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Ree C. Ho & Sajad Rezaei

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Social Media Communication and Consumers Decisions: Analysis of the Antecedents for Intended Apps Purchase

Ree C. Ho[a] and Sajad Rezaei[b]

[a]Taylor's Business School, Taylor's University, Subang Jaya, Selangor, Malaysia; [b]Chair of Marketing and Innovation, Universität Hamburg, Hamburg, Germany

ABSTRACT

The purpose of this study is to investigate how consumer's socialization could shed light on social commerce apps behavioral intention (SCABI). Social commerce communication, virtual community trust, post-usage usefulness, perceived enjoyment, subjective norm, attitude toward the apps, and behavioral control are proposed as the several antecedents of behavioral intention of social commerce purchase decisions. Drawn from the Theory of Planned Behavior and social exchange paradigm, a theoretical model was developed and a list of (17) hypotheses was tested empirically. The sample included 230 respondents; structured equation modeling (SEM) was employed for measurement and structural evaluation. Prior to the evaluation of the measurement model and structural relationships, the indices for evaluation of goodness of model fit were obtained and the results show satisfactory values. The statistical results imply a reliable and valid measurement scale and the direct relationships were mostly supported. However, the virtual community trust → post usage usefulness, perceived enjoyment → SCABI, social commerce communication → attitude, attitude → SCABI, and subjective norm → attitude relationships were not supported. Therefore, social media, which is a highly social-related communication platform, plays a pivotal role in consumer decision making for online product purchases. Practical and theoretical implications are discussed.

Introduction

The burgeoning use of social networking and advancements in mobile technology are providing rich media experiences for a wide range of people. Social media has empowered an openness in business communication (Valenzuela, Somma, Scherman, & Arriagada, 2016; Weller, 2016). Consumers are using social networks to seek information about the products and services offered by businesses. Similarly, consumers are providing

their own comments based on their shopping experiences; firms can maintain closer collaboration with customers by monitoring and answering questions posed by their customers on Facebook and other sites. Advanced analytical software is being employed by businesses to tap into user data available on social networking sites; the new business strategy of tapping into social commerce has become a major challenge for many businesses (Johnson & Ross, 2014; Valenzuela et al., 2016). The amount of user-generated content, particularly consumer-generated content, that is produced and available in online spaces is equipping firms to use social media to understand their customers' needs and wants (Ye, Law, Gu, & Chen, 2011). Businesses are utilizing social media apps and interactivity features to communicate with consumers and to create enjoyable experiences (Rezaei & Valaei, 2017a). Social media allows them to access customer information and create more accurate profiles (Barreda, Bilgihan, & Kageyama, 2015); hence, sales and marketing activities are designed based on customer's profile and purchase history.

Social commerce is referred as a form of commerce facilitated by social media which permits both consumers and sellers to communicate within social network communities (Johnson & Ross, 2014; Stephen & Galak, 2012). It provides a new set of tools and technologies to enable sellers and customers to connect more effectively and build customer relationships more easily. Similarly, social networking sites promote knowledge sharing by allowing everyone the opportunity to create and co-produce content, known as user-generated content (Barreda et al., 2015). This form of crowd sourcing provides positive feedback and product reviews, which can generate business value within social media spaces. In Malaysia, Rezaei and Ismail (2014) show that consumers are using social media websites and apps to post and share their shopping experiences; thus, significant amounts of of content is being produced by consumers sharing reviews on products and services. Hence, it is more effective than conventional business communication because of its two-way communication features; thus, the rich interactive nature of social media allows closer and more active collaboration between sellers and customers for completion of the sales transaction (Courtney, Clare, Green, & Hartley, 2015).

With the rise of virtual communities, customers are getting more attention and businesses are moving towards a customer-centric orientation; the level of personalization services has been improvised for better customer service (Bauer & Grether, 2005). However, the business value of social commerce is still undervalued, as most young consumers are using it for product research and purchase activities; hence, there is a need to discover what motivates consumers to use social commerce for their shopping activities. Businesses are paying attention to social media for its influential

power on consumer buying behavior (Cheong & Morrison, 2008). Social media users have the opportunity to pose questions and provide feedback using word of mouth (Courtney, Clare, Green, & Hartley, 2015). Furthermore, consumers are more willing and feel comfortable in sharing user-generated content with people in their affiliated virtual community (Weller, 2016); thus, word of mouth has been transformed from traditional communication using phone and email to user reviews and comments extracted from social media. Cheong and Morrison (2008) found that comments and product reviews from other consumers are one major source for consumers to learn about products. In order to capitalize on the benefits of this, firms are spending more to manage their social media channels; however, most research efforts mainly focus on other aspects, such as marketplace (Stephen & Galak, 2012), brand (Michaelidou, Siamagka, & Christodoulides, 2011), and word of mouth (Trusov, Bucklin, & Pauwels, 2009). It is generally accepted that social media are influencing customer purchase intention. Thus, the analysis of antecedents that influence product purchasing can shed new light on understanding the role played by social media from a business perspective.

Therefore, the purpose of this study is to investigate how this online retailing phenomenon could shed light on online customer purchase behavior in social commerce. Social commerce communication, virtual community trust, post-usage usefulness, perceived enjoyment, subjective norm, attitude, and behavioral control are proposed as the several antecedents of behavioral intention of social commerce. This study is organized into several sections. The current section introduces the research theme and background of the study. Secondly, the theoretical background incorporates and introduces concepts drawn from the Theory of Planned Behavior (TPB) and Social Exchange Process paradigm. The third section depicts the methods and research design. The fourth section presents the research findings, and the last section discusses the practical and theoretical implications.

Theoretical background and hypotheses development

Emerson (1976, p. 336) suggests that the social exchange process involves "a two-sided, mutually contingent, and mutually rewarding process involving transactions or simply exchange." Social Exchange Theory (SET) is considered to be one of the most relevant conceptual and theoretical paradigms to examine networks and behavior (Cropanzano & Mitchell, 2005). In addition, the TPB is used as the major underpinning theory for this study, which is widely adopted as a framework in rationalizing customers' behavior and attitude towards the use of electronic commerce (Pavlou & Fygenson, 2006).

The center of this theory posits that the attitude, subjective norm, and behavioral control influence the behavioral intents of consumers, and hence ultimately impact the actual purchase (Rezaei, Shahijan, Amin, & Ismail, 2016b; Yeo, Goh, & Rezaei, 2017). In general, attitude is determined by the benefits and outcomes gained after the behavior is conducted, so it is determined by instrumental beliefs toward the systems utility dimension of social commerce, while behavioral intention refers to a person's likelihood to perform a specific behavior or given task (Shahijan, Rezaei, Preece, & Ismail, 2015). This paradigm is used in conceptualizing many online services, such as online intermediate shopping and online travel purchases (Shahijan et al., 2015; Yeo et al., 2017). The attitude is related to behavior in performing sales activities, as confirmed by prior studies in using electronic channels (Baker & White, 2010; Lee & Hong, 2016; Soh, Rezaei, & Gu, 2017). Thus, this study posits that consumers' shopping behaviors depend on both their motivation and ability to use social media effectively. Hence, TPB was selected to predict these selected young consumers' planned behavior. Under TPB, behavioral intention is regarded as the main predictor of the actual behavior performed and it is used to forecast the actual online purchase by online consumers at the later post-purchase stage (Rezaei & Ghodsi, 2014; Rezaei et al., 2016). In addition, two of the theory extensions were referenced; namely, Pavlou and Fygenson (2006) in electronic commerce and Khalifa and Shen (2008) in mobile commerce. In a meta-analysis study conducted by Sheppard, Hartwick, and Warshaw (1988), actual purchases were explained largely by intention to purchase products. In this study, the attitude towards social commerce rooted in TPB theory has an impact on purchase intention in social commerce apps. Therefore, this study hypothesis as follows:

> H1: Attitude has a direct and positive effect on the intention to purchase via social commerce apps.

In social media, users are more likely to contribute their comments and viewpoints in building brands (Keller, 2009). It is one's evaluation of the social pressure being experienced that influences the performance of certain behavior (Ajzen, 2002; Madden, 1986). Normative belief refers to the fact that an individual performs a certain behavior because he or she believes other people, especially those who are closely related, would prefer him or her to behave in such way. Customers like to recommend products or services to friends if they are satisfied with them. Thus, an individual's behavior is based on his or her perception of what others think that behavior should be (Soh et al., 2017). The relationship between attitude and subjective norm has been investigated in the extant literature (Ajzen, 2002; Madden, 1986; Venkatesh & Davis, 2000; Yeo et al., 2017). The subjective norm affects one's attitudes toward sharing knowledge and experience, while the normative belief often guides subjective norms (Schepers & Wetzels, 2007).

Venkatesh and Davis (2000) found that subjective norm has an impact on attitude toward an intended behavior when a person internalized the social influence exerted on him/her. Bock, Zmud, Kim, and Lee (2005) established that a person would not carry out a task when he/she is convinced that such task is disapproved of by his/her community. Yang (2012) further argues that mobile commerce customers rely on others' feedback when they are uncertain about the use of a mobile device as a new sales transaction medium. Since consumers are exchanging knowledge on products in the social media environment, it is expected that people will be affected by the norms existing in the virtual community; thus, the attitude and behavior of the consumers are likely to be group driven. Therefore, this study offers the following hypotheses:

> H2: Subjective norm has a direct and positive effect on attitude towards social commerce.

> H3: Subjective norm has a direct and positive effect on post-usage usefulness of social commerce.

> H4: Subjective norm has a direct and positive effect on the intention to purchase via social commerce apps.

Perceived behavioral control

When customers believe that they can handle the related technology for facilitating a shopping process, they are more likely to adopt it for continuous use. App commerce has multiple environmental features in a myriad of graphical, visual, and other elements (Rezaei & Valaei, 2017a). Perceived behavioral control indicates the underlying belief in the level of difficulty as well as the belief in accessing the required resources and opportunities to the performance of the behavior (Madden, 1986). In general, it involves two components (Ajzen, 2002). The first is control belief in carrying out the behavior; the second component is the constraints of the resources, such as time and money, required for performing the behavior. It is no surprise that control beliefs over the infrastructure behind the new technology are a precursor for its successful implementation (Venkatesh, Morris, Davis, & Davis, 2003). Conner and Armitage (1998) noted that the control aspect of TPB should be examined for intended behavior; therefore, perceived related behavior control over social media is theorized to manage the process needed for shopping purposes.

> H5: Perceived behavioral control has a direct and positive effect on social commerce.

Post-usage usefulness and perceived enjoyment

Cheng and Ho (2015) concluded that post-usage usefulness, articulated in the form of online reviews, is crucial in providing general information

about the retailers and their products. Interestingly, some social media users are more likely to engage in impulse buying when they are having a good time interacting with other online users. Social media has both hedonic and utilitarian characteristics and its users are having fun while communicating and socializing with other users. On the other hand, social media can be used for many other useful tasks, such as product reviews, location searches, and meetings between friends. Usage usefulness and post-usage usefulness are considered as long-term beliefs collected from perceived usefulness after products were used (Bhattacherjee, Perols, & Sanford, 2008; Rezaei, Amin, Moghaddam, & Mohamed, 2016a). In addition, this perceived usefulness exerts its influence on attitude towards the intention for future use and generates higher customer satisfaction (Belanche, Casaló, & Guinalíu, 2012). With reference to electronic commerce, the instrumental beliefs stem from the utilitarian-oriented dimension in the form of perceived usefulness (Bagozzi, Davis, & Warshaw, 1992; Yeo et al., 2017). It is considered to be a major tenet in motivating the use of new technologies, improves productivity, and leads to the acceptance of the systems. In this study, post-usage usefulness is considered to be the degree to which consumers believe the benefits obtained after purchase can be useful in aiding their purchase intent (Rezaei et al., 2016a). New sales transacting tools are accepted widely only after they are deemed useful in post-usage evaluation, including tools such as electronic channels and social networking sites (Sun, Liu, Peng, Dong, & Barnes, 2014). Hence, the following hypothesis is derived:

H6: Post-purchase usefulness has a direct and positive effect on attitude towards social commerce.

The linkage between perceived enjoyment and main constructs from TPB has been established in previous studies. In online shopping, fun elements provided by e-retailers have a significant effect on sales activities. In a sample of 400 American online consumers, Yang (2012) reported that perceived enjoyment was the strongest antecedent in attracting customers to buy via their mobile devices. The other hedonic-oriented instrument belief is perceived enjoyment. Perceived enjoyment is defined as "the extent to which the activity of using computers is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated" (Davis et al., 1992, p. 113). Perceived enjoyment is also found to be important in user technology acceptance and hedonic-related systems (Soares & Pinho, 2014). This is further documented by Dickinger, Arami, and Meyer (2008)'s work in validating the influence of perceived enjoyment on the use of social networks. For young consumers, social technology is fun and entertaining, and they are engaging with it in everyday life

(Shephard, Kinley, & Josiam, 2014). Therefore, the following hypotheses are formulated:

> H7: Perceived enjoyment has a direct and positive effect on attitude towards social commerce.

> H8: Perceived enjoyment has a direct and positive effect on behavioral control towards social commerce.

> H9: Perceived enjoyment has a direct and positive effect on behavioral intention towards social commerce.

Social commerce communication

Social media are widely used to learn about product consumption through interaction between the consumer and socialization agents (Wang, Yu, & Wei, 2012). When products are reviewed by a peer in one's social virtual community, purchases are often the result (Shadkam & O'Hara, 2013). In general, interactivity gained from multimedia-related components may increase the level of hedonic utility in branded online services (Rezaei & Valaei, 2017a). In this study, social commerce communication refers to a consumer's ability to use social media to exchange, distribute, and obtain information in relation to a product purchase. Due to its variety of forms and functions, social media and apps retailers can easily allow users to invite others to join in their virtual communities, thus increasing the connectivity between a customer and a retailer's online shopping resources (Rezaei et al., 2016b). Although greater communication can strengthen relationships among users in an online community, it does not directly convert them into sales for web-based electronic commerce. Hence, it is necessary to investigate the vital role of social commerce communication in facilitating purchase behavior in a social commerce environment.

The popularity and frequent use of social networks are largely explained by the three tenets of TPB in prior studies (Baker & White, 2010; Lee & Hong, 2016). With a sample of 182 Facebook users, Cheung, Chiu, and Lee (2011) found that the use of an online social network as an intentional social action consists of social influence and social presence. Chow and Chan (2008) investigated a social network's capability in gathering collective goals among users and encouraging users to share knowledge. Jayachandran, Sharma, Kaufman, and Raman (2005) reiterated the importance of customer-centric activities and processes in allowing customers to interact and share information for better customer relationships. This is corroborated by Hajli's (2014) work related to better quality in relationship

building within the social commerce spectrum. Hence, this study offers the following hypotheses:

H10: Social commerce communication has a direct and positive effect on the attitude towards social commerce.

H11: Social commerce communication has a direct and positive effect on the behavioral control of social commerce.

H12: Social commerce communication has a direct and positive effect on the subjective norms of social commerce.

In general, social media offer users a novel source of enjoyment and pleasure. Using social media communication is a fun experience for sharing and learning from one another. Customers often regard emotional content gained in their social media involvement as the main cause of stronger brand attachment and product knowledge (Thaichon & Quach, 2015). This corroborates with Golan and Zaidner's (2008) research on the importance of humor in implementing successful creative marketing initiatives. Hence, it is hypothesized that a customer engages in social media communication for the hedonic experience:

H13: Social commerce communication has a direct and positive effect on the perceived enjoyment of social commerce.

Virtual community trust

Social media connects and links users with other users in groups based on their interests and social affiliation. Earlier works on trust in online commerce have validated trust and relationship commitment as key facilitators of e-commerce (Barreda et al., 2015; Bhattacherjee, 2002; McKnight, Choudhury, & Kacmar, 2002). This is consistent with Hagel and Armstrong's (1997) emphasis on the need for community-based transactions as the main business activity. A virtual community is an online group of people who interact via social media applications, pursuing their shared and mutual interests (Bauer & Grether, 2005). When users join in virtual communities, it is common for them to seek other users for social interaction and as sources of information. Trust is necessary for the continuity of online community, especially where there are no generally accepted rules to depend on (Brun, Rajaobelina, & Ricard, 2016). Morrow, Ross, Grocott, and Bennett (2010) suggest that social exchange processes in an online environment can bridge the barrier between people and aid in relationship building.

As for social media, online trust is important in building relationships between customers and online retailers. Social media sites (such as

Facebook and Twitter) amass prospective visitors and create a sense of community. By using game theory, Ba (2001) further discovered that trust-building process in the community is cost-effective. Lu, Zhao, and Wang (2010) investigated the trust level in a Taobao virtual community and found that trust in members' integrity and benevolence stimulates purchase intention. This can be explained by Ba's (2001) discovery that trust at the community level is preferred over communication between two individuals. Hence, trust gained from the virtual community exerts an influence on the attitude and subjective norm towards an online purchase with the use of social technology, leading to the following hypotheses:

H14: Virtual community trust has a direct and positive effect on the attitude towards social commerce purchase.

H15: Virtual community trust has a direct and positive effect on the subjective norms towards social commerce purchase.

Both trust and perceived enjoyment are two determinants in many electronic channel adoption studies (Van der Heijden, 2003). Online consumers are likely to discuss their experience and evaluate other users' comments on products in virtual communities. Consumers share their knowledge and experience in relation to the product usefulness perception (Barreda et al., 2015; Bhattacherjee et al., 2008). Obviously, trust is a precursor to brand-building relationships with consumers (Brun et al., 2016; Jayachandran et al., 2005). The interactive nature of social media improves the shopping experience and customer relationships (Harris & Dennis, 2011; Szmigin, Canning, & Reppel, 2005). One effective way is to provide fun elements and deliver these through creative apps, content, and media. The importance of trust in a virtual business community may be somewhat different from trust in an online retailer-customer relationship (Thaichon & Quach, 2015), where people may never communicate and chat about post-purchase results of the product. Hence, this study offers the following hypotheses:

H16: Virtual community trust has a direct and positive effect on the post-usage usefulness.

H17: Virtual community trust has a direct and positive effect on the perceived enjoyment.

Method and data analysis

Quantitative analysis was used and a personally administered questionnaire was adopted for data collection in this study. After pre-test (26) and pilot test (132), a questionnaire was distributed at three public and two private

Table 1. Sample characteristics ($N = 230$).

	Characteristics	Frequency	%
Gender	*Male*	106	46.09
	Female	124	52.91
Age	*Between 18–20*	135	58.70
	Between 21–30	57	24.78
	More than 30	38	16.52
X_1: Social commerce usage per day (hour)	*Less than 1 hour*	66	28.70
	$1 < X_1 \leq 2$ hours	77	33.48
	$2 < X_1 \leq 4$ hours	69	30.00
	More than 4 hours	18	7.83
X_2: No. of years—use of social commerce	*Less than 1 year*	10	4.35
	$1 < X_2 \leq 2$ years	36	15.65
	$2 < X_2 \leq 4$ years	122	53.04
	More than 4 years	62	26.96

universities in Malaysia. The variables of this study were operationalized in the survey questionnaire and all measurement items for the research constructs were adapted from instruments predominantly used in previous studies (see Appendix 1). A 7-point Likert scale range from "Strongly Disagree" to "Strongly Agree" was used for item measurement. The questions in the questionnaire were pre-tested with a group of 30 students to establish the face validity of the instrument. As a result, for the main data collection, a total of 269 responses were collected. However, only 230 respondents adequately completed the questions after 39 incomplete responses were excluded. Table 1 demonstrates the sample demographics and the frequency of social networking usage.

In any quantitative study or survey-based study (MacKenzie & Podsakoff, 2012; Podsakoff, MacKenzie, Jeong-Yeon, & Podsakoff, 2003; Rezaei & Valaei, 2017b) using the single survey method, common method bias exists, which threatens the validity of the findings (Williams & Brown, 1994) and influences structural relationships (Kline, Sulsky, & Rever-Moriyama, 2000; Rezaei & Valaei, 2017b). To address CMV, this study recommended guidelines by Podsakoff et al. (2003), which were considered at the questionnaire design stage and the data analysis stage (Rezaei & Valaei, 2017b). Harman's one-factor test, in the partial correlation procedures, and marker-variable technique were used and the statistical result shows that common method variance is not a concern in this study.

Partial least squares (PLS) path analysis

In this study, two-stage analysis of structural equation modeling (SEM) path analysis was used. The partial least squares (PLS) path approach, a variance-based SEM, was employed to examine the measurement model and structural model. It is appropriate, as it can predict the small set of the dependent variables based on their relationships with a list of predictors (Henseler, Hubona, & Ray, 2016; Henseler, Ringle, & Sarstedt, 2015;

Henseler & Sarstedt, 2013; Rezaei & Valaei, 2017b). SEM is regarded a leading statistical technique used in the business and science sectors, and tends to be very useful for testing theories, making it beneficial for numerous research questions as it has the ability to model concealed constructs and takes into consideration the multiple methods of error in measurements (Henseler et al., 2016). SEM can be categorized into two types: variance- and covariance-based SEM. Unlike the maximum likelihood (MLE) approach (Jöreskog, 1970, 1978) for confirmatory factor analysis, the variance-based SEM first generates alternatives as observation variables in linear combinations and then proceeds to evaluate the parameters of the model using such proxies (Becker, Klein, & Wetzels, 2012; Rezaei & Valaei, 2017b). If the hypothesized model contains composites, then variable-based SEM is the most suitable method. Subsequently, covariance-based SEM evaluates the model parameters based on empirical co-variance medium and if the hypothesized model contains one or more factors; thus, variance-based SEM is more suitable for this study.

Amongst the variance-based SEM approaches, the most enhanced and developed system is known as PLS path modeling (Wold, 1975). It is also known as the "silver bullet PLS" for its use in strategic management research and marketing (Hair, Ringle, & Sarstedt, 2011; Hair, Sarstedt, Ringle, & Mena, 2012; Reinartz, Haenlein, & Henseler, 2009). The ability to model such factors and composites is valued among researchers; for brand-new technology research and information systems, it shows the most promising approach. On the other hand, the factors can also be used to model concealed variables of behavioral-type research, such as traits of personality or attitudes. Therefore, the desired statistical tool for studies that hold a success factor is PLS path modeling. As an analytical tool, ADANCO software was used to analyze the measurement and structural model.

Results and findings

Evaluation of the goodness of fit was considered before the assessment of the measurement model and construct reliability and validity. By evaluating the goodness of fit for the PLS path modeling, it is useful to evaluate the paths to clarify the multiple sets of data (Dijkstra & Henseler, 2015a, 2015b; Henseler et al., 2016). This is because the goodness of fit measures tend to make the PLS findings more comparative using ADANCO software (Henseler & Dijkstra, 2015). The results of every construct were provided with the assessment of the goodness of model fit (Henseler et al., 2016; Henseler & Sarstedt, 2013). Consequently, prior to the evaluation of the measurement model and structural relationships, the standardized root mean square residual (SRMR), geodesic discrepancy (d_G), and unweighted

least squares discrepancy (d_{ULS}) as the indices for evaluation of goodness of model fit were obtained, and the results show satisfactory values. Furthermore, validity and reliability of the measurement model were examined. Internal consistency reliability was met because Cronbach's alpha and composite reliability (CV) both attained a satisfactory level of exceeding the acceptable threshold value. Similarly, average variance extracted (AVE) and commonality of the model also achieved the required acceptable value for the convergent validity. According to Henseler, Ringle, and Sarstedt (2015), average variance extraction is another aspect of the reliability construct; the minimum required AVE is 0.5. Construct reliability can be defined as the result that is consistent enough to avoid errors in its measurements. Dijkstra-Henseler's rho (ρA), Jöreskog's rho (ρc), Cronbach's alpha (α), and composite reliability were evaluated by examining the construct validity and reliability. Hence, both convergent validity and internal consistency of the scale validated the measurement model used in this study. The quality of measurement model was confirmed, as it has attained satisfactory results in both validity and reliability tests. The results are summarized in Table 2. All values of factor loadings, ρ_A, ρ_c, and Cronbach's alpha are acceptable (above 0.7) (Dijkstra & Henseler, 2015a,b; Henseler et al., 2016).

In addition, Table 3 shows the discriminant validity according to Heterotrait-Monotrait Ratio of Correlations (HTMT) criterion, showing all values below 0.85 or 0.90 (Henseler et al., 2015); thus, the results demonstrated the discriminant validity for all the latent constructs. Furthermore, Fornell-Larcker Criterion was conducted to check for discriminant validity. The square root of AVE for latent constructs was calculated, depicted on the diagonal, as shown in Table 4. The results were compared with the correlation values recorded for all variables. Lastly, the cross-loadings values and correlations between indicators and composite scores were evaluated. Therefore, the results from HTMT, Fornell-Larcker, and cross-loading criterion show that the discriminant validity for latent constructs is established.

The behavioral intention (SCABI), as the main endogenous construct of study documented with a moderate coefficient of determination value ($R^2 = 0.417$). As portrayed in Table 5, some of exogenous constructs involved indicate a weak variances (e.g., Post-usage Usefulness = 0.042). In addition, Table 6 shows the effect overview. Hence, it verified that all of them were significant in stimulating the intention to use user-generated content for online purchases.

The path coefficient, the sample mean, standard error, t-value, and p-value were examined for hypothesis testing. A list of empirical linkages is depicted in Table 7 (structural results and hypotheses testing). The structural results and hypotheses testing (direct effects inference) show that

Table 2. Construct validity (AVE) and reliability.

Construct	Indicator**	Loadings	AVE	Dijkstra-Henseler's rho (ρ_A)	Jöreskog's rho (ρ_c)	Cronbach's alpha (α)
Attitude	ATT1	0.766	0.597	0.839	0.881	0.832
	ATT2	0.828				
	ATT3	0.772				
	ATT4	0.738				
	ATT5	0.757				
Post-usage Usefulness	PUU3	0.880	0.747	0.836	0.898	0.831
	PUU4	0.841				
	PUU5	0.871				
Perceived Enjoyment	PEN1	0.827	0.621	0.859	0.891	0.848
	PEN2	0.801				
	PEN3	0.799				
	PEN4	0.723				
	PEN5	0.786				
Subjective Norm	SUB1	0.789	0.592	0.828	0.878	0.826
	SUB2	0.720				
	SUB3	0.827				
	SUB4	0.808				
	SUB5	0.694				
Social Commerce Communication	SCM1	0.777	0.678	0.862	0.894	0.842
	SCM2	0.856				
	SCM3	0.851				
	SCM4	0.806				
Virtual Community Trust	VIR1	0.898	0.733	0.860	0.892	0.820
	VIR2	0.850				
	VIR3	0.818				
Behavioral Control	BEH1	0.817	0.536	0.761	0.822	0.736
	BEH2	0.714				
	BEH3	0.722				
	BEH5	0.669				
SCABI*	SCABI1	0.810	0.538	0.794	0.853	0.785
	SCABI2	0.710				
	SCABI3	0.709				
	SCABI4	0.761				
	SCABI5	0.670				

*Social commerce apps behavioral intention (SCABI).
**PUS1, PUS2, VIR4, BEH4 were removed due to low loading (below 0.60).

subjective norm, behavioral control, and post-usage usefulness positively influence SCABI. However, the relationship between subjective norm and attitude and subjective norm and post-usage usefulness were not supported. Perceived enjoyment positively influences attitude and behavioral control, but the hypotheses linkage between perceived enjoyment and SCABI was not supported. Furthermore, the structural evaluations support the hypothesis that social commerce communication positively influences behavioral control, subjective norm, and perceived enjoyment, but social commerce communication and consumer's attitude linkage were not supported. Lastly, virtual community trust positively influences attitude, subjective norm, and perceived enjoyment, but not post-usage usefulness.

Discussion

This study attempts to investigate how social commerce apps phenomenon could shed light on apps customer purchase behavior and decisions. Social

Table 3. Discriminant validity-heterotrait-monotrait ratio of correlations (HTMT).

Construct	Social Commerce Communication	Virtual Community Trust	Attitude	Behavioral Control	Subjective Norm	Post-usage Usefulness	SCABI
Virtual Community Trust	0.258						
Attitude	0.109	0.302					
Behavioral Control	0.262	0.153	0.127				
Subjective Norm	0.470	0.316	0.281	0.274			
Post-usage Usefulness	0.274	0.092	0.145	0.456	0.242		
SCABI	0.543	0.398	0.312	0.343	0.724	0.376	
Perceived Enjoyment	0.229	0.359	0.389	0.410	0.695	0.178	0.530

Note: The criterion for HTMT is 0.90 (Gold et al., 2001; Teo et al., 2008).

Table 4. Discriminant validity-Fornell-Larcker criterion.

Construct	Social Commerce Communication	Virtual Community Trust	Attitude	Behavioral Control	Subjective Norm	Post-usage Usefulness	SCABI	Perceived Enjoyment
Social Commerce Communication	0.678							
Virtual Community Trust	0.051	0.733						
Attitude	0.011	0.073	0.597					
Behavioral Control	0.067	0.029	0.020	0.536				
Subjective Norm	0.158	0.069	0.054	0.063	0.592			
Post-usage Usefulness	0.060	0.008	0.015	0.098	0.040	0.747		
SCABI	0.189	0.096	0.067	0.104	0.349	0.095	0.538	
Perceived Enjoyment	0.044	0.095	0.114	0.151	0.350	0.027	0.201	0.621

Note: Squared correlations; AVE in the diagonal.

commerce, a new form of commerce which uses social media, has been rapidly developed in the past decade. While the adoption of social networking technology is widely researched, the new theoretical framework can be useful in explaining characteristics of social commerce in relation to transaction processes with customers. It postulates the impact of social commerce characteristics derived from social media in facilitating online purchases. A theoretical model was developed which incorporated apps purchase intention based on attitude, subjective norms, and perceived behavioral control to examine social shopping activities. The social interaction and information exchange in a social media environment can provide conceptual understanding of online social customer behavior. Supported by the empirical results obtained in this study, social media communication and virtual community trust were theorized to exert influence on the normative and control beliefs of consumer behavior in the

Table 5. Structural model (R^2).

Construct	Coefficient of Determination (R^2)	Adjusted R^2
Attitude	0.145	0.130
Behavioral Control	0.184	0.176
Subjective Norm	0.190	0.183
Post-usage Usefulness	0.042	0.033
SCABI	0.417	0.404
Perceived Enjoyment	0.116	0.108

Table 6. Effect overview.

Effect	Beta	Indirect Effects	Total Effect	f^2
Social Commerce Communication → Attitude	−0.001	0.049	0.048	0.000
Social Commerce Communication → Behavioral Control	0.185	0.052	0.237	0.040
Social Commerce Communication → Subjective Norm	0.356		0.356	0.149
Social Commerce Communication → Post-usage Usefulness		0.068	0.068	
Social Commerce Communication → SCABI		0.219	0.219	
Social Commerce Communication → Perceived Enjoyment	0.148		0.148	0.024
Virtual Community Trust → Attitude	0.182	0.078	0.260	0.034
Virtual Community Trust → Behavioral Control		0.096	0.096	
Virtual Community Trust → Subjective Norm	0.183		0.183	0.039
Virtual Community Trust → Post-usage Usefulness	0.039	0.035	0.074	0.001
Virtual Community Trust → SCABI		0.151	0.151	
Virtual Community Trust → Perceived Enjoyment	0.275		0.275	0.081
Attitude → SCABI	0.092		0.092	0.013
Behavioral Control → SCABI	0.116		0.116	0.018
Subjective Norm → Attitude	0.027		0.027	0.000
Subjective Norm → Post-usage Usefulness	0.191		0.191	0.035
Subjective Norm → SCABI	0.467	0.032	0.500	0.239
Post Usage Usefulness → SCABI	0.156		0.156	0.037
Perceived Enjoyment → Attitude	0.265		0.265	0.051
Perceived Enjoyment → Behavioral Control	0.350		0.350	0.143
Perceived Enjoyment → SCABI	0.070	0.065	0.135	0.005

Note: Cohen's f^2.

social interaction within social media (Lu et al., 2010; Shadkam & O'Hara, 2013; Wang et al., 2012).

Built upon TPB and Social Exchange paradigms, this research revealed that consumers treated shopping processes as manageable due to their ability to communicate via social media platforms. The shopping tasks that take place in an online operating environment involve technology infrastructure, such as payment gateways, search engines, and other technological factors. The proficiency of the social media users in web technology is regarded as necessary for completing the transaction process. This is because online customers are often technology savvy and able to manage various web applications (McCloskey, 2004). For example, Gen-Y consumers are managing, sharing, and producing user-generated data online. E-commerce vendors should know what customers want and customize their products to suit various types of customers; the better these products meet customer's demands, the more likely they will lead to higher monetary return.

As depicted, this study examined factors related to the use of social media in predicting the apps purchase behavioral intention. Factors

Table 7. Structural results and hypotheses testing.

Hypotheses	Path	Standard Bootstrap Results						Decision*
		Beta	Mean value	Standard error	t-value*	p-value (2-sided)	p-value (1-sided)	
H1	Attitude → SCABI	0.092	0.098	0.056	1.636	0.102	0.051	Not Supported
H2	Subjective Norm → Attitude	0.027	0.037	0.081	0.337	0.737	0.368	Not Supported
H3	Subjective Norm → Post-usage Usefulness	0.191	0.198	0.067	2.862	0.004	0.002	Supported
H4	Subjective Norm → SCABI	0.467	0.471	0.070	6.662	0.000	0.000	Supported
H5	Behavioral Control → SCABI	0.116	0.122	0.065	1.792	0.073	0.037	Supported
H6	Post Usage Usefulness → SCABI	0.156	0.157	0.060	2.621	0.009	0.004	Supported
H7	Perceived Enjoyment → Attitude	0.265	0.268	0.071	3.712	0.000	0.000	Supported
H8	Perceived Enjoyment → Behavioral Control	0.350	0.354	0.062	5.650	0.000	0.000	Supported
H9	Perceived Enjoyment → SCABI	0.070	0.063	0.076	0.918	0.359	0.179	Not Supported
H10	Social Commerce Communication → Attitude	0.001	0.009	0.079	0.008	0.993	0.497	Not Supported
H11	Social Commerce Communication → Behavioral Control	0.185	0.195	0.077	2.389	0.017	0.009	Supported
H12	Social Commerce Communication → Subjective Norm	0.356	0.359	0.058	6.141	0.000	0.000	Supported
H13	Social Commerce Communication → Perceived Enjoyment	0.148	0.154	0.065	2.272	0.023	0.012	Supported
H14	Virtual Community Trust → Attitude	0.182	0.187	0.066	2.762	0.006	0.003	Supported
H15	Virtual Community Trust → Subjective Norm	0.183	0.189	0.068	2.692	0.007	0.004	Supported
H16	Virtual Community Trust → Post-usage Usefulness	0.039	0.039	0.075	0.517	0.605	0.303	Not Supported
H17	Virtual Community Trust → Perceived Enjoyment	0.275	0.276	0.062	4.417	0.000	0.000	Supported

Note: *Hypotheses are test based on p-value (2-sided).

suggested by TPB associated with the behavioral intention are the subjective norm, behavior control, and perceived behavioral control. The findings validated that the model, an extension of TPB, was supported by the empirical results obtained. Thus, TPB, as expected, can be used as a theoretical lens in explaining the use of social media data for online commerce. In fact, customer intent to purchase is highly dependent on the inter-relationships among TPB factors. In social commerce, components stem from the social interaction among communication and the virtual community. The three main tenets of TPB—behavioral beliefs, normative beliefs, and control beliefs—accounted for significant amounts of variance in consumer behavior and intentions. Thus, businesses should develop relevant marketing and customer service strategies based on their customers' social media activities.

Therefore, the use of social media for business transactions has become increasingly important and readily available in the online space. Retailers are realizing that they need to pay more attention to these channels to better understand customer purchase patterns. A social media channel is an environment where retailers should listen to their customers; the challenge for sellers is to manage and co-create product information in ways that make it attractive to online consumers. Specifically, the intensive use of virtual communities is improving customer relationships that are necessary in any successful business transaction. Virtual community trust and peer communication instill the confidence of consumers in transacting with online retailers. Consumers are keen to conduct business on the websites run by reliable and trustworthy retailers. In addition, virtual community trust is the major determinant in facilitating the purchase process in social commerce.

This study shows that social media content available in social channels is at the disposal of the social networking consumers; it might contradict the traditional flow of data from sellers to customers. In social media, customers will judge and decide which information they require based on the comments and blog posts about the products, as well as information from the sellers. There is a shift of information favoring customers and often not beneficial to the sellers. Hence, businesses need to swiftly respond through social media channels. Social media marketing efforts must be carried out on a real-time basis. Specifically, social commerce should facilitate a better social communication and ensure a high level of trust to support customers. In addition, social commerce sites need to provide a venue and content coupled with useful and hedonic features to manage the social commerce process effectively. Customers are depending on their own communities and affinity groups to learn about sellers and products. They are also demonstrating high personal control in judging the social interaction process

from other users online (McCloskey, 2004). The underlying forces that prove relevant involve the degree of trusting others in the virtual community. Content in the form of customers' own personal judgments, prior shopping experiences, and needs are of utmost importance in molding purchase intent. Hence, salespeople need to focus on information published on social media to understand customer's needs. This can only be accomplished by building trust in the virtual community and through effective use of social commerce communication.

The implications of this study can assist retailers in predicting customers' use of social media and help them design favorable shopping environments for customers. The argument is that online customers with a higher level of self-efficacy and web controllability are comfortable in acquiring needed information. They are socially connected and proficient in social technologies. Businesses have many traditional marketing people who are not as adept in their use of social media as online consumers. The challenge for a business is to transform these traditionally trained marketing personnel into digital natives, just like their customers. While engaging with customers in social media, retailers can foster deeper customer relationships by using customer-generated data; i.e., product ratings and reviews (Shadkam & O'Hara, 2013). The bottom line is that more specific and personal data collected via social media channels will equip retailers to serve the right customers with the right customized products and services.

Theoretically, post-usage usefulness and perceived enjoyment were close in influencing the purchase intention. The result obtained is consistent with the notion that social commerce has both utilitarian and hedonic dimensions (Sun et al., 2014). Subjective norms were found to be influential in the use of social media for purchase intention and consistent with the majority of behavior studies (Schepers & Wetzels, 2007). Subjective norms facilitate intended behavior to transact in online commerce because customers are more likely to react to data based on close relatives' recommendations (Crespo & del Bosque, 2008). Among the three tenets of TPB, control beliefs recorded the highest predictive relevance compared to the other two tenets. In order to use the social media data that are available in the sea of information, one has to have adequate control belief to manage the buying process. The majority of online services are self-directed applications, and one has to have the capability to use them with minimum guidance. Young consumers have a high level of social technology controllability and can handle navigating these apps. Therefore, social commerce communication and virtual community trust proved relevant in explaining the shopping process needed to complete the sales transaction. The social media process for retail business is a collective of consumers' shopping experiences and comments. This study shows that information exchange

plays a significant role in facilitating social processes involved in online transactions. Hence, social media, as a highly social-related communication platform, play a pivotal role in decision making for online product purchases. Nevertheless, the study shows that online consumers not only refer to others' recommendations on products, but they were most likely able to control the use of social media apps and created content.

Limitations and future research directions

The results of this study should be interpreted based on some limitations. First, this study focuses on young consumers who are adept at using social media technology. They were selected on the premise that they know how to use and understand the user-generated social data. Social media are expanding and experiencing exponential growth. Thus, it would be interesting to examine other customer age groups and study how their behavioral intention influences the social media data. Second, as shown in the study, the model was able to explain 0.417% of the variances in consumer behavior. Hence, it would be practical to include other social factors to further enhance the model. Social factors stemming from online technology, such as self-promotional functions, social interactions, and peer influence, would be other good avenues for future research. Furthermore, this study supported the importance of communication and trust in social commerce. Self-service is related closely to how well one perceives oneself in terms of managing and controlling web technology. Therefore, self-service is one important feature of social commerce which should be investigated further. Finally, the results of this study are based on cross-sectional data collection. Thus, future studies should consider and use longitudinal data collection in order to understand consumers' social commerce communication.

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Appendix 1: Measurement items

Construct	Label	Scale*	Source
Attitude	ATT1	Buying things using social commerce apps is a good idea.	George (2004)
	ATT2	Buying things from social commerce apps is wise.	and
	ATT3	Buying things from social commerce apps is an idea I like.	Hansen
	ATT4	Using social commerce apps to buy things would be pleasant.	(2008)
	ATT5	Buying things via social commerce apps is beneficial to me	
Post Usage Usefulness	PUU1	Using social commerce apps would enable me to accomplish shopping more quickly than using traditional approaches.	Bhattacherjee (2001) and Bhattacherjee et al. (2008)
	PUU2	Using social commerce apps would enhance my effectiveness in shopping or information seeking.	
	PUU3	I find social commerce apps' services useful.	
	PUU4	Social commerce apps' transactions are advantageous.	
	PUU5	Overall, social commerce apps are useful in managing personal shopping.	
Perceived Enjoyment	PEN1	I find using social commerce apps to be enjoyable.	H. Sun and Zhang (2006) Van der Heijden (2003)
	PEN2	The actual process of using social commerce apps is pleasant.	
	PEN3	I have fun using social commerce apps.	
	PEN4	I browse social commerce apps for pleasure.	
	PEN5	Browsing social commerce apps is an agreeable way of passing time.	
Subjective Norm	SUB1	Members of my family think that it is a good idea to use social commerce apps.	Hansen (2008) Pedersen (2005)
	SUB2	Most of my friends and acquaintances think that using social commerce apps is a good idea.	
	SUB3	People who influence my behavior think I should use social commerce apps.	
	SUB4	People important to me think I should take advantage of social commerce apps.	
	SUB5	Other people I know expect that people like me should use social commerce apps.	
Social Apps Communication	SCM1	I am satisfied with the social commerce apps.	Schivinski and Dabrowski (2016)
	SCM2	The level of the social commerce apps' communications meets my expectations.	
	SCM3	Social commerce apps' communications are very attractive.	
	SCM4	Social commerce apps' communications perform well.	
Virtual Community Trust	VIR1	Social commerce apps' community has disparity.	Agag and El-Masry (2016)
	VIR2	Social commerce apps community is reliable.	
	VIR3	Social commerce apps community is trustworthy.	
	VIR4	I trust in the quality of social commerce apps.	
Behavioral control	BEH1	I am free to use social commerce apps.	Pedersen (2005) Kang, Hahn, Fortin, Hyun, and Eom (2006)
	BEH2	Using social commerce apps is entirely my choice.	
	BEH3	There are few obstacles for me to use social commerce apps.	
	BEH4	I have the necessary means and resources to use social commerce apps.	
	BEH5	I take a little time to find the information I need from social commerce apps.	
Social commerce Apps behavioral intention (SCABI)	SCABI1	I believe it is worthwhile to use social commerce apps as a shopping tool.	Liaw and Huang (2013)
	SCABI2	It is necessary for me to use social commerce apps to find information for shopping purposes.	
	SCABI3	I will use social commerce apps for shopping.	
	SCABI4	I have the intention to use social commerce apps in the next 6 months.	
	SCABI5	I have the intention to use social commerce apps often in the next 6 months.	

Note: *7-point Likert scale ranges from "Strongly Disagree" to "Strongly Agree." PUS1, PUS2, VIR4, BEH4 were removed due to low loading (below 0.60).