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Perceived Value of Social Media: An empirical investigation

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Abstract

This research reports on a value-based empirical investigation of the adoption of Twitter social media application. A cross-sectional survey-based study conducted through the web site of a North-American university revealed that people familiar with Twitter see more value in the hedonic side and less value in the social side, both in comparison to the utilitarian value of this social media. The study looked with magnifying lens at social factors and found that influence from significant other people and social image of Twitter users favor the adoption, whereas perceived critical mass and perceived social presence do not count statistically in the equation. Overall, the study opens the door for investigating user perceptions on popular social media applications in an effort to understand the unparalleled success of these services in recent years.

Keywords

Social Media, Twitter, Perceived Value, Technology Adoption, Acceptance.

1. Introduction

Social media applications recorded an unprecedented success in just few of the recent years. For instance, people in the US have been spending 22% of the time they are online on social media sites and 9 million users in Australia are spending almost 9 hours per month, on average, using top social media applications (Wikipedia 2011). Despite these astonishing figures, the social media domain is still little understood. Definitions and borders of the social media phenomenon are still under debate. However, scholars seem to agree that content generated by users is the key characteristic of any social media application. For instance, some conceptualization attempts define social media as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content” (Kaplan & Haenlein 2010).

The exponential growth of the number of users and of the frequency of use of these applications attracted a justified interest from both the business community and the academia. While business decision makers are investigating ways to turn this phenomenon into profits, academia is seeking to investigate through a theory-based approach the reasons for this tremendous success.

As it is well-known from information systems (IS) research that user perceptions are, further than business or technical aspects, the key factor determining the success or failure of any new information technology (IT) application (Venkatesh et al. 2002), an interesting topic of research is to look at social media applications from a technology adoption point of view. Applying perceived value models seems to be particularly interesting since individuals are presumably using an IT application only if this has value for them. This approach was, therefore, used in the past as a possible way to explain the adoption of popular cell phone applications (Turel et al. 2007, Turel et al. 2010).

This research focuses on one of the most popular and frequently used social media applications, Twitter, available at Twitter.com (Wikipedia 2011). An empirical research investigating the role of a multi-sided perception of Twitter's value was conducted with participants familiar with Twitter that were recruited through the web site of a university in North-America. This paper reports on that research as follows: next two sections describe the theoretical background and the proposed research model. Following that, research methodology and main results are presented. A discussion section concludes the paper.

2. Theoretical background

Investigating factors of adoption of new information technologies or applications has been a traditional area of research in IS. In addition to the popular models and theories validated in various studies (for a detailed review see Venkatesh et al. (2002) study), a relatively newer approach has been to examine the adoption of an IT from a value perspective. This path was adapted from other disciplines like consumer behavior or economics where value is used to explain why people buy some things or opt to make some expenses (Turel et al. 2010). Value is considered to source from the actual interaction with (or expected use of) a product or service and to reflect an overall perception upon their importance for an individual. Thus, following a rationale borrowed from consumer behavior, value is captured as a *perceived value* concept through individual views on the difference between “what is received and what is given” (Zeithaml 1988).

Although value in marketing was traditionally associated with the perception of the utility of a product or service, more recent research using perceived value in other disciplines, including IS, acknowledged this construct to be multi-sided (Lee et al. 2002, Turel et al. 2007, Turel et al. 2010). Although the multi-dimensionality seems to better capture the complexity of the concept, there are no unanimous opinions on the facets of perceived value. A review of literature stemming from consumer behavior research shows some of the most popular components of perceived value of an object or service to be the following (Sweeney & Soutar 2001, Sheth et al. 1991, Bolton & Drew 1991, Kim et al. 2007):

- functional or utilitarian (i.e., perception of utility associated with the use);
- emotional or hedonic (i.e., state of mood associated with the use);
- monetary or value-for-money (i.e., utility compared to the cost usage involves); and,
- social (i.e., self-perception of social status associated with the use).

Due to its complexity and multi-sided approach, perceived value is a possible lens to investigate the adoption of social media applications that became overwhelmingly popular in recent years. Twitter micro-blogging service, allowing users to post 140-character long messages on their daily activities or opinions (Zhao & Rosson 2009), is a typical example of success. Since its

launch in 2006 this service grew exponentially thus reaching in early 2011 about 130 million postings (or ‘tweets’) per day and even 3,000 per second during major events worldwide (Wakefield 2011).

Among various attempts to understand the success of this social media platform from various angles, it would be interesting to investigate the role of the value users perceive in Twitter on their adoption intention as it is well-known in IS research that user perceptions are a key ingredient of the adoption equation. Therefore, this study proposes the following research question:

What are the key facets of perceived value that influence the adoption of Twitter social media application?

3. Research model

To investigate the perceived value of Twitter, this study proposes a multi-faceted perceived value sourcing from consumer behavior and information systems research. This multi-dimensional value perception should have a positive influence on the intention to use the social medium since people would use a service if they perceive it as valuable for various reasons (Ho & Ko 2008). Taking into the account of the above, the following hypothesis is proposed:

H1: The overall perceived value of Twitter social media application will have a positive effect on the behavioral intention to use this application.

A consistent body of research identified three facets of perceived value, as discussed in the section above: *utilitarian*, *hedonic*, and *social* (Kim & Han 2009, Kim et al. 2005, Brown & Venkatesh 2005). Some studies also include the *monetary* side borrowed from consumer behavior as a distinct facet (Turel et al. 2010) or as a component of the utilitarian side (Rintamäki et al. 2006). As the use of social media, including Twitter, does generally not imply a fee, this research will consider only the utilitarian, hedonic and social sides of perceived value. Therefore, users would perceive a value in this social media application if using it is seen to help accomplish some utility needs, to be entertaining by itself and to enhance their social status. To measure these aspects, following the example of similar work (Turel et al. 2007, Turel et al. 2010), perceived value is conceptualized as a second-order construct with three facets. Accordingly, the following hypotheses are formulated:

H2-1: The utilitarian dimension of perceived value of Twitter social media application will have a positive effect on the overall perceived value of this application.

H2-2: The hedonic dimension of perceived value of Twitter social media application will have a positive effect on the overall perceived value of this application.

H2-3: The social dimension of perceived value of Twitter social media application will have a positive effect on the overall perceived value of this application.

As virtually all discussions in the media relate with consistency that the success of social media applications reside mostly in their ‘social’ side, in the attempt to identify the key value facets in the adoption equation, this research looks with magnifying lenses at the social dimension of perceived value. Previous research indicated status (i.e., impression the individuals give to others) enhancement (Brown & Venkatesh 2005, Rintamäki et al. 2006) and self-esteem (i.e., one’s concept of self) enhancement (Rintamäki et al. 2006) as possible factors influencing perceived social value. These are conceptualized in this study as *image* that is an adaptation from

Venkatesh & Davis (2000) and expresses individuals' perception of their status in the social network.

Another social aspect of using the IT put in light by previous research is group integration (i.e., socialization by belonging to groups) (Lee et al. 2002). Theoretical reasoning shows this is captured partially through image and partially through *perceived social presence*. This latter is defined as individuals' ability "to project themselves socially and affectively into a community" of users (Rourke et al. 1999) and was taken into account in earlier IS research on traditional media (Yoo & Alavi 2001).

In addition to the above, we suggest that two other factors may influence perceived social value: critical mass and social norm. *Perceived critical mass*, understood as a minimum level of users adopting an IT innovation after which "its further rate of adoption becomes self-sustaining" (Van Slyke et al. 2007), was shown to be an important factor of the adoption of the new information technology (Hsu & Lu 2004, Kumar & Benbasat 2006). Since perceived critical mass depends on the number of users already using the system (hence this is an indicator of the social 'success' of a system), it is considered as an antecedent of the perceived social value. *Social norm* (or subjective norm) is the social influence regarding the use of a new system. This represents "the degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh et al. 2003) and is an essential side of the social aspects of using a new IT (Dickinger et al. 2008). Taking into the account all of the above, the following hypotheses are formulated:

H3-1: Image of users of Twitter social media application will have a positive effect on the social dimension of the overall perceived value of this application.

H3-2: Perceived social presence of users of Twitter social media application will have a positive effect on the social dimension of the overall perceived value of this application.

H3-3: Perceived critical mass of users of Twitter social media application will have a positive effect on the social dimension of the overall perceived value of this application.

H3-4: Social norm exerted on users of Twitter social media application will have a positive effect on the social dimension of the overall perceived value of this application.

The theoretical model and associated hypotheses are captured in Figure 1.

4. Methodology

Model and hypotheses were tested through a cross-sectional experiment comprising an online survey. To ensure reliable psychometric properties, survey questions measuring the items of the latent variables were adapted from measures previously validated in consumer behavior and IS research, as reported in top publications (Cyr et al. 2009, Kim & Han 2009, Turel et al. 2007, Van Slyke et al. 2007, Venkatesh & Davis 2000).

Participants were recruited through announcements posted on the main web page of the Faculty of Business of a North American university. Including conditions required interested participants to be at least 18 years old and be familiar with Twitter without necessarily having an account with this service.

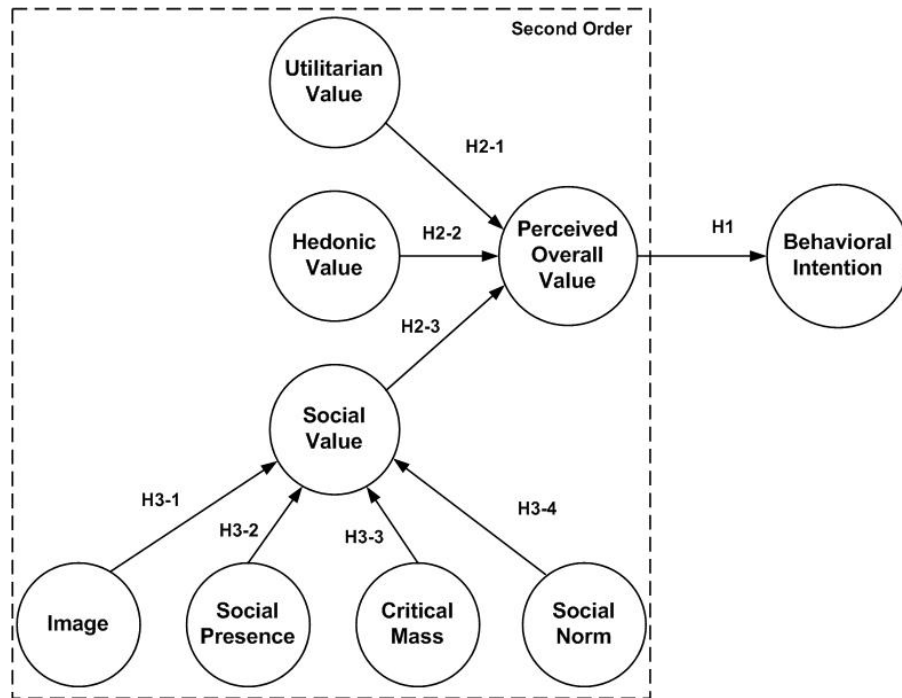


Figure 1: Theoretical Model and Hypotheses

5. Main findings

The experiment was run for one month as the first stage of a larger study conducted in that setting. A total of 51 valid responses were recorded after this stage. A demographic analysis indicated that respondents were 38.8 years old on average. While 36.2% were female and 17.0% male, 46.8% of the respondents did not indicate their gender. Participants reported having an average experience with Twitter of 1.4 years and checking the service 11.9 times a week, on average. A percent of 57.4 of the respondents reported having a Twitter account, 23.4% not having an account, while the rest of 19.2% preferred to not answer this question. Participants having an account reported posting 7.4 messages per week, on average. They were following (i.e., subscribing to the posts of) 60.7 accounts and were having 42.7 followers, on average.

Data were analyzed with Partial Least Squares (PLS) modelling method as this is suitable for small sample size exploratory models (Bontis 1998), including those containing formative indicators (Thomas et al. 2005). Perceived overall value was measured as second-order latent variable using a repeated indicators approach (Lohmoller 1989).

5.1 Measurement model evaluation

Evaluation of the measurement model was done with SmartPLS (Ringle et al. 2005). A first run of the software indicated the necessity to eliminate 4 items out of the total of 26 due to poor significance levels or low item-to-construct loading values. After re-running the program, all measures had appropriate values, as indicated in Table 1.

Item	Mean	Standard deviation	Factor loading	Error	Composite reliability (Cronbach's alpha; AVE)
PSP1	3.90	1.57	0.894	0.041	0.962 (0.950; 0.834)
PSP2	3.92	1.47	0.906	0.030	
PSP3	4.22	1.62	0.954	0.009	
PSP4	3.59	1.51	0.901	0.027	
PSP5	3.68	1.35	0.909	0.021	
SN1	2.80	1.49	0.989	0.004	0.989 (0.977; 0.978)
SN2	2.78	1.45	0.988	0.005	
I1	2.67	1.27	0.843	0.066	0.871 (0.709; 0.772)
I2	3.18	1.22	0.912	0.031	
PCM1	3.54	1.49	0.724	0.241	0.839 (0.738; 0.636)
PCM2	4.36	1.23	0.816	0.233	
PCM3	4.65	1.22	0.848	0.174	
UV2	4.78	1.39	0.975	0.006	0.981 (0.970; 0.944)
UV3	4.80	1.31	0.986	0.004	
UV4	5.00	1.20	0.953	0.014	
HV1	4.54	1.63	0.894	0.020	0.952 (0.936; 0.797)
HV2	4.02	1.66	0.870	0.031	
HV3	4.33	1.32	0.800	0.047	
HV4	3.76	1.26	0.947	0.014	
HV5	3.67	1.40	0.947	0.015	
SV2	3.04	1.33	0.976	0.007	0.978 (0.967; 0.937)
SV3	3.26	1.33	0.955	0.018	
SV4	3.10	1.24	0.974	0.009	
BI1	4.90	1.45	0.997	0.002	0.997 (0.992; 0.992)
BI2	4.96	1.48	0.996	0.002	

Note: PSP - Perceived Social Presence, SN - Social Norm, I - Image, PCM - Perceived Critical Mass, UV - Utilitarian Value, HV - Hedonic Value, SV - Social Value, BI - Behavioral Intention, 1...5 - item number

Table 1: Measurement Model for First-Order Constructs

As Table 1 indicates, values for Average Variance Extracted (AVE), composite reliability and Cronbach's alpha are above 0.5, 0.7, and 0.7, respectively, for all first-order constructs. Further, all item loadings are above 0.7 and item errors are generally small. Results of these tests show satisfactory reliability and convergent validity (Bontis 2004, Fornell & Larcker 1981).

Following test consisted of examining the matrix of loadings and cross-loadings for first-order constructs produced by SmartPLS. As this matrix shows (Table 2), the measurement model has appropriate discriminant validity because items load more on the latent variables they pertain to than on the other constructs (Gefen & Straub 2005).

	BI	UV	HV	SV	I	PSP	SN	PCM
BI1	0.997	0.691	0.725	0.536	0.387	0.263	0.497	0.318
BI2	0.996	0.681	0.693	0.530	0.401	0.280	0.474	0.326
HV1	0.592	0.716	0.894	0.533	0.417	0.427	0.602	0.431
HV2	0.719	0.677	0.870	0.532	0.298	0.351	0.686	0.283
HV3	0.576	0.591	0.800	0.477	0.264	0.172	0.268	0.260
HV4	0.673	0.611	0.947	0.601	0.287	0.225	0.537	0.298
HV5	0.617	0.618	0.947	0.615	0.306	0.235	0.552	0.256
I1	0.056	0.354	0.121	0.404	0.843	0.214	0.194	0.289
I2	0.572	0.613	0.457	0.531	0.912	0.530	0.397	0.356
PCM1	-0.030	0.283	0.089	0.181	0.150	0.275	0.238	0.724
PCM2	0.095	0.473	0.224	0.167	0.347	0.265	0.293	0.816
PCM3	0.509	0.499	0.408	0.324	0.357	0.304	0.307	0.848
PSP1	0.345	0.417	0.259	0.268	0.310	0.894	0.421	0.341
PSP2	0.280	0.390	0.251	0.355	0.407	0.906	0.356	0.307
PSP3	0.329	0.455	0.358	0.376	0.484	0.954	0.425	0.303
PSP4	0.140	0.326	0.277	0.369	0.385	0.901	0.467	0.316
PSP5	0.153	0.395	0.297	0.278	0.431	0.909	0.464	0.374
SN1	0.495	0.580	0.619	0.483	0.321	0.488	0.989	0.345
SN2	0.468	0.563	0.562	0.460	0.373	0.431	0.988	0.353
SV2	0.533	0.493	0.622	0.976	0.565	0.342	0.469	0.270
SV3	0.542	0.449	0.593	0.955	0.479	0.426	0.490	0.316
SV4	0.477	0.455	0.583	0.974	0.521	0.300	0.426	0.302
UV2	0.657	0.975	0.665	0.490	0.557	0.405	0.554	0.465
UV3	0.678	0.986	0.663	0.463	0.561	0.364	0.563	0.498
UV4	0.670	0.953	0.764	0.451	0.535	0.490	0.568	0.604

Table 2: Loadings and Cross-loadings

5.2 Structural model evaluation

As the measurement model evaluation indicated appropriate reliability and validity levels for all first-order constructs, evaluation of the structural model came next. Results of this evaluation are depicted in Figure 2.

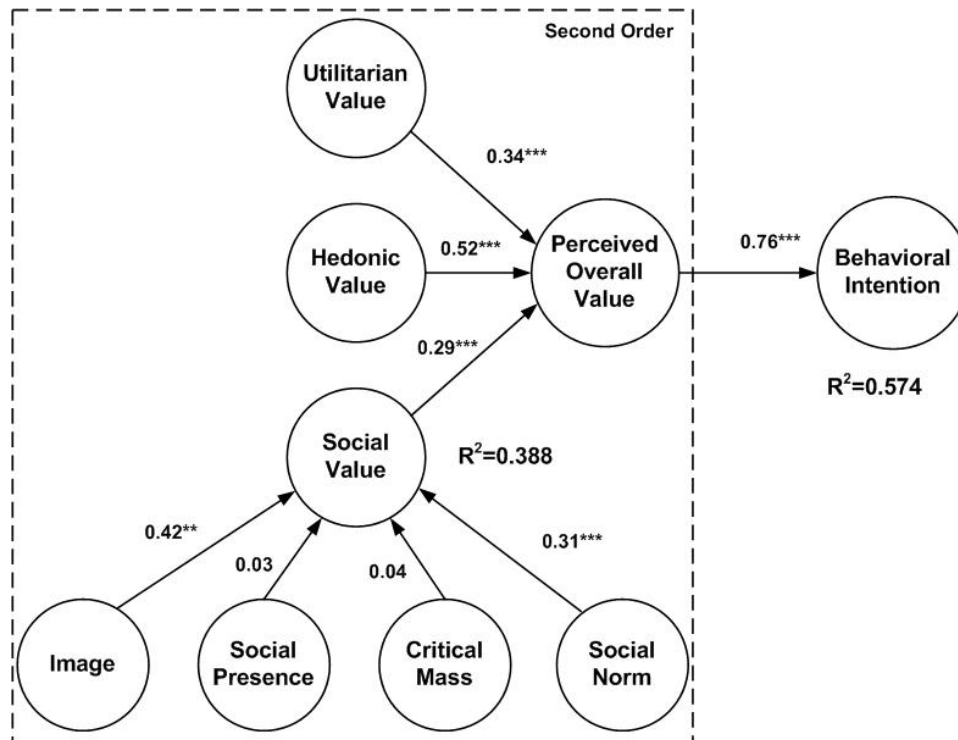


Figure 2: Results of Structural Evaluation. Significance levels: ** = 0.01; *** = 0.001

Figure 2 indicates that 6 out of the 8 hypotheses made were confirmed. Perceived Overall Value is a key antecedent of the intention to use the social media application explaining 57.4% of the variance of the latter. All three facets of perceived value are significant components in the second-order construct ($p\text{-value} < 0.001$) with moderately high values of the path coefficients: between 0.29 and 0.52. Analysis of the total effects on the Behavioral Intention provided by SmartPLS confirms that Hedonic Value is the most important value facet in the adoption equation: its *total effect* coefficient is 0.39 compared with 0.28 for the Utilitarian Value and 0.22 for the Social Value. Of the four antecedents hypothesized for Social Value only Image and Social Norm were significant. They explained a moderate percent of Social Value variance: 38.8%. Overall, since the majority of the hypotheses were supported and *R-square* values of the endogenous variables were moderately high for the IS domain research, the theoretical model could be termed as appropriate (Bontis et al. 2000).

All demographic characteristics collected about the sample respondents were tested as possible control variables by assessing their path coefficients to the endogenous variables of the model. Having a Twitter account and the number of messages posted per week had a significant influence on the Behavioral Intention to use the application (at the levels of significance 0.001 and 0.05, respectively). All other demographic factors (age, gender, experience with the application, frequency of checking Twitter, and number of accounts followed or of followers) did not have a significant influence.

6. Discussion and conclusions

The objective of this paper has been to propose a value-based theoretical model to explain the adoption of Twitter, a very popular social media application. A model based on consumer behavior and IS literature as well as on theoretical reasoning was built and tested empirically with 51 respondents.

The research question asked was: *What are the key facets of perceived value that influence the adoption of Twitter social media application?* Similar to previous research, perceived value was considered as a second-order construct with three salient facets: utilitarian, hedonic and social. As in previous research, all facets were found to have a significant and relatively strong influence (Rintamäki et al. 2006, Turel et al. 2007). Maybe surprising for a social media application, the social side had comparatively the weakest contribution to the overall perceived value (path coefficient of 0.29). Hedonic value was by far the strongest component of the overall value (path coefficient of 0.52), followed by the utilitarian side (path coefficient of 0.34). This shows that people see enjoyment-type value as the most important factor that would make them use this social media platform. Then they value the possibility of getting informed through Twitter and only lastly they see this application as a social tool. Overall, seeing value in Twitter is by itself a sufficiently strong reason for adoption ($R\text{-square} = 0.574$).

Of the hypothesized antecedents of the social side of the value, the influence from significant others (captured as social norm) and the perception of enhancement of social status (conceptualized as image) proved to be significant and moderately strong (path coefficients 0.31 and 0.41, respectively). Hence, these are improving the value people would see in using Twitter through the social side. The study did not show a significant influence from perceived social presence (of their peers) or critical mass (of users). So, it appears that these are not reasons for people to see value in Twitter and use it.

Structural tests also revealed the influence of some control variables. Thus, it appears that having an account and posting messages make people see more value in Twitter and want to continue using this media application. This may open the door for interesting questions on the value users would see over time or over the increased frequency of use of the social media. Future research should look in more detail at these aspects. This research should also confirm whether the social side is indeed the least important part of the value perceived in a social media platform while trying to enrich the picture with antecedents of the utilitarian and hedonic facets.

This study involved also limitations, as virtually any empirical research on IT adoption. Respondents self-selected after seeing the invitation to participation posted on a faculty's web site. The perceived value may be also influenced by the features of that social media application (i.e., Twitter in this case). As the experiment was limited in time to one month, the sample size was relatively low but, nonetheless, 20% more than the minimum sample size required by PLS methodology (Jarvenpaa & Todd 1996). However, these limitations are not uncommon to IS research and were considered acceptable for an incipient study in a new direction.

Overall, this study attempted to conduct a scientific investigation on the user reasons to adopt a popular social media application, Twitter, based on perceived value theory. It opened the door for investigating the same application in other contexts or other popular social media applications from the user perspective in an effort to understand the unprecedented success of these services in just a few years' time.

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