

## Exploring Factors Impacting Users' Attitude And Intention Towards Social Tagging Systems

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### Abstract

*While recent progress has been made in understanding the structure and dynamics of social tagging systems, we know little about the users' underlying motivations for tagging, and how these motivations influence the resulting use of tagging systems. In this article, we propose and empirically validate a conceptual model of key factors that affect users' attitude and intention to use social tagging systems. Our findings highlight three new factors and confirm two previous factors. In addition to Perceived Enjoyment and Perceived Ease-of-use, we introduce Content Generation, Information Retrievalability, and Information Re-findability as new dimensions affecting the use of social tagging systems. Our goal is to help researchers, designers, and managers of tagging systems and other social systems on the Web understand how to motivate users to increase their use and hence harvest the collaborative and sharing benefits associated with these tools.*

### 1. Introduction

Social tagging is a tool of social computing that offers strong potential for users in knowledge sharing and collaboration. Collaborative tagging (aka social tagging) enables users to organize and share information resources online by using keywords to label resources [1]. Social tagging was first developed in response to the need for individuals to organize their content and make it easier to re-find resources. The core power of social tagging is that it leverages users' own language and personal meaning to describe information resources in order to organize and retrieve content of interest. Social tagging became popular

because the value of tags was seen to benefit groups not only individuals. Users can find their own tags and also those of other users who have tagged potentially interesting and related content. Thus tagging moved from simply being a personal content management tool to a sophisticated tool that supports serendipitous discovery of content, ideas, and peers [2].

Similar to social tagging in its ability to empower users with the privilege of naming and labeling contents, social bookmarking allows users to tag, save websites, and share them with other users. Social bookmarking sites, such as Delicious, offer bookmarking features that enable users to post web addresses, comment on them, and add tags to uniquely describe them. Further, users' personal tags to online pages become a collection where everyone can view, browse, and share these bookmarks [3].

### 2. Why Social Tagging

Social tagging and bookmarking offer a possible solution to overcome the ever expanding problem of information overload. Many scholars see them as potential tools for better knowledge management [4-7]. Below we outline some of the advantages of social tagging and bookmarking described in the literature. Because tagging and bookmarking systems share the same purpose (i.e., indexing and organization of resources for better retrieval), we treat them as one for purposes of this review.

## 2.1. Benefits of Social Tagging and Bookmarking

Suchanek et al. [4] indicated that the primary goal of tagging is to serve the needs of users by organizing their personal bookmark collection for better retrieval. They indicated that tags help users browse, categorize, and find items. Further, tags are used for information discovery, knowledge sharing, and in social ranking processes. According to the authors, tags could be useful for tasks such as search, navigation, or even information extraction. Melenhorst et al. [5] stated that when they are displayed in a cloud, tags help users conduct serendipitous browsing; and when presented along with the content items, they helped users decide quickly on item relevance. Rainie [6] noted that social tagging can help users stumble upon interesting resources already found by others when dealing with online catalogues such as Amazon.com. Zhan et al. [7] concluded that just as animals rely on scents to forage, users rely on the information scent provided by various cues in judging information sources and navigating through information spaces. They indicate that tags serve as “proximal cues” that provide an information scent to web objects. The authors claimed that tags can be considered as external representations of users' mental concepts activated by web items. Heymann et al. [3] indicated that tags can guide communities to valuable content that would not be available in regular search engines; for example, the tag “Katrina” proved useful in updating people with a real-time photo of Hurricane Katrina before it reached regular news channels. Hammond et al. [8] noted that social tagging helps users locate their information needs within both their local space and the domain of other users who would be most likely to have relevant information resources.

The focus of this study is on social tagging use in the context of two dimensions: hedonic and utilitarian. The hedonic aspect aims at providing self-fulfilling value to the user such as enjoyment, while utilitarian is to help users achieve tasks [23]. In this study, the hedonic aspect adds the factor of Enjoyment, while the utilitarian aspect adds three factors: Content Generation, Information Retrievability, and Information Re-findability. The study explores and tests the effect of these two dimensions on users' attitude and intention to use the tagging systems. We start with a theoretical model with hypothesized key relationships and then move to the empirically validated model, along with the discussion of the results and implications of their findings.

## 3. Related Work

Some studies have used the Technology Acceptance Model (TAM) to explain and predict an individual's acceptance of information technologies such as multimedia systems, the World Wide Web, e-mail, voice mail, software packages, or Web surfing [9–13]. Previous research has demonstrated the validity of this model across a wide variety of corporate ITs [16, 17]. Although TAM is widely used among many studies, it has encountered some criticism. Davis [15] (cited by Hossain & Silva [20]) acknowledged that other social factors should be researched further in TAM for new technology applications. Bagozzi [21] criticized TAM for lacking a detailed method for identifying the determinants of perceived usefulness and Perceived Ease-of-use. Furthermore, TAM overlooks group, social, and cultural aspects of decision making.

In our current exploratory research we use well-defined constructs from the TAM along with constructs which are specific to social media to create a model with which to explore what factors predict attitude and intention. If this work is validated then it could lead to an extension and adaptation of the TAM to social media.

The TAM suggests that perceived usefulness and Perceived Ease-of-use (PEOU) of information technology (IT) are major determinants of attitude towards use. The TAM also suggests that users' behavioral intention (BI) to use a technology is determined by their attitude toward that technology. Finally, behavioral intentions to use the system lead to actual system use. Attitude toward use is defined as “an individual's positive or negative feelings (evaluative affect) about performing the target behavior” [14] p. 216]. Perceived Usefulness is “the degree to which a person believes that using a particular system would enhance his/her job performance”, while Perceived Ease-of-use (PEOU) is defined as the degree to which a person believes that using a system would be free of effort [15, p. 320].

Recent studies by Bruner and Kumar [18] and van der Heijden [19] have aimed to find the effect of factors not included in the TAM that could influence behavior. These studies incorporated intrinsic motivation constructs, such as Perceived Enjoyment (PE). Van der Heijden [19] introduced the concept of perceived enjoyment to explain consumers' use of websites. The concept of Perceived Enjoyment focuses on the extent to which enjoyment is perceived through the activity of using a specific product or service, apart

from any performance consequences that may be anticipated [10, 18].

## 4. Model and Hypotheses

In the current study, we provide a conceptual base of factors that can relate to the phenomenon of social media. We note that the presented model is exploratory, hence the focus on the factors which are important to social tagging. We also note that our model is not entirely TAM based - it is an extension and adaptation for social tagging. We combine general factors from the TAM (viz. Perceived Ease-of-use, and Perceived Enjoyment) with other factors that reflect the interactivity and collaboration of social networks. Specifically, we introduce three new factors that were found significant in our pilot study: Information Retrievalability, Information Re-findability, and Content Generation. These factors pertain to the advantages of social tagging in labeling and organizing content for easily retrieval and a better re-findability of previously found information. Figure 1 shows our conceptual model with the Hedonic and Utilitarian dimensions affecting attitude and intention to use social tags.

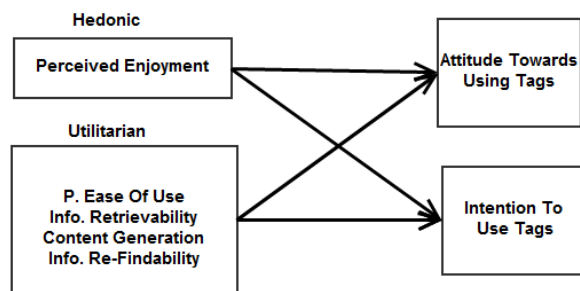


Figure 1: Hedonic and Utilitarian Factors Affecting Attitude and Intention

### 4.1. Perceived Enjoyment

Using van der Heijden's definition [23], Perceived Enjoyment is defined as the degree to which the activities of using the tagging systems are perceived to be enjoyable regardless of the anticipated performance of the system. An online user would be likely to participate in tagging systems' activities because the process is enjoyable. It has been confirmed that Perceived Enjoyment is a critical factor in user acceptance of technology and has great implication for hedonic systems [22–24]. Thus, in addition to positive attitudes, Perceived Enjoyment is expected to be associated with increased behavioural intention to use the tagging systems. Accordingly, we hypothesized:

**Hypothesis 1a:** Perceived enjoyment is positively related to attitude towards using tags; and

**Hypothesis 1b:** Perceived enjoyment is positively related to intention to use tags.

### 4.2. Ease-of-use

Perceived Ease-of-use is the extent to which an individual perceives that using a particular system would be effortless [15, 25, 26]. Accordingly, we define Perceived Ease of Use as the degree to which a person perceives that using a tagging system is free of effort. Davis et al. [11] claimed that “an application perceived to be easier to use than another is more likely to be accepted by users” (p. 2). Subsequently, a connection between Perceived Ease-of-use and intention toward use is included in our model. Notably, many empirical studies of the TAM include this correlation and find a significant relationship between these two factors [16, 27]. These observations lead to the following:

**Hypothesis 2a:** Perceived Ease-of-use is positively related to the attitude towards using tags; and

**Hypothesis 2b:** Perceived Ease-of-use is positively related to the intention to use tags.

### 4.3. Information Retrievalability

We define Information Retrievalability (IR) as the degree to which a person believes that using a tagging system enhances his or her information retrieval performance. We should make it clear that IR is a task specific operationalization of PU that was used in TAM. We feel that the traditional PU is not a good fit for social tagging tools and it needs to reflect specific benefits related to the given social media application. Hammond et al. [8] described the reasons users perform tagging in Flickr and Delicious as ranging from “selfish”, where users tag their own contents for their own easy retrieval as is the case with Flickr, to “altruistic”, where users tag other users' content for easy retrieval by anyone using that system as is the case with Delicious. It was noted that when tags are presented along with the content items, they help users decide quickly on item relevance [5]. Suchanek et al. [28] analyzed the semantic properties of tags and the relationship between the tags and the content of the tagged page. The analysis was based on a corpus of search keywords, content, titles, and tags applied to several thousand popular webpages. They noted that tags help users browse, categorize, and find items. Further, tags are used as a form of information discovery, sharing and as tools for search, navigation, or even information extraction. In an analysis of

Delicious tags, Lee [29] concluded that the collaborative tagging system offers its users two features: “filter information at the most aggregate level”; and, with its implanted social networks, it offers some guided sharing which may aid in the discovery of information. In line with the discovery of new and relevant topics, Melenhorst et al. [5] analyzed users' information retrieval behavior in a video tagging system: they indicated that tags help users conduct serendipitous browsing when they are displayed in the form of tag cloud; and when presented along with the content items, they helped users decide quickly on item relevance. Becker [30] noted that social tagging is an effective technique for users to find and re-find the products they are looking for. In their comparison of the search information retrieval performance of folksonomies (social tagging systems) against search engines and subject directories, Morrison et al. [31] indicated through their Web search comparison that folksonomies have the potential to be an effective tool for information retrieval on the Web and should be given the same importance as traditional search engines. Accordingly, we hypothesized:

**Hypothesis 3a:** Users' positive perception of system's information retrievability is positively related to their attitude towards using tags; and

**Hypothesis 3b:** Users' positive perception of the system's information retrievability is positively related to the intention to use tags.

#### 4.4. Content Generation

Content Generation refers to the content that users of online social networks create and generate by sharing resources and interacting with the system. In our case, it refers to the tags/metadata and categories that are generated by users of the tagging systems. In online knowledge sharing networks the creation and consumption of other users' generated content is a key benefit and people mostly build social ties and communities in order to facilitate transmission and increase generation of such content [32]. Ames and Naama [33] studied users' incentives to tag in Flickr and ZoneTag—a camera phone capture tool that helps users post images on Flickr. They studied users' personal and social motivations and whether users are tagging items for individual or public use. The study showed that participants were motivated to use tagging as a tool to push more content to their friends, family and also to the general public. In their study of users' media tagging, Cunningham and Nichols [34] indicated that one of the reasons individuals use tags in media sites is to be updated on Mainstream Media from the contents that other users' have tagged. Rainie [6] noted

that social tagging offers an ideal opportunity for people to generate new ideas and information across the ever-increasing Web information stream. He stated that social tagging allows millions of users to publicly express their opinions about online information resources, which helps create new ways of thinking and new creative methods to extract collaborative knowledge. Accordingly, we hypothesized:

**Hypothesis 4a:** Content generation features in tagging systems positively impact the attitude towards using tagging systems; and

**Hypothesis 4b:** Content generation features in tagging systems positively impact the intention to use tagging systems.

#### 4.5. Information Re-findability

Consistent with Information Retrieval (defined earlier), we define Information Re-findability (IRF) as the degree to which a person believes that using a tagging system enhances his or her chances of finding previously tagged and found resources of their own in contrast to Retrieval which is based on finding information tagged by other users of the system. Ames and Naaman [33] ran a comprehensive study on users' incentives to tag in Flickr and ZoneTag. The result of their study showed that participants were motivated by the usefulness of tags to organize their photos for future retrieval and finding. In their studies on tag usage in CiteULike and Connotea, Santos et al. [35] noted that users' instances of reuse of tags are considerably higher than their re-tagging behavior. In their analysis of user's information retrieval behavior on video tagging systems, Melenhorst et al. [5] indicated that tagging offers users more maneuverability to organize content of interest which in turns lead to an easy content and tag retrieval that is relevant to users' needs. Rainie [6] pointed out that while a folksonomy enables users to add their own tags to a shared pool of tags, it can categorize users' own tags in a better way for future retrieval. This leads to the following hypotheses:

**Hypothesis 5a:** Information Re-findability positively impacts the attitude towards using tags; and

**Hypothesis 5b:** Information Re-findability positively impacts the intention to use tags.

### 5. Methodology

To test the hypotheses, an online questionnaire was designed to target users of four tagging systems: LibraryThing, Flickr, Twitter and Delicious. We chose these sites because they are mainly made for users who

use and create tags and socially share them with other users. We note that the respondents also reported other tagging systems. An invitation to participate in the study was placed on the message boards of these websites with a link to the main survey. To encourage participants to take part in the study, participants could take part in a draw for one of thirty \$25 Amazon gift certificates upon completion of the survey. To eliminate repeat responses to the survey, we enforced browser cookies and monitored the survey progress closely. Since participants needed to leave their e-mail addresses to enter the draw, e-mail addresses were also used to check for repeated entries. The online survey yielded 187 responses with 174 valid responses. The respondents were 118 male and 55 female. The age categories are distributed as follows: 26–30 (27%), 31–35 (37%), and 36–40 (16%). With regard to education, 91% of participants had at least an undergraduate degree, while 29% had an undergraduate, 37% a graduate degree, and 21% a PhD degree. Ninety-five percent of the participants held full-time employment. Figure 2 shows what social tagging systems were reported to be used by the respondents of the survey.

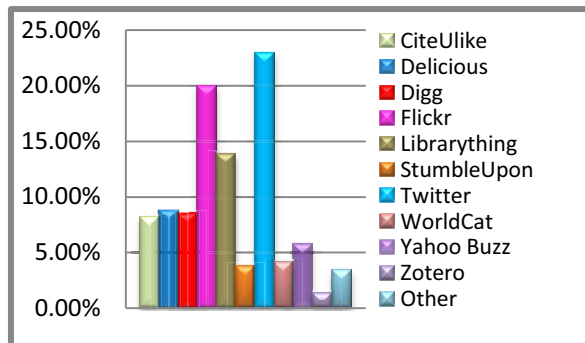


Figure 2: Social Tagging Systems Used

### 5.1. Measurement Development

To test our proposed model, a questionnaire was designed to ask participants about their perception and experience on seven different aspects of the tagging systems: Enjoyment was measured using four items (Enjoy1-4); Ease of Use was measured using three items (PEOU1-3); Information Retrievalability was measured using five items (IR1-5); Content Generation was measured using two items (CG1-2); Information Re-findability was measured by two items (IRF1-2); Attitude measured by four items (ATT1-4); and finally, Intention was measured by three items (Int1-3). The seven constructs comprise 23 questions of the survey. The questionnaire was developed from material discussed and tested previously. The list of items used is displayed in Appendix A. The items were slightly

modified to suit the context of tagging. Our scale items for Perceived Ease-of-use, Attitude, and Intention to use tags were based on previous studies [11, 9]. Perceived Enjoyment was measured by items adapted from Hsu & Lin, Sun & Zhang, and van der Heijden & Davis [12, 22, 23, 36]. The construct of Content Generation was adapted from Ali-Hassan & Nevo [37]. Furthermore, to develop a scale for measuring Information Retrievalability, Information Re-findability, we used materials from Phang et al. [38], and Davis [15], with modifications to fit our setting for social tagging. We acknowledge that two constructs namely Information Re-findability and Content Generation, needed more items, but we applied them in our pilot study. Each item was measured on a seven-point Likert scale, ranging from “Strongly Disagree” (1) to “Strongly Agree” (7).

## 6. Results and Analysis

In order to verify the proposed model, we used Structure Equation Modeling (SEM) as the data analysis method since the goal of the research is to explore the relationship and the outcome of interactions of five dimensions [39]. SEM is an approach used for identifying and estimating models of linear relationships among measured and latent variables [40]. SEM is also used to investigate the strength and direction of the relationship between the theoretical constructs as recommended by Gefen and Straub [41]. In our study, Smart PLS was the software used to assess the measurement and the structural models

Table 1: Indicator Loadings and Construct Reliabilities

	Outer Loadings	AVE	Composite Reliability
ATT1	0.85	.74	.92
ATT2	0.87		
ATT3	0.89		
ATT4	0.85		
EOU1	0.85	.79	.89
EOU2	0.87		
EOU3	0.86		
ENJOY1	0.80	.68	.89
ENJOY2	0.81		
ENJOY3	0.84		
ENJOY4	0.84		
CG1	0.81	.71	.82

CG2	0.87		
INT1	0.85	.62	.83
INT2	0.87		
INT3	0.74		
IRF1	0.84	.79	.88
IRF2	0.94		
IR1	0.85	.76	.94
IR2	0.89		
IR3	0.89		
IR4	0.87		
IR5	0.87		

First, we tested for construct validity and indicator reliability. Following Henseler et al. [45] we confirmed that the correlations between the constructs and their items' outer loadings is greater than 0.7 (as shown in Table 1). Additionally, we tested for convergent and discriminant validity—two components of factorial validity that confirm certain elements of the goodness of fit of the measurement model [41]. Convergent validity suggests that a set of indicators represents one underlying construct, which can be established through their unidimensionality, while discriminant validity signifies that two conceptually different constructs should show sufficient difference [45]. The following evidence collectively suggests acceptable internal consistency of the measurement properties of all of the constructs involved in the study. Table 1 shows the composite reliability and average variance extracted (AVE). The fact that the value of composite reliability is higher than the recommended 0.7 by Hair et al. [44], and the values of AVE are all above 0.5 indicates that, on average, a latent variable is able to explain more than half of the variance of its indicators [45]. Collectively these data indicate high internal consistency and convergent validity of the measurements model. We did not use Cronbach's Alpha as a measure for internal consistency because it assumes that all indicators are equally reliable. Instead we used the Partial Least Square (PLS) approach of composite reliability because it prioritizes indicators according to their different loadings, resulting in a more consistent composite reliability which can be interpreted in the same way as Cronbach's Alpha [47].

Table 2: Discriminant Validity of Users

	Attitude	Intention	C.G	Enjoy	PEOU	IRF	IR
Attitude	<b>0.86</b>						

Intention	0.73	<b>0.79</b>					
CG	0.33	0.41	<b>0.84</b>				
Enjoy	0.82	0.67	0.36	<b>0.85</b>			
PEOU	0.79	0.62	0.20	0.69	<b>0.86</b>		
RIF	0.32	0.38	0.30	0.24	0.35	<b>0.89</b>	
IR	0.86	0.68	0.30	0.74	0.72	0.33	<b>0.88</b>

The diagonals represent the square root of the average variance extracted of constructs (AVE).

Discriminant validity is also supported because (1) the square root of the AVE (shown in bold face) of each construct is higher than its correlations with any other latent construct, and (2) item loadings (when comparing Tables 1 and 2) on its own variables are higher than the cross loadings on any other variable [39]. This indicates that more variance is shared between the latent variable and its items than with another latent variable representing a different set of items. The same holds true for all constructs in our model.

### 6.1. Tests of the Structural Model

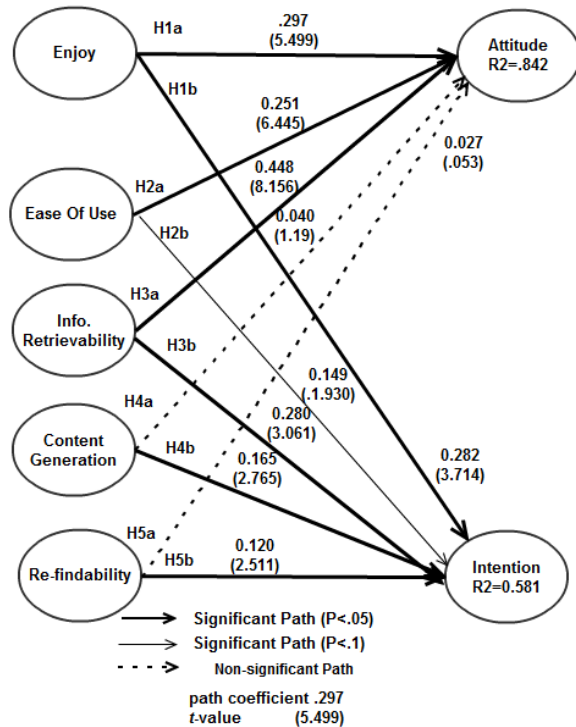


Figure 3: PLS Results for the Structural Model

We used the bootstrapping approach to assess the *t*-values significance. Based on the recommendation by Hair et al. [44], we used 5000 samples with number of

cases equal to our observation of 174. Our critical  $t$ -values for a two-tailed test were 1.65 (for  $p \leq 0.10$ ), and 1.96 (for  $p \leq 0.05$ ), and 2.58 (for  $p \leq 0.01$ ).

Figure 3 illustrates the structural model with  $R^2$  value for each endogenous constructs. According to Hair et al. [44], an  $R^2$  value of 0.75, 0.5, or 0.25 for the affected constructs in the structural model is described as substantial, moderate, or weak, respectively. In our model Attitude (the first endogenous latent variable) has a substantial  $R^2$  of .842, while Intention to Use Tags has a moderate  $R^2$  of .581. The path coefficients for this inner model are shown along with their perspective  $t$ -value in parentheses below. The significant paths are shown with solid lines, while the insignificant paths are shown as dotted lines. Eight out of ten hypotheses are supported with strong statistical significance. As we hypothesized, Perceived Enjoyment has a strong impact on the users' attitude towards using social tagging with path coefficient of .297. With regard to Intention to Use Tags; Perceived Enjoyment is also significant with path coefficient of .282.

Perceived Ease-of-use and Information Retrieval each have a significant effect on attitude with a path coefficient of 0.251 and 0.488, with  $t$ -statistics significance of 6.445 and 8.156 respectively at the .01 level. Information Retrieval, Content Generation, Re-findability have significant impacts on Intention with path coefficients of 0.280, 0.165, and 0.120, respectively. Their  $t$ -statistics are of 3.06, 2.675, and 2.511 respectively which are above the critical value of 2.58 for the 0.01 level. The only relationships that were not found to be significant were those of Content Generation and Re-findability of Information on the Attitude toward use.

## 6.2. Testing for Predictive Relevance of The Model

Table 3:  $Q^2$  Scores for Predictive Relevance

	SSO	SSE	1-SSE/SSO
Attitude	127.39	46.91	0.63
Intention	72.27	36.65	0.49

Henseler et al. [45] recommended using the blindfolding procedure to test for the predictive power of the model. Blindfolding is an approach used to calculate the cross-validated  $R^2$  between the measurement model and latent variables. It gives a relatively small standard deviation which leads to systematic significant parameters [47]. We used blindfolding to obtain cross-validated redundancy

measures for each construct. As recommended by Hair et al. [46], we made sure number of valid observations was not an integer multiple of the omission distance  $d$ . Table 3 shows the results of the blindfolding approach.  $D$  is the omission distance, SSE is the sum of squares of prediction errors, and SSO is the sum of squares of observations. Positive  $Q^2$ -values indicate that the observed values are well reconstructed and that the model has predictive relevance [45]. Since there were 174 observations, we chose a value of  $d=5$ . The resulting  $Q^2$  values indicate that the exogenous constructs have predictive relevance for the endogenous constructs (Attitude and Intention) [45]. In this case the results are not negative; rather  $Q^2$  is 0.63 and 0.49 for Attitude and Intention respectively, indicating a substantial impact from the exogenous on the endogenous constructs: attitude and intention.

## 6.3. Discussion

Our study presented and validated a multi-dimensional model to help in understanding factors contributing to tag usage. With empirical analysis, several implications were obtained. First, PE, PEOU and IR appeared to be important variables in the context of tags. Specifically, Information Retrieval was found to have the most significant influence on attitudes, with a coefficient much higher than others ( $b=0.448$ ) which suggests that users of tagging systems choose those systems mainly because they are perceived to enhance information retrieval tasks.

We note that although Information Retrieval is based on Perceived Usefulness associated with the TAM, these results are not in line with previous studies [36, 46] which argued that perceived usefulness played a critical factor only in work-related environments. However, these results are in line with the motivation theory which posits that if an individual perceives an activity to be beneficial to achieve valued outcomes, he or she will be more likely to accept the new technology [9].

Hedonic motivations such as enjoyment may be viewed as the most significant antecedent of attitude toward using IT. Although not the most significant in our study, Perceived Enjoyment proved true and impacted attitude towards and intention to use tags. Our findings showed that if users did not perceive social tagging as an enjoyable application, they were unlikely to use it. These results concerning enjoyment are not surprising, especially for social tagging and social media in general, which include rich, social, and collaborative features designed to appeal to millions of these systems' users. This result also suggests that other

hedonic factors could affect adoption of social media. Examples of such factors are Curiosity, Explorability, and Discovery. With further study subtleties of the hedonic dimension of online social applications could be distilled. Ease-of-use was another essential factor for attitude, which is in line with the TAM. Indeed, an easy-to-use interface could influence users' preference, while difficulties could be largely responsible for users' resistance. This notion reinforces the general belief that providers of tagging applications should continue to develop tools that require minimum effort to learn and use. We also tested the effect of Ease-of-use on intention to use; most previous studies focused more on the connection between Ease-of-use and attitude. Surprisingly, Ease-of-use was also found to have a significant effect on the Intention to Use tags (albeit at the 0.10 confidence level). This could be because some users intend to use some technologies regardless of the ease-of-use of their interface.

Another finding of the study is that our exploratory factor, Content Generation, was found to have a significant impact on the intention to use tags but not on Attitude. We hypothesized that tagging systems are used only because they have dynamic tags generated by the systems. In other words, users would not use the tagging systems unless they have sufficient metadata and tag categories. As reasonable and obvious as this hypothesis may seem, we have not seen literature supporting it. However, it makes sense if we consider that users of tagging systems will intend to use the tagging system only if the system has new content that is updated frequently. So we can conclude that designers and managers of tagging systems should make sure that new metadata or tags are always there to attract users. Moreover, Information Re-findability has a significant effect on Intention to Use and a non-significant effect on attitude. This is consistent with the functions of tagging systems which allow users to find information resources, tag or label them, and re-find them. Hence we can conclude that users of tagging systems will intend to use the system only if it fulfills its functions in allowing users to organize their information resources for future Re-findability.

We examined the direct effects on the endogenous constructs only. While Attitude certainly has an effect on Intention, we decided not to include it in the model because we were interested in seeing what new latent constructs can explain users' intentions towards using tags. In future research we will examine this relationship in a more comprehensive model

## 7. Conclusion

This article discusses the motivation for using social tagging systems from the perspective of hedonic and utilitarian contexts. The primary contribution of this article is the introduction and evaluation of a new research model that introduces new variables such as Information Retrieivability, Information Re-findability, and Content Generation as potential factors that influence users' attitude and intention to use the social tagging systems. The article compares these variables with previously investigated variables such as Perceived Enjoyment and Perceived Ease-of-use and suggests a possible merger between them for the better design of social tagging systems and better users' satisfaction. While there are many antecedents of the attitude and intention to use social tagging systems, we suggest that a new combination of hedonic and utilitarian motivation could play an important role in encouraging users to use and participate in tagging systems. At a minimum, these new constructs provide yet another set of measurements for information systems use. The study can also contribute to understanding users' usage behavior in social tagging system which could lead us to encourage an active use of tagging systems which has the potential to increase users' information organization and retrieval productivity.

This research develops a theoretical model and shows some initial results. As with all exploratory research, there are some limitations and deficiencies that are recognized here which will be addressed in future studies. Namely the findings may not be generalizable on other populations due to the targeted sample and two of the exogenous constructs Content Generation, and Re-findability only had two indicators. The results are promising, and we will use these early findings to further enhance our model's ability to explain attitudes and intentions. Our next step will be to investigate other potential factors such as Explorability and Curiosity that fit the nature and functions of social tagging systems. Parallel to our preliminary success with the factors of Information Retrieivability, Content Generation, and Re-findability, we are planning on investigating other utilitarian factors that are directly connected to social tagging functions such as Organizability, which refers to the capacity of the system to allow users to organize their information in a way to decrease information and cognitive overload. We also intend to further investigate the concept of Perceived Ease-of-use to create new measures that are tailored to fit social media applications. Finally, we intend to investigate and compare the profile of users versus creators of tagging

systems and examine ways to increase tag contributors versus tag lurkers.

## 8. Acknowledgment

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## Appendix A. List of Items by Construct

### Attitude

- ATT1: Using tags is beneficial for me  
 ATT2: Using tags is desirable for me  
 ATT3: Using tags is a good idea  
 ATT4: I will maintain a positive attitude toward using tags

### Intention

- Int1: I will continue to use tags on a regular basis in the future  
 Int2: I will continue to frequently use tags in the future  
 Int3: I will strongly recommend others to use tags

### Perceived Enjoyment

- PE1: I find using tags to be enjoyable  
 PE2: The actual process of using tags is pleasant  
 PE3: I have fun using tags  
 PE4: The process of using tags is interesting

### Perceived Ease of Use

- PEOU1: Learning to use tags is easy for me  
 PEOU2: I find it easy to become skilful at using tags  
 PEOU3: I find using tags easy for me

### Information Retrievability

- IR1: Using tags enables me to accomplish my information search tasks more quickly  
 IR2: Using tags makes it easier to perform my information search tasks  
 IR3: Using tags enhances the effectiveness of my information search tasks  
 IR4: Using tags increases the productivity of my information search tasks  
 IR5: Using tags improves the performance of my information search tasks

### Content Generation

- CG1: The tagging system(s) helps generate new tags and ideas  
 CG2: The tagging system(s) enables collaborative generation of tags

### Re-findability

- IRF1: I use the tagging system(s) to search for my own information resources  
 IRF2: Tagging tools allow me to refind my own information resources that were tagged by me