enhance social-oriented tagging. Our previous study confirmed that social capital influenced social-oriented tagging (Lin & Chen,

2012), which means that, when users are more networked, they might become more social-minded and tag to share resources.

Second, while object-based tags are easier to share and get used by others, situation-based tags help to create a highly customized and individualistic information organization experience. Innovative and highly personal tags may also offer pleasures and practical utilities that help to attract and retain users. Our result shows that Delicious users were less strategic in situation-based tagging. Social tagging site managers may consider offering tips or demonstration on various ways of resource tagging beyond describing its objective attributes. For example, comments and personal rating are two good ways for each individual user to organize and personalize his/her collections. It may also help to discover other like-minded users given the site's social functionalities exploit the situational tags. Well-designed social functionalities will also leverage people's strategies in situation-based tagging. As user tag and resource collections grew larger, it in turns forms a positive learning environment for users to acquire richer tagging strategies. As such, the design and promotion of social functionalities seem to be good investment for social tagging sites.

A few study limitations must be bore in mind. First, our survey used a self-selected quota sampling strategy to recruit voluntary respondents. The sample did not demographically represent the entire Delicious user population. Our goal was not to generate a demographically representative sample as it wasn't feasible to identify the user population, but to obtain a sample large enough for the inferential statistics verifying the relations between the variables. Second, the measurement of capital possession and tagging behavior was dependent on respondents' self-evaluation. The way we coped with the problems was to enhance the neutrality of the questions and to sensitize the measurement scale (10-point scale). Third, our original research design faced a dilemma of measurement quality and questionnaire brevity. Cultural capital and social capital are highly abstract and complicated concepts that require multiple and diverse measures. So is social tagging behavior that can be observed from different angles. To enhance survey returns, we had to limit the number of survey questions. Certain research constructs in the current paper such as tagging motivations were assessed with fewer or only one measure. The imbalance may have to some extent influenced the reliability of our data, e.g., the very high tendency toward information organization-oriented tagging and the relatively lower tendency toward social-oriented tagging. Finally, social tags assigned to textual resources and non-textual resources

may differ greatly. So is the tagging behavior in different types of social tagging sites such as YouTube and Flickr. Whether the findings of this study may be generalized to non-textual sites awaits future investigation.

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