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Explaining Customers' Utilitarian and Hedonic Perceptions in the Context of Product Search within Social Network-Enabled Shopping Websites

Camille Grange
HEC Montréal, camille.grange@hec.ca

Izak Benbasat
Universjity of British Columbia, izak.benbasat@sauder.ubc.ca

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HEC Montreal
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Izak Benbasat
University of British Columbia
izak.benbasat@sauder.ubc.ca

ABSTRACT

Online social networks and e-Commerce have recently begun to converge into hybrid configurations via which online users search for products in the context of their social relationships. The present study explains how shoppers' differences in two aspects of their social capital (centrality: their number of online friends, and quality: the relevance of these friends) influence the extent to which their product search experiences are perceived to be useful and enjoyable. For that matter, three value-creation paths (social network activation, effort reduction, and curiosity arousal) are proposed as the main explanatory mechanisms. Providing insights into this process is important as it will help develop a clearer understanding of the mechanisms via which digital networks influence customers' product search experiences.

Keywords

Social media network, online social commerce, product search, social network activation, effort, curiosity.

INTRODUCTION

Despite strategic moves from a few online retailers, the average adoption rate of online social commerce remains modest, at around 6% of the top 500[1]. This low figure is not that surprising given our limited understanding of online social network's (SN) influence on consumers, a knowledge gap which constitutes a barrier to the development of online social commerce (Yadav, de Valck, Hennig-Thurau, Hoffman and Spann 2013). The goal in this study is to address this research gap by investigating *how* online social relationships may facilitate useful and enjoyable product search experiences in a SN-enabled shopping environment.

THEORETICAL CONTEXT

A website can be conceptualized as a stimuli-based decision-making environment in which signals influence shoppers' attention and decisions about which

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[1] http://www.sociablelabs.com/download-login-study/

informational content to rely on. In particular, theoretical accounts of individuals' information seeking and decision-making behaviors suggest that shoppers tend to be sensitive to online environmental *signals*, especially when they are easy to process, relevant, and engaging.

As a special type of website, SN-enabled shopping sites belong to the family of social media networks (SMNs). As such, users have a unique profile, they articulate a list of other users with whom they share a social relation, they traverse these connections and those made by others on the platform, and they access digital content via mechanisms offered by the platform (Kane, Alavi, Labianca and Borgatti 2014). Hence, SN-enabled shopping sites carry *social signals* that users may leverage during product search.

In turn, the salience of these social signals is likely to depend on shoppers' *social capital* (i.e., the value potential embedded into their social relations) because the content available to shoppers in SN-enabled shopping settings depends on their social ties (e.g., how many friends they have and which information they have shared). For example, in extreme cases, the salience of those signals to a shopper with no friends will be nil. Therefore, in a SN-enabled shopping environment, users' social capital is expected to influence information seeking by making the four social signals more or less noticeable and information-bearing.

RESEARCH MODEL AND HYPOTHESES

Our proposed research model relies on three core ideas that emerged from integrating the relevant existing research: (i) social capital is generative of value, (ii) information seeking is an important intermediary factor explaining the quality of shoppers' product search experiences in online environments that are socially embedded, and (iii) SN-enabled shopping settings convey social signals whose salience depends on each shopper's social capital. Shoppers' assessment of the quality of their product search experience is conceived in terms of *perceived usefulness* (PU) and *perceived enjoyment* (PE). PU is defined as the extent to which consumers believe that using a SN-enabled shopping site is useful for supporting the identification of products of interest. PE

captures the extent to which using a SN-enabled shopping site for product search is perceived to be enjoyable.

Social capital is conceptualized in terms of: (i) *centrality,* which is the extent of social capital immediately available to an online shopper, and (ii) *quality*, which refers to the relevance of a consumer' social ties in the context of her shopping task. Both dimensions enhance the salience of the social cues inherent to SN-enabled shopping settings, thereby influencing information seeking

Information seeking is conceptualized via three variables. *SN activation* refers to the magnitude to which shoppers leverage their friends' informational content during product search. It is a manifestation of network actors leveraging their social relations to acquire resources (Gulati, Srivastava and Brass 2014). C*ognitive effort* refers to the extent of effort incurred by shoppers during product search. Substantial theory and evidence suggests that online users are sensitive to cognitive shortcuts that help diminish information processing effort (Gigerenzer and Gaissmaier 2011), and SN-enabled settings seem well-positioned to support effort-reducing strategies given the rich social cues they offer (e.g., using friends' recommendations). *Cognitive curiosity* is the extent to which shoppers get cognitively aroused during product search. This dimension was included based on previous work that highlighted information seekers' responsiveness to signals that engage their curiosity (Pisula 2009), and the expectation that the social cues embedded SN-enabled shopping settings could induce such stimulation.

Value Creation Process #1: Social Network Activation

SN-enabled shopping platforms afford recognizing who are our friends among all other shoppers, and accessing resources from friends. These can be considered as high "scent" cues, i.e., proximal signals that trigger information seeking towards a path that is expected to lead to a highly relevant information item (Pirolli and Card 1999). Hence, we expect that the more salient these social signals in SN-enabled contexts, the stronger their influence on shoppers' information seeking activities towards the acquisition of informational resources that friends have produced. Hence:

SN centrality (H1a) and SN quality (H1b) increase SN activation.

It is generally acknowledged that people in one's personal network are more similar, familiar and/or credible than those who are outside of it. Further, as prior research showed that the three aforementioned properties induce trust, we expect that SN activation will influence PU because consumers value information that they can trust and that makes information processing more effective. IN addition, friends' report of their experiences with products is expected to be entertaining because online social content is considered fun and compelling. Hence:

SN activation increases consumers' perceived levels of usefulness (H2a) and enjoyment (H2b).

Value Creation Process #2: Effort Reduction

Individuals are known to be 'socially rational' in their decision-making in that they tend to construct choices on the basis of information available from other people within their environment. For that matter, the organization and display of information in SN-enabled shopping settings is expected to be instrumental in the context of effort reduction. Social rationality may manifest in SN-enabled shopping settings via social learning, which relies on copying the behaviors of those that one recognizes (Goldstein and Gigerenzer 2002), and via the use of social filters that enable reducing the number of products within one's consideration set to those that friends have interacted with (Todd 2007). The informational space in SN-enabled shopping can thus be expected to provide suitable means to assist users in making fast and frugal information searches especially when peers around them are highly salient. Thus:

SN centrality (H3a) and SN quality (H3b) decrease cognitive effort.

Prior research suggests that when two systems provide equally relevant information for the conduct of a focal task, but one is more effortful to operate than the other, the system requiring less effort should be the one deemed overall more useful for the purpose of the focal task). Theories of intrinsic motivation also explain that the easier a system is to interact with the greater the sense of self-efficacy experienced by a user, and therefore the greater the user's sense of self-determination and positive affect. Therefore:

Cognitive effort decreases consumers' perceived levels of usefulness (H4a) and enjoyment (H4b).

Value Creation Process #3: Curiosity Arousal

SN-enabled shopping settings offer a relevant social context with stimulating options for exploration (Steenkamp and Baumgartner 1992). Previous research suggests that individuals have an evolutionary bias toward social orientation that leads them to be more curious about other people, especially the ones they know (Reeves and Nass 1996). In that respect, curiosity is likely to result from the awareness of an informational gap about friends' relations to products (Loewenstein 1994). In addition, options for exploration have the potential to generate curiosity (Malone 1980). Faithful to the explanation offered earlier about how social capital and social signals work together, the salience of the aforementioned signals is expected to be stronger when shoppers' centrality in the SN and the quality of his/her social relationships are higher. Hence:

SN centrality (H5a) and SN quality (H5b) increase cognitive curiosity.

The positive effect of social curiosity on PU is related to the informational gap, which is induced by the presence of socially relevant others. This gap prompts a feeling of

arousal, which is a driver of information seeking behaviors aimed at closing the gap, and hence positively affects product learning, thus utility. This state is also prone to hedonic value because it generates a feeling of excitement. A substantial body of work on the consequences of individuals' flow experiences provides further support for this effect. Thus:

Cognitive curiosity increases their perceived levels of usefulness (H6a) and enjoyment (H6b).

METHODOLOGY

To test the research model, we custom-developed an online shopping website integrated with Facebook, and recruited people to become users and conduct a product search task. The website was manipulated to incorporate features (see Table 1) that underlie the cues described in the paper's theory section. Social capital properties (centrality and quality) freely varied between users.

Focal page	Key Features
Subject profile page	Includes a list of her Facebook social connections.
Restaurant search page	Enables filtering restaurants by cuisine and location, as well as highlighting restaurants reviewed by friends only (i.e., a social feed).
Other shoppers' profile pages	The user can see and traverse the list of friends of all other shoppers.

Table 1. Key Features Designed for Access to Friends and Products

The created SN-enabled shopping website used restaurants as products and the Facebook network as the underlying social ties linking subjects. To build a user base for this website, we advertised the study in a large North American city, using offline means (e.g., postings at our university located in the city) and the Facebook platform. In order to obtain some social interdependency in the user base (necessary to test our model), we prompted friend referral (i.e., we asked participants to share the study with their friends on Facebook).

All individuals who subscribed to the study were first asked to review restaurants they knew of among the 287 that were included in the list. Once the recruiting and preliminary restaurant review task were completed (it took approximately two months), we contacted a sample of individuals from this user base to invite them to use our website for a restaurants search and selection task.

To ensure the sampling of a representative set of subjects, we divided the website user base (356 people) into six strata. Network members were assigned into one stratum based on the number of Facebook friends they had on the experimental website (from 0 to 15). We then randomly sampled from each stratum. This method of sampling participants was deemed appropriate as it enables forming experimental groups that are homogenous in terms of the

average size of subjects' personal network (i.e., centrality) and it does not influence the social or informational environment made available to subjects during the experimental task.

Using the web to help choose a restaurant is a common task that was selected to enhance the study's ecological validity. Subjects were asked to browse the site to search for new restaurants to try out, filling a wish list to validate their selection and proceed to the questionnaire. Restaurant vouchers were used as incentives. Before the task started, a tutorial informed subjects about the website's key interaction elements.

Three variations of our social shopping website were designed so that they are representative of the possible diversity via which a SN-enabled shopping site might be implemented (that is, with potentially different access points to products and resources), and, importantly, so that they share the key property of providing similar means to access friends and resources. The first version enabled users to freely traverse the network by showing users' list of social connections in their profile page. The second version included an additional page with a list of featured restaurants. The third version offered an additional access to a list of featured shoppers.

SN centrality was operationalized via a count of the number of subjects' Facebook connections incorporated within our website, that is, via the extent of social capital immediately available to them. *SN quality* was measured via subjects' self-reported assessment of the relevance (closeness, taste similarity, expertise) of these social connections. *SN activation* was measured via an objective, computer-generated count of the restaurant reviews from friends that subjects consulted during the task. The items measuring the *perceived enjoyment, perceived usefulness, cognitive effort, and cognitive curiosity* constructs were derived from existing research.

DATA ANALYSIS

Study Sample

A total of 123 participants were contacted based on the stratified network sampling procedures described earlier. Among them, 27 did not answer our call to participate and 8 provided unreliable answers. In addition, we excluded 6 outlier cases. These screening procedures yielded a sample of 82 data points, including 10 network isolates (i.e., those with zero friends) and 14 with missing value for the SN quality measures.

The analyses were conducted by pooling subjects assigned to the three versions of the experimental platform. To ensure that the three groups were homogenous, we compared them against a set of demographics variables (e.g., age, gender), the stratified network size variable (i.e., number of friends), usage variables. The results showed no significant differences between the groups for *age* [$F_{(2, 77)} = 0.42$, $p = 0.65$],

gender [χ^2 $_{(2,\ N=82)}$ = 2.26, p=0.32], *occupation* [$\chi^2$$_{(2,\ N=82)}$ =0.84, p=0.66], *frequency of eating out* [$F_{(2,\ 77)}$ = 1.47, p = 0.24], and *number of friends* [$F_{(2,\ 79)}$ = 0.08, p = 0.92]. In addition, no difference was observed in terms of the number of *products viewed* [$F_{(2,\ 79)}$ = 0.64, p = 0.53], and the number of *reviews* consulted [$F_{(2,\ 79)}$ = 1.25, p = 0.29].

Results

The validity of the model's constructs was first validated (Table 2). The structural model was tested with Partial least squares (PLS). The results (Figure 1) revealed that *SN centrality* significantly influenced SN activation (β=0.52, p<0.001), while its effects on cognitive effort and curiosity were not significant (β=-0.12, p>0.05, β=0.05, p>0.05, respectively). ***Hence, while H1a was supported, H3a and H5a were not***. In turn, *SN quality* had a positive effect on SN activation (β=0.18, p<0.001) and cognitive curiosity (β=0.28, p<0.05), and a negative effect on cognitive effort (β=-0.30, p<0.05). Thus, ***H1b, H3b, and H5b were all supported***.

Next, *PU* appeared to be significantly influenced by SN activation (β=0.18, p<0.05) and cognitive curiosity (β=0.42, p<0.001). The negative effect of cognitive effort was not significant (β=-0.21, p<0.01). Therefore, ***H2a and H6a were supported while H4a was not***. Finally, *PE* appeared to be significantly affected by the three proposed explanatory factors: SN activation (β=0.21, p<0.001), cognitive effort (β=-0.42, p<0.001), and cognitive curiosity (β=0.36, p<0.001). These results bring

support to H2b, H4b, and H6b. Overall, the model explained a substantial amount of variance in PU (34.7%) and PE (53.4%).

Following-up on these results, we examined two other models to determine if the data supported a full mediation of the effects of social capital on consumer's utilitarian and hedonic outcomes through the three posited value-creation mechanisms. In a first model, which included only the direct effects of social capital on PU and PE, we found that SN centrality did not significantly influence PE. Hence, *the preliminary necessary condition of a mediation effect was not met for the relationship between SN centrality and hedonic outcomes*. The three other direct paths were all significantly positive (SN centrality→PU: β=0.24, p<0.05; SN quality →PU: β=0.39, p<0.001; SN quality→PE: β=0.31, p<0.001). We further examined whether these three paths remained significant or not in a full model (direct + indirect effects). The results for this second model show two important findings. First, the two direct paths from SN quality to PU and to PE became non-significant (β=0.21, p>0.05, and β=0.08, p>0.05, respectively). Some mediators also became non significant, suggesting that *SN quality's influence on both PE and PU was fully mediated by cognitive effort and cognitive curiosity for PE, and by cognitive curiosity alone for PU*. Second, the path from SN centrality to PU remained significant (β=0.22, p<0.05), indicating that *while SN centrality did influence PU, this effect was <u>not</u> effectively explained by the proposed set of intervening variables*.

	CR	*CA*	*AVE*	**[1]**	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**	**[7]**
SN quality **[1]**	*0.88*	*0.81*	*0.72*	**0.85**						
SN centrality **[2]**	-	-	-	0.36	**-**					
SN activation **[3]**	-	-	-	0.37	0.59	-				
Cognitive effort **[4]**	*0.93*	*0.88*	*0.80*	-0.39	-0.23	-0.26	**0.89**			
Cognitive curiosity **[5]**	*0.91*	*0.81*	*0.84*	0.30	0.15	0.14	-0.40	**0.92**		
Perceived usefulness **[6]**	*0.90*	*0.86*	*0.65*	0.42	0.37	0.27	-0.42	0.53	**0.81**	
Perceived enjoyment **[7]**	*0.95*	*0.93*	*0.82*	0.40	0.35	0.36	-0.62	0.56	0.60	**0.91**

CR: Composite Reliabilty. *CA*: Cronbach's Alpha; *AVE*: Average Variance Extracted. Diagonal elements (in bold) are the square root of the AVE; off-diagonal elements are correlations between constructs.

Table 2. Correlations Among Variables
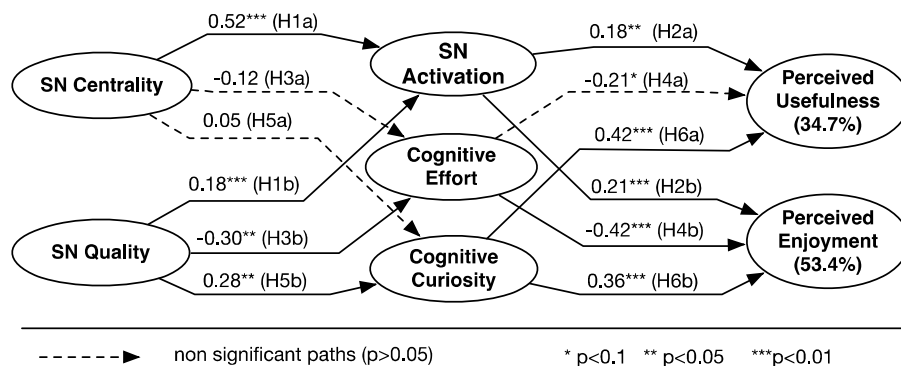
Figure 1. Results of Testing the Research Model

DISCUSSION

This research investigated how online social relationships facilitate useful and enjoyable product search experiences. The results (H1a and H1b) support the view that *both* structural (i.e., SN centrality) and content (i.e., SN quality) aspects of a customer's online social capital provide salient cues that motivate shoppers to mobilize the informational resources available in their circle of friends (i.e., SN activation). As expected, we also found that SN activation had a positive effect on usefulness and enjoyment (H2a and H2b).

We also found that cognitive *effort* and cognitive *curiosity* were influenced by SN quality (H3b, H5b) but not by SN centrality (H3a, H5a – not supported). SN centrality did not significantly influence cognitive effort and cognitive curiosity even when removing the competing effect of SN quality. This suggests that compared to *size* aspects, the *relevance* of one's social circle provides more effective cues to support information-seeking strategies that are less demanding and stimulate exploration.

The results also corroborate our expectation that cognitive curiosity is a positive driver of both usefulness and enjoyable customer experiences (H6a, H6b). However, we expected that cognitive effort would be a significant detrimental factor to both outcome variables, and our results only supported its negative effect on PE (H4b was supported, H4b was not).

This research has some limitations. In our sample, most subjects had between one and three friends. Few had more than five friends. Hence, our results for the effect of this variable are strongly constrained by its range in our study and cannot be generalized to networks of larger sizes. Second, our sample size was relatively small, which reduced the power of our tests. Among the 82 cases that resulted from cleaning the data, 10 were network isolates (i.e., zero friends), hence 72 usable data points were used in the PLS tests. Nevertheless, the small sample size suggests a greater degree of relevance to the findings (i.e., the effects were large enough to be detected).

In sum, this study substantiates and explains the role of social capital in influencing consumers' experiences in SN enabled settings by empirically demonstrating consumers' sensitivity to social cues especially when they are most relevant to them (a per the effects of SN quality). It demonstrates that online friends are generative of value in shopping contexts. This might be counterintuitive in light of existing well-established SN theories that have advocated the utility of weak ties in providing access to novel knowledge. Yet, other SN theories advocate that social capital is rooted in networks of strongly interconnected elements that facilitate trust, reliable communication, reciprocity, and norms compliance. This study concurs with the view that neither of these positions should be taken for granted, and that, instead, context should inform the identification of the resources instrumental for certain actors in certain situations.

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