Determining Consumer Engagement in Word-of-Mouth: Trust and Network Ties in a Social Commerce Setting

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Abstract. Prompted by the popularity of social commerce in the past few years, this study seeks to examine how online reviews influence consumer's tendency to engage in word-of-mouth (WOM). We investigate how different aspects pertinent to online reviews affect consumers trust, and how that in turn induces WOM passing and WOM giving. The moderating influence of network ties is studied in the trust to WOM relationship. Building on survey-based study design with a sample of 385 social commerce consumers, we that specific aspects induce a sense of trust towards vendors. In turn, our study demonstrates that trust positively influences WOM passing and WOM giving and this relationship is amplified in conditions of strong network ties. We conclude the paper summarizing the findings and drawing theoretical and practical implications that arise.

Keywords: Social commerce · Survey study · Online reviews · Trust · Word-of-Mouth · Network ties

1 Introduction

Building on the popularity of social media and social networks, social commerce has managed to gain attention as a subset of e-commerce in the past few years. Social commerce sites presents certain some critical differences from conventional e-commerce stores, particularly by enabling social interactions and the creation and circulation of user generated content [1]. Inevitably, social commerce initiatives have sparked the interest of business executives and marketers due to the large user base and the interactions that develop [2]. As such, a growing number of marketers are now engaging in social commerce prompted by the promising early outcomes [3]. Nevertheless, while conventionally marketers were in control of the information they provided to consumers, in social commerce settings part of this power has been transferred to the consumer [2].

The influence of online reviews is becoming ever more important in the decision making process of individuals and has been a topic of increased relevance over the past

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few years [4]. Yet, there is limited knowledge on how the reviews on social commerce websites influence consumers to engage in word-of-mouth (WOM) and pass on, or convince their fellow peers, on the importance of products found on social commerce sites. To date, the mechanisms through which online reviews affect consumer attitudes and behavior have not been explored sufficiently, particularly in relation to the trust-building mechanism they induce. In addition, the influence of network ties is largely disregarded in terms of the reach and valence that WOM communication has. As such, we build on these gaps and develop the following research question which guides our study: *How do online reviews influence social commerce users' trust, and what is the impact on WOM? What are the effects of network ties in this relationship?* To delve into this topic we build on a survey-based empirical study.

The rest of the paper is structured as follows. In Sect. 2 we overview the background which this study builds upon. In Sect. 3, we develop the research hypotheses, while in Sect. 4 the study design is described. In Sect. 5 the analysis is presented along with results from the quantitative analysis. Finally, Sect. 6 discusses the theoretical and practical implications that arise from the results.

2 Background

Past research has shown that online reviews, trust, and WOM are inextricably associated [5]. Users of social commerce websites consume the information they find online concerning a product or service they are interested in, with online reviews being an increasingly important source [6]. While literature often equated online reviews with WOM the two notions are inherently distinct. Online reviews consist of comments and ratings made by consumers towards a specific product or service which are accessible to everyone. On the other hand, WOM refers to the passing of information from one peer to another, or the process of persuasion towards a specific individual [5]. Potential consumers utilize online reviews in various forms and from a diverse background of people, which works as a mechanism of increasing their trust in the product itself or the vendor that is selling it [7]. Past research suggests that when a potential consumer senses that conditions are appropriate based on his or her understanding of information provided by online reviews that will lead to a formation of trust [8]. In turn, this positive expectation activates a sense of confidence in the potential consumer which facilitates the engagement of WOM towards others peers [9].

Hence, WOM is a result of the trust-building mechanism which is developed by consumers consuming online reviews [10]. Conversely, if a consumer is not satisfied by the context relating to online reviews, trust will be deterred, leading to an absence of outcomes that are beneficial towards marketers [11]. The effect of online reviews on purchase-related behavior has been studied in several contexts on online commerce and virtual communities [12]. Nevertheless, the indirect effect and the trust building mechanisms that online reviews facilitate have been largely under-explored, particularly in the context of social commerce [13]. Previous research in the domain of online commerce has shown that trust mediates many buying-related behaviors and is a good predictor of actions taken by consumers [14]. While the importance of online reviews has been clearly documented in several research papers in the context of social

commerce, very little attention has been placed on the trust building mechanisms it enables, and specifically towards engaging consumers to partake in WOM. In the following section, we focus on online review related factors that are posited to be important predictors of inducing trust of consumers. We then proceed to explain how trust ignites the process of WOM and how this is amplified in conditions of high network ties.

3 Research Hypotheses

While developing a sense of trust towards a product or firm is a process that unfolds over time, in the context of social commerce and online reviews some factors have been found to be important determinants. In the seminal paper of McKnight et al. [14], trust is decomposed into several dimensions, with trusting beliefs being one of the most important in determining pre-action behavior. Trusting beliefs have to do with the confidence of a consumer in the attributes of the truster; in this case with vendors on social commerce sites. Thus, in this study we examine the determinants that facilitate the formation of trusting beliefs in vendors of social commerce sites. Specifically, credibility of the source has been extensively documented over time as being an important facilitator of trust-building [15]. Credible reviewers are perceived as delivering more factual reviews that outline both positive and negative aspects of the product service without having any bias [16]. Despite not knowing much personal information about individual reviewers in the social commerce context due to its globalized reach, various mechanisms have been established in order to distinguish valid and factual reviews from those that contain little useful information [17]. Furthermore, personal attributes of the consumer such as his or her propensity to read online reviews, i.e. susceptibility to reviews, and inclination to utilize information found on these (persuasiveness) are noted as important contributors of developing trust [5]. Past research has found that users that tend to rely more on online reviews are more prone to purchase and engage in other purchase-related behavior (Bailey, 2005). Other studies find that while susceptibility may be important, what dictates the subsequent actions of consumers is his or her persuasiveness from the reviews [18, 19]. While susceptibility may be influenced by a multitude of factors, it is usually a personal attribute which is rooted in a consumer's predisposition to trust, a significant aspect in the formation of trusting beliefs towards a vendor or commerce outlet [14]. Nevertheless, the online context necessitates consumers to be vigilant and be in place to recognize the validity of information found and that it has not been tampered with by unauthorized sources. Hence, perceptions of security of the online domain are regarded as important enablers or inhibitors of the trust-building mechanism [20]. From the above we hypothesize the following

H1: *A consumers' perceptions of security will have a positive impact on trusting beliefs (Social commerce vendors)*

H2: *A consumers' perceptions of general credibility will have a positive impact on trusting beliefs (Social commerce vendors)*

H3: *A consumers' persuasiveness will have a positive impact on trusting beliefs (Social commerce vendors)*

H4: *A consumers' susceptibility to reviews will have a positive impact on trusting beliefs (Social commerce vendors)*

The trusting beliefs developed from the previously mentioned set of factors, is also argued to influence consumers purchase-related behavior [21]. The main premise developed in the work of McKnight et al. [14] is that trusting beliefs can explain trust-induced behavior. Past research in online environments has empirically shown that trusting beliefs have a direct effect on purchase intentions [22]. Trusting beliefs are accompanied with familiarity and a perceived absence of threat, which inevitably lead to lowering consumer inhibitions when making a purchase decision [23]. A similar phenomenon is noted when consumers tend to share product-related information from firms or vendors that they have formed a trusting relationship with [24–26]. Their trust bond builds a sense of ownership and promotes feelings of loyalty towards a specific brand or vendor, which in turn can lead to passing on information or influencing fellow peers [27]. From the above argumentation, we hypothesize that:

H5: *A consumers' trusting beliefs will have a positive impact on WOM passing*

H6: *A consumers' trusting beliefs will have a positive impact on WOM giving*

Network ties are a particularly important feature of online communities present on social media [28]. Close ties constitute a stronger relationship amongst a person's social network, while weak ties are weaker and less personal [29]. Within social commerce websites, consumer's behavior is argued to be influenced by both intimate and strong tie interactions and remotely connected weak ties [30]. Strong ties are argued to accelerate the dissemination of product-related information to peers in the network, while weak ties are posited to have a lesser impact [31]. The effect of network ties on resulting WOM behavior however is contingent upon the trust that has been developed with the respective vendor of the social commerce medium, therefore we hypothesize that:

H7: Strong network ties positively moderate the relationship between a *consumers' trusting beliefs and WOM passing*.

H8: Strong network ties positively moderate the relationship between a *consumers' trusting beliefs and WOM giving*.

4 Research Methodology

4.1 Data Collection

To examine the proposed research hypotheses of this study, a survey-based study was initiated using an online questionnaire which was then administered to participants between October and December 2016. To recruit participants to fill out the questionnaire, two main sources were utilized. The first was Amazon's Mechanical Turk (MTurk), which allows for a significantly socio-economically and ethnically diverse population of customers that use social commerce sites to be contacted [32]. MTurk is a

digital platform through which individuals can be contracted to perform specific tasks mostly related to completing surveys. These participants are recruited based on a number of criteria that are relevant to the study at hand and are provided a pre-defined financial reward for their time. In the academic community MTurk has received growing attention as a valid method of gathering data from a diverse population [33]. Several studies have examined the effectiveness and validity of using MTurk and found that if well-defined instructions are given to the sample, MTurk participants demonstrate higher attentiveness compared to other sample groups (e.g., students) [33].

As an additional means of contacting respondents and increasing the validity of findings, we utilized a snowball sampling methodology which allowed a more representative sample. Individuals that had previous experience in social commerce were contacted through social media, such as social network sites, blogs, forums as well as peers for social circles etc. [34]. The instructions given asked participants to forward the survey to their personal or business contacts that had experience in using social commerce platforms. In order to increase participant's willingness to complete the survey, a raffle was created with gift cards. The snowball effect in the selected sample was induced by giving participants additional entries in the raffle if they invited friends and peers. Respondents that had no previous experience purchasing or even browsing on social commerce sites were disqualified from the study based on a pre-question. In addition, in both cases we provided an example of what a social commerce platform is, in order to omit respondents that were not knowledgeable or had not experience of using such a platform. The final sample consisted of 452 responses, 385 of which were complete and suitable for further analysis.

4.2 Sample Demographics

The final sample consisted of an almost equal distribution of men (55.1%) and women (44.9%). Concerning the age of respondents, the sample is relatively equally distributed with those between 35 to 45 years old accounting for 28.8% of the population, and those between 30 and 34 years old representing 27.2% of the total. Further, 21.9% belonged to the age group 25–29, 15.8% were older than 46 years old, and 6.3% were 18-24. The majority of respondents (53.8%) held a bachelor's degree, with the next biggest group being those that are high school graduates (37.2%). In addition, 9% of the respondents were post-graduates. Most respondents checked their social media accounts several times (63.6%) a day, 21.9% about once a day, and the remaining 14.5% checked their accounts a few times a week or less. Participants were also asked to estimate how much money they spend on average on online shopping in a period of month. The largest group of respondents spent between $25 and $50 (31.9%), followed by those who spent between $50 and $100 (26.9%). Finally, 17.7% spent less than $25 a month, with the remainder of the sample spending over $100 (23.5%).

4.3 Measures

The questionnaire used in this study consisted of two main parts. In the first part, respondents were asked to provide information about their demographics and spending habits in social commerce environments. In the second part, respondents were

presented with several statements and questions regarding their perceptions and beliefs about various aspects related to social commerce. Specifically, for the purpose of this study the following constructs were utilized as presented in Table 1. The full list of items used to operationalize these constructs can be found in Appendix A.

Table 1. Construct definitions and supporting references

Construct	Definition	References
Perceived security	Perceived security is defined as the level of security that users feel while they are shopping on e-commerce sites.	[20]
General credibility	General credibility is defined as the perceived degree of factuality of reviews of social commerce sites.	[5]
Persuasiveness	Persuasiveness is defined as the degree to which consumers are influenced by the content of review on social commerce sites.	[5]
Susceptibility to reviews	Susceptibility to reviews is defined as the propensity of consumers to utilize product-related information in the form of reviews on social commerce sites.	[5]
Trusting beliefs	Trusting beliefs refers to the confidence of consumers that the trustee—in this context, a social commerce vendor—has attributes that are beneficial to the consumer.	[14]
WOM passing	WOM passing is defined as the propensity of individuals to forward/pass on product-related information they regard as interesting on social commerce sites.	[30]
WOM giving	WOM giving is defined as the propensity of individuals to try to exert influence on others attitudes and behaviors relating to products on social commerce sites.	[30]
Tie strength	Tie strength is defined as the potency of the bond between members of a social media network.	[30]

5 Empirical Results

5.1 Measurement Model

All the variables utilized in this study are developed as reflective latent construct, and are therefore subjected to reliability, convergent validity, and discriminant validity tests. We assessed reliability a both the construct and item level. At the construct level, Cronbach Alpha (CA) values were evaluated to confirm that they were above the threshold of 0.70. At the item level, construct-to-item loadings were examined to confirm that all scores were above the lower limit of 0.70. All CA values were above 0.83, while construct-to-item loadings exceed the minimum value and had scores above 0.73. Hence, reliability was established at both construct and item level [35]. To verify that convergent validity is established, we looked at if Average Variance Extracted (AVE) values exceeded the lower limit of 0.50 [36]. The lowest detected value was 0.73 which greatly surpasses the above mentioned threshold. We tested for discriminant validity through two ways. First, we examined if each constructs AVE square root was greater than its highest correlation with any other construct (Fornell-Larcker criterion).

Second, we checked that each indicators outer loadings on its corresponding construct was larger than any other cross-loading with other constructs [37]. After conducting all the previously mentioned measurement model tests, we can conclude that the first-order variables are valid and reliable, and that the underlying items are good indicators of their respective constructs as depicted in Table 2.

Table 2. Assessment of reliability, convergent and discriminant validity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Perceived security	**0.859**							
(2) General credibility	0.266	**0.959**						
(3) Persuasiveness	0.033	0.580	**0.946**					
(4) Susceptibility to reviews	0.037	0.518	0.836	**0.893**				
(5) Trusting beliefs	0.375	0.425	0.228	0.246	**0.896**			
(6) WOM passing	0.212	0.194	0.048	0.128	0.366	**0.958**		
(7) WOM giving	0.155	0.224	0.066	0.135	0.356	0.705	**0.950**	
(8) Tie strength	0.199	0.185	0.062	0.135	0.329	0.500	0.462	**0.908**
Mean	3.89	4.83	5.70	5.53	4.51	3.66	2.97	4.66
Standard deviation	1.27	1.45	1.39	1.71	1.84	1.45	1.52	1.60
Cronbach Alpha (CA)	0.834	0.912	0.886	0.914	0.951	0.955	0.945	0.894
Average variance extracted (AVE)	0.737	0.919	0.896	0.798	0.803	0.917	0.902	0.825

5.2 Structural Model

To put the proposed set of hypotheses to test, a partial least squares structural equation modeling (PLS-SEM) approach is applied on the collected sample. The significance of estimates (t-statistics) are obtained by running the bootstrap algorithm using 5000 resamples. Path weights are calculated by applying the PLS algorithm of SmartPLS. The structural model derived from the PLS analysis is summarized in Fig. 1, in which the explained variance of endogenous variables (R^2) and the standardized path coefficients (β) are depicted. As illustrated in Fig. 1, seven out of the eight total hypotheses are empirically supported. More specifically, we find that perceived security ($\beta = 0.285$, $t = 5.904$, $p < 0.001$), general credibility ($\beta = 0.328$, $t = 4.829$, $p < 0.001$), and susceptibility to reviews ($\beta = 0.188$, $t = 2.014$, $p < 0.05$) positively affect trusting beliefs. Contrarily, general persuasiveness is found to have negative but non-significant influence on the trusting beliefs of consumers of social commerce sites ($\beta = -0.089$, $t = 0.993$, $p > 0.05$). In turn, the trusting beliefs formed by users have a positive and significant influence on both WOM passing ($\beta = 0.231$, $t = 4.450$, $p < 0.001$), and WOM giving ($\beta = 0.234$, $t = 5.048$, $p < 0.001$). This relationship if found to be strengthened by an increased tie strength, since the moderating effect for WOM passing ($\beta = 0.104$, $t = 3.185$, $p < 0.001$), and WOM giving ($\beta = 0.127$, $t = 4.243$, $p < 0.001$) is positive and highly significant.

The structural model explains 26.0% of variance for trusting beliefs ($R^2 = 0.260$), 31.1% for WOM passing ($R^2 = 0.311$), and 28.4% for WOM giving ($R^2 = 0.284$). These coefficients of determination represent moderate to substantial predictive power

of the structural model [35]. In addition to examining the R^2, the model is evaluated by looking at the Q^2 (Stone-Geisser) predictive relevance of constructs. This test is a measure of how well observed values are reproduced by the model and its parameter estimates, assessing as such the model`s predictive validity through sample re-use [38]. Q^2 values greater than 0 are an indication that the structural model has sufficient predictive relevance, whereas values below 0 are an indication of insufficient predictive relevance [35]. Results of the blindfolding procedure show that trusting beliefs (Q^2 = 0.193), WOM passing (Q^2 = 0.267), and WOM giving (Q^2 = 0.237) have satisfactory predictive relevance [35].

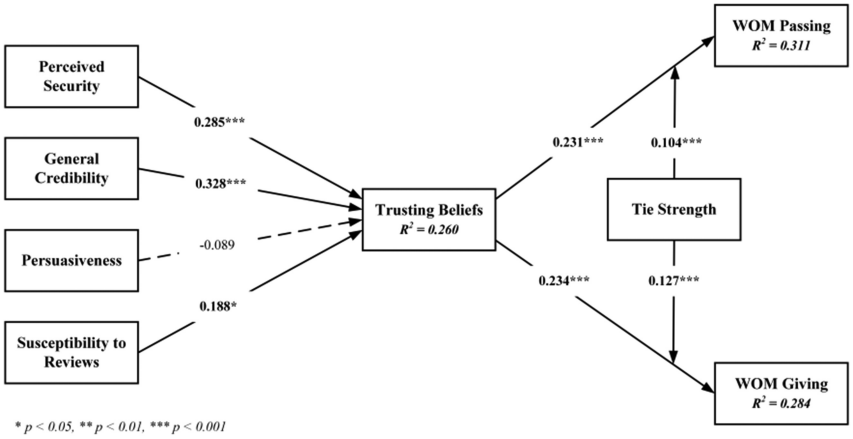

Fig. 1. Estimated causal relationships of structural model

6 Discussion

Based on prior literature we put forth a research model consisting of eight hypotheses concerning the role of perceptions about online reviews and their effect on WOM. Specifically, we examine the trust-building mechanism that online reviews have, and how they indirectly facilitate WOM passing and WOM giving. The impact of trust on the two types of WOM is investigated under the moderating influence of network ties. As such, the proposed research model and the empirical results contribute theoretically in three ways.

First, while the influence of online reviews and their various attributes has been examined in a direct manner in relation to purchase-related behavior, limited focus has been placed on the aspect of trust as an enabling condition for trust-induced behavior. Second, while WOM is usually examined as an exchange of information between two peers, we differentiated the concept in WOM passing and giving. It is important to understand the effect that trusting beliefs have not only on the simple passing on of product-related information, but also on the persuasion of other peers about the product at hand. Third, while the importance of network ties is widely acknowledged in the study of social networks and as an extension in social commerce, limited studies

examine their effect on moderating WOM propensity. Our results reveal that strong network ties have positive returns or the degree to which consumers trusting beliefs influence WOM. Thus, while trusting beliefs may be important in conditioning WOM-induced behavior, this effect is amplifies for individuals who are part of a large and well-connected social circle.

From a practical point of view our findings reveal that vendors should take into account aspects of security very seriously and establish ways in which content of reviews can be verified towards its authenticity. Some social commerce vendors already have implemented such tools such as Amazon who indicates if a review comes from a verified purchase or not. Furthermore, the importance of network ties in amplifying the effect of WOM passing and giving should prompt marketers in developing strategies to connect people and intensify their interactions. By doing so they can strengthen network ties and potentially contribute to the enhancement of product-related information flow between peers.

While this research presents some novel results it does come with certain limitations. Firstly, we center of consumer-specific factors in relation with online reviews in the formation of trusting beliefs. Equally as important are product-related information that are generated by marketers. Furthermore, we do not distinguish between the various formats in which this information is presented. It is frequent for social commerce vendors to have several ways to represent online reviews in raw format or in aggregated ways. Lastly, the results of the study are based on a survey study in which further details about the constructs and notions at hand cannot be captured. Future studies could follow a qualitative approach and interview consumers during the process of browsing products online on social commerce websites. This would enable a deeper understanding of the factors they find important when trying to establish a sense of trust, and how in turn this results in trust-induced behavior.

Appendix A. Questionnaire Items

Measure	Items
Please indicate how much you agree or disagree with the following sentences (1 – totally disagree, 7 – totally agree)	
Perceived security	I believe the information I provide social commerce sites will be manipulated by inappropriate parties (R)
	I am confident that the private information I provide social commerce sites will be secured
	I believe inappropriate parties may deliberately view the information I provide social commerce sites
General credibility	I think that online product reviews are credible
	I trust product reviews provided by other consumers
Persuasiveness	Online product reviews have an impact on my purchase decisions
	Before making important purchase decisions, I consult product reviews to learn about other consumers' opinions

(*continued*)

(*continued*)

Measure	Items
Susceptibility to reviews	I often read other consumers' online product reviews to know what products/brands make good impressions on others
	To make sure I buy the right product/brand, I often read other consumers' online product reviews
	I often consult other consumers' online product reviews to help choose the right product/brand
	I frequently gather information from online consumer product reviews before I buy a certain product/brand
Trusting beliefs	I believe that vendors on social media would act in my best interest
	I expect that vendors on social media are well meaning
	I would characterize vendors on social media as honest
	Overall, social media platforms are effective in providing trustworthy vendors from which I can purchase
	On social media I can find excellent vendors for purchasing products/services
	Vendors on social media would keep their commitments
WOM passing	When I receive product related information or opinion from a friend, I will pass it along to my other contacts over social media
	On social media, I like to pass along interesting information about products from one group of my contacts on my 'friends' list to another
	I tend to pass along my contacts' positive reviews of products to other contacts on social media
WOM giving	I often persuade my contacts on social media to buy products that I like
	My contacts on social media pick their products based on what I have told them
	On social media, I often influence my contacts' opinions about product
Tie strength	Approximately how frequently do you communicate with the contacts on your friends list on social media (1 – never, 7 – very frequently)
	Overall, how important do you feel about the contacts on your 'friends' list on social media? (1 - Not at all important, 7 - very important)
	Overall, how close do you feel to the contacts on your 'friends' list on social media? (1 - Not at all close, 7 - Very close)

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