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A free simulation experiment to examine the effects of social commerce website quality and customer psychological empowerment on customers' satisfaction

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Abstract
This research was designed to theoretically address and empirically examine research issues related to customer's satisfaction with social commerce. To investigate these research issues, data were collected using a written survey as part of a free simulation experiment. In this experiment, 136 participants were asked to evaluate two social commerce websites using an instrument designed to measure relationships between s-commerce website quality, customer psychological empowerment and customer satisfaction. A total of 278 usable s-commerce site evaluations were collected and analyzed. The results showed that customer satisfaction with social commerce is correlated with social commerce sites quality and customer psychological empowerment.

Keywords: social commerce; customer psychological empowerment; free simulation experiment; s-commerce website quality; customer satisfaction.

1. Introduction

Acknowledging the importance of the customer to the business is hardly new. The role of the customer was noted by McKitterick (1957) as a factor of success and failure in the marketplace, echoing Drucker's (1954) contention that business purpose should be to satisfy customers' needs and wants, and to keep them. Levitt (1960) suggested that business should focus on customer needs rather than on specific offerings employed to meet those needs. From such a focus on the customer, customer satisfaction emerges as key measures of business success, and hence of success of strategies and tools supporting business, including information and communication technologies (ICT).

New ICT, in particular the introduction of Web 2.0 and social networking sites, enabled social commerce (s-commerce) to emerge as a new type of electronic commerce (e-commerce). S-commerce as a new wave of e-commerce in which traditional e-commerce is mediated by social media and social networking services in order to promote online transactions and shopping-related information exchanges (Wang & Zhang, 2012).

Social commerce utilizes the web 2.0 features that support the creation of user-controlled content and Internet interactivity. These features strengthen business relationships with customers, increase traffic to company websites, identify new business opportunities, and

support product and brand development (Huang & Benyoucef, 2013). For customers, it can also support their participation in the marketing, selling, comparing, curating, buying, and sharing of products and services in online and offline marketplaces and communities (Zhou et al. 2013). Accordingly, businesses are increasingly acknowledging the potential role of the s-commerce as marketing instruments and new business model. Despite its promising potential, however, the effectiveness S-commerce depends on the quality of Social commerce website, along with the level of satisfaction customers experience when they interact with the website. S-commerce customers not only expect access to a reliable system at any time; they also demand that the website provides what they need and want.

Currently, there exists a lack of empirical research on s-commerce, except for anecdotal evidence that occasionally appears in trade magazines and some journals. While there is a plethora of findings relevant to e-commerce, s-commerce research remains an area in need of further investigation. Moreover, even though the aforementioned facts that customer satisfaction is perceived to be an important indicator for long-term organizational success (Anderson & Mittal, 2000), There are few studies that examine customer satisfaction with s-commerce and its antecedents. Hence, this study strives to make an important contribution to the management of technology domain by examining factors impacting customer's satisfaction with s-commerce.

In attempting to understand the antecedents to customer satisfaction in the s-commerce context, we consider the customer not only as an end user for information systems (IS) supporting s-commerce, but also as a traditional customer or shopper. Thus the antecedents to customer satisfaction in the s-commerce context, concerns variables used to describe the achievement of end-user related objectives of the site, and variables used to describe the achievement of customer-related objectives of the firm. The latter, we have suggested are encompassed in the concept of customer psychological empowerment. Customer psychological empowerment is a positive subjective experience evoked by noting an increase in control. Such a positive belief should influence other judgments, which should include those of satisfaction. To our knowledge, the extant IS literature does not investigate this construct and its inclusions represents a contribution to s-commerce and the interrelation among the relevant variables. The study also examined the design features required for s-commerce to fulfil its promise. The testing of this model and the interrelationships among the variables is an innovation to IS literature.

2. S-commerce

As a relatively new term, s-commerce still lacks a clear definition, Marsden and Chaney (2012) referring to s-commerce as a new stream in e-commerce deploying social network tools, but based on more personal, interactive and social relations. Stephen and Toubia defined s-commerce as forms of Internet-based "social media" that allows people to actively participate in the marketing and selling of products and services in online marketplaces and communities (Stephen & Toubia, 2009). However, Yadav et al., (2013) give a more comprehensive definition where s-commerce refers to exchange-related activities that occur in, or are influenced by, an individual's social network in computer-mediated social environments, where the activities correspond to the need recognition, pre-purchase, purchase, and post-purchase stages of a focal exchange. Gatautis and Medziausiene,(2014) describe the concept as the integration of social networking capability into e-commerce sites, which include, but are not limited to, product reviews, rating, videos, blogging, live chats and online forums. It involves using social media, online media that support social interaction, and user contributions to assist in the online buying and selling of products and services.

While the term has been loosely used to encompass a broad range of e-commerce practices and online shopping activities, scholars like Huang and Benyoucef (2013) emphasized the difference between e-commerce and s-commerce. Under their classification, the differences between e-commerce and s-commerce can be highlighted in terms of business goals, customer connection and system interaction. With regard to business goals, e-commerce focuses on maximizing efficiency with strategies for sophisticated searches, one-click buying, specification-driven virtual catalogues and recommendations based on customers' past shopping behaviour. Social commerce, however, is oriented toward social goals, such as networking, collaborating and information sharing, with a secondary focus on shopping. Regarding the customer connection, customers usually interact with e-commerce platforms individually and independently from other customers, while social commerce involves online communities that support social connection to enhance conversation between customers. As for system interaction, e-commerce in its classical form almost always provides one-way browsing, where information from customers is rarely (if ever) sent back to businesses or other customers. S-commerce, however, develops more social and interactive approaches that let customers express themselves and share their information with other customers as well as with businesses (Huang & Benyoucef, 2013). From a business strategy perspective, Wang & Zhang (2012) believe the difference between s-commerce and e-commerce is clear in that e-commerce focuses on maximizing efficiency with strategies for sophisticated searches, one-click purchasing, and recommendations by the systems based on users' past shopping activities. S-commerce, on the other hand, places shopping goals and efficiencies secondary to social goals such as sharing information and networking.

S-commerce is beneficial for both customers and business (Zhou et al. 2013). Business can explore alternative revenue models and make more profit by attracting potential buyers via recommendations and customer interactions, which can be established in social networks and collaboration environments. Business can strengthen their ties with their partners and sustain better relationships with customers, foresee market trends, and identify new business opportunities. S-commerce also serves as a strategy for monetizing social media by the application of a two-way strategy: helping people connect where they usually buy or guiding people to buy where they usually connect (Afrasiabi and Benyoucef, 2011; Curty & Zhang, 2013).

3. Theoretical framework and hypothesis development

3.1. Theoretical framework

A surrogate indicator of IS success often suggested is user satisfaction. Many IS empirical researchers have regarded user satisfaction as an important proxy of IS success, and it is the most employed measures of IS success due to its applicability and ease of use (Zviran & Erlich, 2003).

Within the IS literature, user satisfaction has been defined and described by linking attitudes to behavior. For example, Baroudi et al. (1986) defined it as attitude that a user has toward an IS and as the extent to which users believe the information systems available to them meets their information requirement. Doll and Torkzadeh (1991:6) say that user satisfaction is an important theoretical construct because of its potential to determine both upstream and downstream links in this value chain. Upstream activities refer to factors that cause satisfaction, where user satisfaction is treated as a dependent variable, and downstream activities refer to

behaviours affected by satisfaction, where user satisfaction is treated as an independent or an antecedent factor (Doll& Torkzadeh, 1991).

In a review of user satisfaction research, Au et al, (2002), showed that user satisfaction research has focused on the upstream activities, and studies on the downstream chain have been relatively narrow. In a similar vein, a review of the antecedents of IS success show that research concerning performance related behaviour has been light and contains only a few concepts, with measures such as the one identified as "individual impact" by Delone and McLean (1992).

Gatian's review of user satisfaction concluded that user satisfaction alone is not sufficient to adequately capture the full meaning of IS effectiveness, since it does not linking user satisfaction with measures of user behaviour (Gatian, 1994). Doll and Torkzadeh (1991:6) pointed out that to define "performance related behaviours that link user satisfaction with social and economic impact" was a problem for IS researchers. They argued that too often-such performance related indicators might be specific to individual systems and hence have no broad use.

In the s-commerce context, there has been little theoretical or empirical research on measurement of user satisfaction with s-commerce, and measuring the success of such systems in general (Huang & Benyoucef, 2013). More importantly, not all of the existing literature measuring IS success through user satisfaction has differentiated between IS applications designed for traditional internal IS environments and for e-commerce applications and environments (Terry and Standing, 2004). An important differentiator is the nature of the "user", since traditionally internally focused IS is used by a clearly defined set of known users, either in-house or business partners. In contrast, the customer as users of s-commerce is not performing a role within the organization, but principally interacting with the business website (Pather et al, 2003; Terry and Standing, 2004).

Molla and Licker suggest that customer satisfaction provides an appropriate surrogate for assessing e-commerce and extending the missing link to organizational performance (Molla & Licker, 2001). Hence, an e-commerce website can be considered successful if users are satisfied and revisit it. Satisfied users may spend longer on a website, may revisit the website later, and may recommend the website to others (Zhang & Dran, 2001). It is crucial to determine what makes a user satisfied with the s-commerce; to this end, s-commerce evaluators must first know who the users are and what the key goals of those users are, and they have to know what steps the users are going to take to use that site.

Customer satisfaction is perceived to be an important indicator for long-term organizational success (Anderson & Mittal, 2000) and has been described as the "indicator of a firm overall financial health" (Wang and Lo, 2003). Customer satisfaction represents the degree to which a firm's customers continually recognizes that their needs are being met by the firm's products and services according to Anderson and Srinivasan (2003). Wang and Lo (2003) describe the overall satisfaction as a cumulative evaluation fashion that requires summing the satisfaction associated with various products and various facets of the firm. Wang and Lo say that "overall or cumulative satisfaction'' is more important than transaction-specific satisfaction, since it is a cumulative customer satisfaction that causes a firm's investment in customer satisfaction. They suggest that overall satisfaction is a more fundamental indicator of the firm's past, present and future performance

In attempting to understand the antecedents to customer satisfaction In the s-commerce context, we consider the customer not only as an end user for IS supporting e-commerce, but also as a traditional customer or shopper. Thus the model concerns variables used to describe the

achievement of end-user related objectives of the site, and variables used to describe the achievement of customer-related objectives of the firm. The latter, we have suggested are encompassed in the concept of customer empowerment.

Customer empowerment is a positive subjective experience evoked by noting an increase in control. Empowerment includes the belief that one has benefited from this increased control. Such a positive belief should influence other judgments, which should include those of satisfaction.

Moreover, although user satisfaction has for a long time been recognized as an indicator of IS success (Seddon, 1997), the mechanism by which to measure it was not clear. Information and system features were not always been explicitly separated as dimensions of user satisfaction until Delone and Mclean (1992) distinguished information quality and systems quality.

Information and system qualities have been identified as important dimensions which have a major impact on customers' experience, and hence on the success of s-commerce sites. MicKinney et al. (2002) observe that an important role of a website supporting e-commerce is information delivery, and the quality of information is considered critical in s-commerce. At the same time, the website's performance in delivering information and services is also important and may be independent of the information quality: the quality of the website service may encourage or discourage customers to make transactions via the Internet, regardless of the quality of information. According to McKinney et al. (2002), customer satisfaction has two distinctive sources - satisfaction with the quality of a website's information content and the satisfaction with the website's system performance in delivering information.

In the summary model, shown diagrammatically in figure 1, customer satisfaction is posited to be directly affected by customer empowerment and indirectly by Information and system qualities. The basic components of the model are therefore well accepted (if sometimes confused) notions in the information systems literature and/or marketing literature. However, the theoretical framework proposed, is new in positing website quality and customer empowerment as key causal mechanisms in deriving value from s-commerce.

Figure 1: The research model
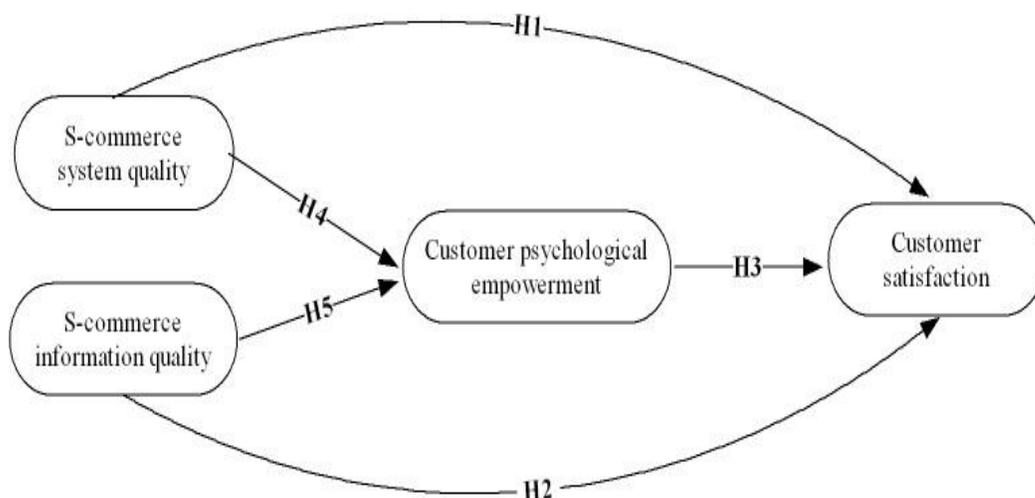
2-1 Hypothesis development

S-commerce system quality

System quality is a measure of an IS from the technical and design perspectives (Delone & Mclean, 2003). Thus, s-commerce system quality can be defined as the customer judgment of the degree to which the technical components of the social commerce site provide the quality of product and service information as required by customer.

Before making use of the information or functionality provided by a system, an individual must first gain electronic access and then formulate a query that retrieves the desired information from the system. Thus, accessibility and usability are important elements of s-commerce quality which capture interface aspects of social commerce design (McKinney et al, 2002), and without which the convenience benefit of using a social commerce website cannot be achieved. Rodgers et al. (2005) suggest that usability and accessibility are significant determinants and good predictors of participant satisfaction with general e-commerce websites.

Accessibility in social commerce involves a user's judgment of the degree to which the technical components of the s-commerce support a customer reaching/accessing a website. While a system which does not meet the users' need for information is unlikely to be used, inaccessibility to the system is also a possible reason for user rejection and dissatisfaction (Rai et al, 2002). The accessibility problems of systems affect the reputation and value of the systems and of the information provided (Delone & Mclean, 2004) and have been seen as critical to IS success (Molla & Licker, 2001). For example, customers expect an s-commerce site to be available at all times and they desire speedy log-on, access, search, and web page download. Studies report many incidents where long waiting times to load a web page or inability to access a website temporarily resulted in user frustration, lost sales, and negative publicity. Weinberg (2000) urged that customer evaluation of a website quality be inversely related to the perceived loading time of the web page. Turban and Gehrke (2000) found that page-loading speed was rated by customers as the most important determinant of successful website design.

Research suggests customers evaluate websites based on how easy they are overall to use and how effective they are in helping them accomplish their tasks (Zeithaml et al, 2002); that is, usability is a critical determinant of greater satisfaction (Rai et al, 2002). The design, layout and sequencing of web pages should make it easy for customers to navigate (Rai et al, 2002) since difficulties in navigating e-commerce websites have been cited as a barrier for online purchases (Zeithaml et al, 2002). Good website usability will sustain a customer's motivation to continue navigating in the website, enhance the customer experience, and eventually increase customer satisfaction with that website. Palmer (2002) believes a website with a high degree of usability should generate a desirable perception of its use and an intention to use the site. Peterson et al. (1997) suggest the simplicity and smoothness of a Website transaction process is of critical importance to customer satisfaction. In turn, this research suggests that the greater the perceived system quality of an s-commerce website, the higher is the customer satisfaction, agreeing with the literature noted above. Thus, the following hypothesized relationships between s-commerce system quality and customer satisfaction needs research:

H1: S-commerce system quality positively affects customer satisfaction

Social commerce information quality

S-commerce information quality is defined as a global judgment of the degree to which customers are provided with information of excellent quality with regard to their defined needs through social commerce website.

In the s-commerce environment, there is no tangible product at the time of purchase, and no face-to-face disruption of services. Thus, customers are not fully informed about the quality of websites' products and services. As such, customers would like information that allows them to distinguish the seller of high quality goods or services from the seller of low quality goods or services (Nagash et al, 2003). As there can be several websites offering information about similar products and services, what may draw the users to the website and purchase are the attributes of the information provided by the site (Lin, 2007). This arguably increases the importance of the way a product or service is presented, introduced and demonstrated.

Studies have found that information quality is important for the success of general IS. Delone and Mclean (1992) highlighted the importance of relevance, timeliness, and accuracy of information. Similarly, the end-user computing satisfaction instrument developed by Doll and Torkzadeh emphasized comprehensiveness, understadiblity, and timeliness as determinants of user satisfaction.

In the s-commerce context, comprehensiveness and timeliness, relate to the extent to which the s-commerce website information content is complete and detailed, how much of the information needed to make a purchase is available on the website, and how up to date this information is. Understandability relates to the extent to which a customer can easily decode and understand the information about s-commerce website and the extent to which the information on the site is relevant to the decision the customer needs to make about a purchase. This motivates the hypotheses relating s-commerce information quality to customer satisfaction:

H2: S-commerce information quality positively affects customer satisfaction

Customer psychological empowerment

Theories of power underpin conceptualizations of empowerment: "to empower means to give power" (Thomas & Velthouse, 1990, p. 667). Yet, the psychological view of power draws together research from human motivation theories (McClelland, 1965), the social, psychological theory of Rappaport (1987) and the customer behavior literature (Wathieu et al, 2002; Botti, 2004). While the focus of these literatures is clearly different, most authors agree on two points. First, power is a human need that individuals seek to satisfy (Schiffman, 2013). Greenberger et al. (1989:31) define power as an individual's beliefs, at a given point in time, in his or her ability to effect a change, in a desired direction, on the environment. McClelland (1965) suggests human beings have a need for power where "power connotes an internal urge to influence and control other people". Accordingly, empowerment is the process of supplying the individual with the ability to produce such effects. Rappaport (1987:122) describes empowerment "as the process of becoming able or allowed, to do some unspecified thing because there is a condition of dominion or authority with regard to that specific thing, as opposed to all things. That is, there are limitations as well as powers".

Second, power is linked with control. Schiffman and Kanuk (2003) definition of power suggests it represents an individual's desire to control his or her environment; this link is also

obvious in Fatout's (1995:56) definition of empowerment as "a process for providing individuals with more control by placing boundaries around an area of potentially acceptable behaviour and allowing the individual to test and experiment with a variety of choices"(ibid). Conger and Kanungo (1988) suggest individual's power needs are fulfilled when individuals assume that they have power or when they believe they can effectively deal with events, situations, and/or other individuals. On the contrary, individuals' power needs are frustrated when they feel powerless or when they believe that they are unable to cope with events or demands of the environment.

Human motivation theories view power as the need to control other individuals and various objects (Bandura, 1977; Maslow, 1971). In line with this, Schiffman and Kanuk (2003:102) claim that power needs are closely related to the "egoistic needs" in Maslow's well - known hierarchy of needs. Power, as a human need, can take an inward or outward orientation, in that it reflects an individual's sense of self-esteem by exercising power over objects and people. Bandura (1996) says every human being has a self-system that enables him or her to exercise a measure of control over his or her thoughts, feelings, and actions. This system allows an individual to gain knowledge from others, plan alternative strategies, regulate individual behaviour, and engage in self-reflection. As such, empowerment serves as a self-regulatory function, providing individuals with the capability of altering their environment and influencing their actions. Bandura suggests that the concept of empowerment is similar to self-efficacy. In this sense, Bandura defines empowerment as "a psychological or motivational process whereby the individual's belief in his or her self-efficacy is enhanced" (Bandura, 1996:477).

Overall, this literature suggests that customer psychological empowerment is a customer's subjective experience that they have greater ability than before to intentionally produce desired outcomes and prevent undesired ones and that they are benefiting from the increased ability (Hunter and Garnefeld, 2008). It is a positive subjective state which results from a mental comparison of a customer's abilities (or belief that they have an ability) relative to existing or previous abilities. As such, it is only the perception of increasing control which evokes empowerment and empowerment may be experienced whether control actually increases or not. This belief has been shown to be an important factor in shaping individual satisfaction (Alshibly, 2009; Fuchs et al 2010; Hunter & Garnefeld, 2008).

Substantial theoretical evidence suggests that customer psychological empowerment influences customer satisfaction. However, there has been no explicit quantitative work to test such propositions. For example, Liu and Shrum (2002) generate untested theoretical propositions that link increased active control to increased satisfaction; and also Marmorstein et al. (1992) suggest that increasing customer control of the shopping experience is associated with an increase in his/her satisfaction. Hunter and Garnefeld, (2008) study offer evidence that customer empowerment leads directly to customer satisfaction and indirectly influences satisfaction by increasing customer involvement.

In summary, conceptual work on customer psychological empowerment has indicated that interactivity influences customer satisfaction. Quantitatively, the situation is less certain. Several authors indicate that customer psychological empowerment will influence customer satisfaction. However, the strength of such relationships is not well understood. The concept of customer psychological empowerment has not yet been explored explicitly in s-commerce literature. Therefore, we hypothesize:

H3: Customer psychological empowerment positively affects customer satisfaction.
H4: S-commerce system quality positively affects customer psychological empowerment.

H5: S-commerce information quality positively affects customer psychological empowerment.

4. Research methodology

4.1. Construct measurement

The items for each construct were adopted mainly from previous research related to user satisfaction and website quality, but were modified to include social commerce sites as the technology to be assessed. For example, s-commerce system quality was measured using two factors: Accessibility and usability. A five–item scale was adopted and refined from instruments used by McKinney et al (2002); which were reported to have high reliability (Cronbach alpha values greater than 0.90).

Three factors were proposed to underlie information quality: comprehensiveness, timeliness, and understandability. A five items from McKinney et al (2002) were used to operationalize the dimensions, with modifications to fit the specific context of social commerce. Customer psychological empowerment construct was measured using four items from Hunter and Garnefeld, (2008). Finally, customer satisfaction was measured using 4 items adopted from Oliver's (1997) universal product/service consumption satisfaction scale and from Hunter and Garnefeld, (2008).

After the measurement variables were developed, the face validity of these variables was tested. Two IS scholars and one marketing scholar reviewed the measurement variables. In addition, 10 IS graduate students with some social commerce experience reviewed the measurement variables and provided feedback on the length and clarity of each item. Finally, a pilot study was conducted to increase the validity of the measurement model. A total of 30 social commerce users participated in the pilot study. Validity and reliability of the pilot study were examined using a PLS approach. The results of the pilot study confirmed the validity and reliability of the measurement model. Table 1 presents the research constructs and related survey items used for measurement of each of these constructs.

Table 1: Research constructs and related survey items

Construct	Survey questions	Source
System quality (SQ)	Questions 1-5	
Accessibility	• In general, how do you rate the Website speed? • How do you rate the Website speed in loading the texts and graphics?	McKinney et al, 2002
Usability	• How do you rate the ease of using this website the first time you access? • How easy is it to figure out where to go on this website? • How easy is it to understand the components of this website?	McKinney et al 2002
Information quality	Questions 6-9	
Comprehensiveness	• How much of the information needed to make a purchase is available on the website • How complete was the information displayed on this Website	McKinney et al, 2002
Timeliness	• How up to date do you believe is the information about the products	McKinney

Construct	Survey questions	Source
	described on this website?	et al, 2002
Understandability	• How clear is the meaning of information about products displayed on this website?	McKinney et al, 2002
Customer psychological empowerment	• In my dealings with this company, I feel I am in control. • The ability to influence the goods and services of this company is beneficial to me. • I feel good because of my ability to influence the choice set offered to me by this company. • My influence over this company has increased relative to the past.	Hunter & Garnefeld, 2008
Customer satisfaction	• Altogether, I'm satisfied with the goods and services of this company. • This company totally meets my expectations. • I've made especially good experiences with this company. • This company offers me exactly what I need.	Hunter & Garnefeld, 2008 Oliver (1997)

5.2. Sample and data collection

Data for this research were collected using the survey instrument in the context of the free simulation experiment research design. Specifically, participants were asked to use the Internet during an unsupervised session to access nominated social commerce sites, review the s-commerce websites, and then answer questions about particular scenarios. This research design is appropriate for this study for three reasons. Firstly, it is appropriate because the variables of interest are difficult to manipulate. Secondly, it is suitable because participants could easily access the s-commerce websites, review the s-commerce websites, and then answer questions based on a particular scenario. Thirdly, it is suitable because respondents could be easily assigned to a real evaluation case (Straub et al, 2005).

As this study survey instrument was developed as a general tool for social commerce success, and not for any specific survey, we manage it in the same way as a real evaluation case. That is, we did not ask participants questions concerning s-commerce in general, but asked them to visit specifics s-commerce websites.

In the simulation experiment which applied the instrument, participants were asked to navigate to the determined website on their in-lab PCs or Home PC and go through the procedure as determine by the scenario but not to actually purchase the product /service. At the end of the task, they were asked to fill in the survey instrument. The scenario was as follows: "Imagine that you are planning to purchase a gift for your friend. This gift should serve as a Christmases gift. You can assume that you have enough money to pay for a gift but want value for money. Use the social commerce website to research possible gift you would consider buying. You are only required to research the information available and see if you can find a gift that you like."

The participants were recruited from M.B.A. and senior undergraduate students at Amman University College in Al-Balaqa Applied University, Jordan. Founded in 1952, Amman University College is one of the oldest institutions of higher education in Jordan. The college offers 5 baccalaureate majors [business administration, management information systems, accounting, accounting information systems, and financial management] and 6 MBA degree programs. The college has 2671 students enrolled in all of its programs. Of this group, 52% of students are male and 48% are female.

When potential participants were first contacted, they were provided with an information sheet which described the project aims and what would be expected from them. It also assured

voluntary participation and confidentiality and stated that participants were able to withdraw from the study at any point without penalty. Participants were informed that the return of a completed survey would be taken as consent. However, as returned surveys would be anonymous, the information sheet advised that withdrawal of data after the return of the survey would not be possible.

In this experiment, 136 participants were asked to evaluate two social commerce websites using an instrument designed to measure relationships between s-commerce website quality, customer empowerment and customer satisfaction. A total of 278 usable s-commerce site evaluations were obtained.

6. Results

The measurement and research models were tested using partial least squares (PLS) technique and utilized the tool SMARTPLS v2 (Ringle et al., 2005). PLS is a second generation regression method that combines confirmatory factor analysis with linear regression, and this makes it possible to run the measurement and structural models simultaneously (Hair et al., 2013). PLS has enjoyed increasing popularity in IS research for its ability to model latent constructs under the condition of non-normality (Chin, 2010). PLS is a component-based structural equation modelling technique that has minimal demands on measurement scales, sample size, and residual distributions (Hair et al., 2013). We chose PLS because of its minimal requirements regarding sample size and prediction capability. A rule of thumb for the required sample size in PLS is that the sample should be at least ten times the number of independent variables in the most complicated multiple regression in the model (Chin, 2010). The sample size in this study meets the minimum sample size requirement.

6.1. Instrument validation

Table 2 shows the average variance extracted (AVE) and other measures of reliability. Reliability refers to the degree to which data collection method or methods will yield consistent findings, similar observations would be made or conclusions reached by other researchers (Hair et al., 2013). The reliability of the instrument was established using Cronbach's alpha, which is a measure of the internal consistency of the instrument. A Cronbach's alpha result of 0.70 or higher is generally considered to show adequate reliability of instruments used to gather psychometric data (Hair et al., 2013). The Cronbach's alpha values indicated that the instrument was reliable for each of the four scales: system quality, information quality, customer psychological empowerment, and satisfaction. Considering the present study as a whole, cronbach's alpha varied from 0.70 to 0.88, which is considered acceptable for this type of research see (Table-2).

Composite reliability (CR) and AVE are other measures of reliability. The CR estimates the extent to which a set of latent constructs indicators share in their measurement of a construct, while the AVE is the amount of common variance among latent construct indicators (Chin, 2010). As noted by Hair et al., (2013) CR value should be equal to or greater than 0.60. Based on these assessments, measures used within this study were within the acceptable levels, thus supporting the reliability of the constructs, as presented in Table (2).

Table-2 displays the results for the outer loadings. All outer loadings of the reflective constructs are well above the threshold loading value of 0.708. The reliability of individual indicators is obtained by squaring the loading. The indicator comprhs1 (outer loading: 0.78) has the smallest indicator reliability with a value of 0.61 while the indicator satisfn5 (outer loading: 0.92) has the highest indicator reliability with a value of 0.85, Thus, all of the indicators for the

three reflective constructs are well above the minimum acceptable level for outer loadings. Convergent validity assessment is based on the AVE value as the evaluation criterion. In this study, the AVE values of SQ (0.93), IQ (0. 0.92), EMPOWE (0. 0.90), and SATIS (0. 0.95) are well above the required minimum level of 0.50. Thus, the measures of the three reflective constructs have high levels of convergent validity, as well as exhibiting high reliability.

Table 2: **AVE, Composite Reliability and Internal Consistencies**

Latent Variable		Loadings	Indicator Reliability	Composite Reliability	Cronbachs Alpha	AVE
System quality SQ	ACCESS1	0.87	0.76	0.93	0.91	0.73
	ACCESS 2	0.86	0.72			
	Usablty1	0.82	0.67			
	Usabity2	0.88	0.77			
	Usabity3	0.84	0.70			
Information quality IQ	Comprhs2	0.78	0.61	0.92	0.89	0.70
	Comprhs2	0.85	0.72			
	Timelen1	0.82	0.67			
	Underst1	0.85	0.72			
	Underst2	0.87	0.76			
Customer psychological empowerment EMPO	SE1	0.78	0.62	0.90	0.85	0.69
	SE2	0.86	0.74			
	SE3	0.77	0.60			
	SE4	0.90	0.81			
Satisfaction SATIS	Satisfn1	0.87	0.76	0.94	0.93	0.81
	Satisfn2	0.87	0.76			
	Satisfn3	0.91	0.83			
	Satisfn4	0.92	0.85			
	Satisfn5	0.86	0.74			

Discriminant validity

AVE was assessed to evaluate discriminant validity, which indicates the extent to which a given construct is dissimilar to other constructs. The AVE measures the variance captured by indicators relative to the measurement error, which should exceed 0.5 to validate a construct (Chin, 2010). As shown in Table 3, all of the measurement variance was captured by the construct for all values exceeding 0.5.

Next, Fornell and Larcker's (1981) discriminant validity criterion was conducted, According to the Fornell-Larcker criterion; the AVE of each latent construct should be higher than the construct's highest squared correlation with any other latent construct. This notion is identical to comparing the square root of the AVE with the correlations between the latent constructs. In the table, the square root of the AVE is indicated by the values in bold type along the diagonal, the square roots of the AVEs for the reflective constructs SQ (0.85), IQ (0.84),

EMPOWE (0.83), and SATIS (0.88) are all exceeded the off-diagonal correlations between the constructs(table 3), offering further evidence of discriminant validity. Because the instrument demonstrated sufficient levels of validity and reliability, the structural model and hypotheses were evaluated with confidence.

Table 3: Fornell-Larcker Criterion

	SQ	IQ	EMPO	SATIS
SQ	**0.85**			
IQ	0.7499	**0.84**		
EMPO	0.6167	0.6491	**0.83**	
SATIS	0.6711	0.7213	0.7735	**0.88**
Note: The bold elements on the diagonal represent the square roots of the average variance extracted, and off-diagonal elements are the correlation estimates.				

Structural equation modelling

The hypotheses were tested with SmartPLS (Ringle et al., 2005). We used the bootstrapping method to determine the significance of the paths among the constructs. As recommended by Hair et al, 2013, we used the number of valid observations (n = 281) as the number of bootstrap cases, and 5,000 bootstrap samples (Hair et al., 2013). Therefore, we derived significance for item loadings and path coefficients by using the t-statistic.

The results yielded two essential pieces of information specifying how well the hypothesized relationship was predicted by the structural model. The first piece of information was on the calculation of the standardized coefficients (β), which indicate the strength of the relationship between two variables (Hair et al., 2013). The second piece of information was the squared multiple correlation (R^2) value for each endogenous variable, which explains the measure of the predictive power of the research model (Chin, 2010). The R^2 value was used to measure the percentage of the variance explained by the independent constructs in the structural model.

Table 4: standardized coefficients (β), R^2, and t-statistic

	Hypotheses	β	R^2	T Statistics	Result
H1	SQ -> EMPOW	0.2969	0.46	4.6376***	Supported
H3	IQ -> EMPOW	0.4265		6.9064***	Supported
H2	SQ -> SATIS	0.1507	0.69	2.7214***	Supported
H4	IQ -> SATIS	0.2878		5.4931***	Supported
H5	EMPOW -> SATIS	0.4938		12.8177***	Supported
*** p< .001, ** p<.05, * p<.01, based on two-tailed test; t (p< 1%) = 2.58; t (p< 5%) =1.96; t (p< 10%) = 1.65					

The results of the analysis are shown in table 4. The two variables, SQ and IQ, were found to have significant positive effects on consumer psychological empowerment (β = 0.30, P < 0.001; β = 0.43, P < 0.001, respectively), the t-tests are significant (P < 0.001) for both SQ (t = 4.6376) and IQ (t = 6.94); therefore, both SQ and IQ are making significant contributions in explaining the variance in consumer psychological empowerment. The standardized Beta (β)

value for IQ = 0.43 and for SQ (β = 0.30) shows that IQ has more impact than SQ on consumer psychological empowerment. These results indicate support for hypothesis H1a.

The results provide support for H2 and H4, The two variables, SQ and IQ, were found to have significant positive effects on satisfaction (β = 0.15, P < 0.001; β = 0.29, P < 0.001, respectively), The t-tests are significant (P < 0.001) for both SQ (t = 2.7214) and IQ (t = 5.4931); therefore, both SQ and IQ are making significant contributions in explaining the variance in satisfaction. The standardized Beta (β) value for IQ = 0.29 and for SQ β = 0.15 shows that IQ has more impact than SQ on satisfaction.

Finally, the results provide support H5, which predicted positive relationships between consumer psychological empowerment and satisfaction. Consumer psychological empowerment had significant effects on satisfaction (β = 0.493, p < 0.01), the standardized Beta (β) value for IQ = 0.29; for SQ β = 0.15; and for consumer psychological empowerment β = 0.493 shows that consumer psychological empowerment has more impact than IQ and SQ on satisfaction.

In terms of the R² value for each endogenous variable, all the variables explained 69.1% of the variance in satisfaction. In addition, SQ and IQ explained 46% of the variance in consumer psychological empowerment. According to the thresholds denoted by Chin (1998), the R² results of EMPOW (R² =.0.46) and satisfaction (R² = 0.69) is moderate (Chin, 1998). Fig. 2 shows the standardized path coefficients as well as variance explained.

Figure 2: PLS path analysis model
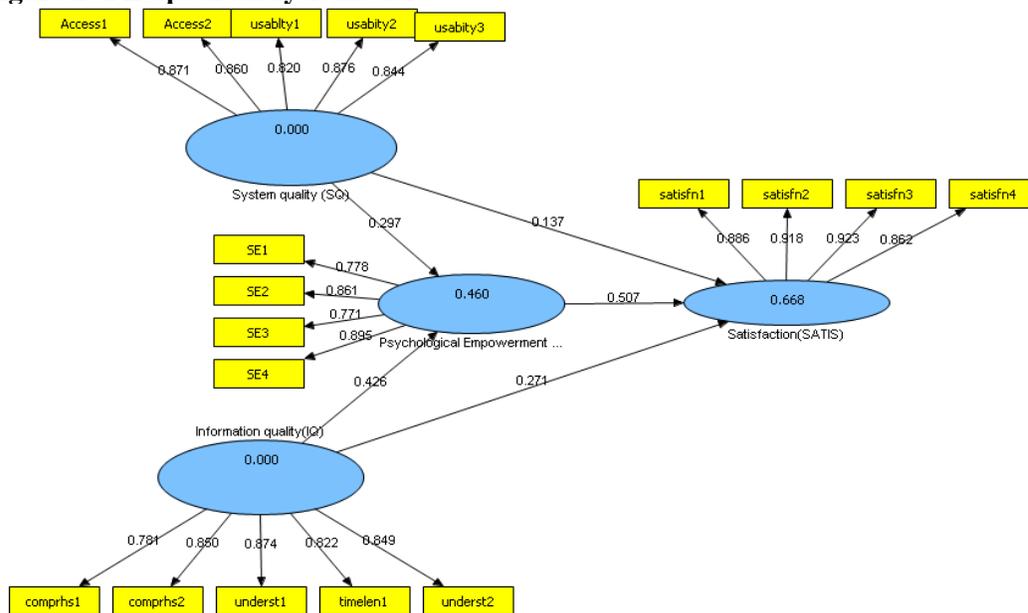
6. Discussion, implications, limitations, and future research.

The first conclusion related to the relationship between the s-commerce system quality and satisfaction. This finding is consistent with previous studies in the conventional IS success and the limited number of previous studies that have tested similar relationships. The literature reviewed suggested that, in the context of s-commerce, a s-commerce site becomes a primary user interface to connect firms with customers (Straub and Watson 2001), and customer perceptions about firms is largely built upon their interactions with the s-commerce websites. As such, s-commerce system quality is largely characterized by the interaction between customers

and the website (e.g. Information searching, the website speed in loading the texts and graphics, and the ability to find the product the customer is looking for).

Within the s-commerce context, the lack of physical contact inherent in the online shopping experience causes customers to depend greatly on system quality (McKinney et al, 2002). IS researchers in the area of conventional generally regarded accessibility to be a highly important characteristic of all interactive computer systems (Rai et al, 2002); independent of the specific application the system was designed to support. In the e-commerce context, researchers such as Weinberg (2000) and Turban and Gehrke (2000) found that down speed was a key determinant of a successful website. In turn, the finding of this research suggests that the greater the perceived accessibility of a s-commerce website, the higher is the customer satisfaction, agreeing with the literature noted above. However, there has been little empirical research about the impact of accessibility of s-commerce on customer satisfaction. Therefore, this research contributes to some extent to the current knowledge about the impact of accessibility on customer satisfaction.

Research suggests customers evaluate websites based on how easy they are to use and how effective they are in helping them accomplish their tasks and objectives from using the website (Zeithaml and Parasuraman, 2002); that is, usability is a critical determinant of satisfaction (Rai et al, 2002). Usability requires that the site design makes it easy for customers to navigate and sustains a customer's interest to continue navigating the website, and eventually increase their satisfaction with that website. We quoted literature that linked usability to intention to use the site, and linked ease of use to customer satisfaction. Similarly, our research found that there is a positive relationship between usability and satisfaction in the s-commerce context; specifically between satisfaction and the extent to which the customer believes the s-commerce website is easy to use the first time they access it, the ease with which a customer can figure out where to go on the site, the ease with which a customer can understand the components of the site, and the ease with which the site search facility helps them find information. Thus, this research supports that literature that empirically investigated the relationship between usability and satisfaction, mostly in a non-Internet environment.

The second conclusion relates to the impact of s-commerce website information quality on customer satisfaction. The generic literature about the association between information quality and satisfaction is fairly consistent and suggests that high levels of information quality lead to high levels of satisfaction. While our research confirms the previous research and found that there is a high association between information quality and customer satisfaction in the s-commerce context, the result of this study suggests comprehensiveness and timeliness and understandability of s-commerce website information play an important role in influencing e-commerce satisfaction and influencing the customer purchase decision. S-commerce website need to provide information to facilitate customer understanding of the products, to aid their decision-making. The information given on a site should be just sufficient for the customer to make a decision, and care should be taken to avoid giving too much, as this is likely to result in information overload. Users may be influenced by the extent to which information quality can be assumed based on the source; the extent to which the information is accurate or correct; and the extent to which the information is at the right level to meet user needs. Most importantly, the contents of the s-commerce website should be concise and easy to understand.

In summary, the findings of this research support the hypothesis that the level of information quality is positively associated with satisfaction. It also adds to the literatures by

identifying that level of website quality is significantly associated with satisfaction through comprehensiveness and timeliness and through understandability.

Previous research suggested that customer psychological empowerment has an impact on customer satisfaction. Our results show that customer psychological empowerment makes websites more effective in supporting customers purchase by giving them the perception that they are in control. From a theoretical perspective, these results lend additional support for the customer psychological empowerment construct and its importance as a factor in s-commerce success.

Overall, the positive relationship between customer psychological empowerment and satisfaction should further motivate managers to consider adding additional empowerment features to their sites. Therefore, this research made contributions to the current knowledge, providing empirical evidences that satisfaction on the e-commerce is positively associated with customer psychological empowerment.

The impact of system quality and information quality on customer psychological empowerment is interesting. It increases customers' satisfaction by giving them the perception that they are in control.

This research has main methodological implications, free simulation experiment can successively be used for data collection for IS success research like this. Participants reported no difficulty with the simulation experiments.

Implications for practice

The first and central application for practice is that this study offers a simple model that managers can use to measure customer satisfaction in s-commerce context, in particular, we suggest, therefore, that the model proposed in this study can contribute to practice by helping firms explain relevant organizational outcomes, such as customer satisfaction. The model proposed would need to be tailored to cater for the practical realities of organizations, but the approach and its principles would stay the same.

Our study results have s-commerce design implications, suggesting that both s-commerce quality and customer empowerment practices are relevant to customer satisfaction. Therefore, s-commerce developers and Internet marketers cannot rely solely on either s-commerce quality or customer empowerment practices as conceptual bases for the success of s-commerce. More specifically, in order to effectively deploy s-commerce related strategies that foster customers retention and loyalty, designers should consider the impact of both s-commerce quality and customer empowerment practices. An initial focus on empowerment, rather than the traditional emphasis on information and system quality, may motivate designers to consider adding additional features to theirs s-commerce website.

Related to the research methods, there are several limitations of the research methods used in this study.

Firstly, the current study adopted a free simulation experiment design, which was conducted at one point in time (cross-sectional design). While it provided a useful snapshot and helped to understand the phenomenon under study, it could not explain possible changes in customer satisfaction over time. It is generally recognized that longitudinal studies (or at least a series of cross –sectional studies) can detect attitude changes over time and allow stronger inferences to be drawn about the dynamic elements of behaviour (Starub et al, 2005).

Secondly, there were limitations arising from the sample used in this study. The participants were not taken from a probability sample. Although there was no evidence of sample biases compared to the population from which the sample was drawn, this possibility cannot be

ruled out. A related problem was that of the population of interest for the study, university students. The acknowledged limitations of this study have led to suggestions for further research.

While the findings reported in this thesis go some way to resolving the research problem outlined, much remains unresolved. Accordingly, four broad areas are suggested for future research direction. These research directions are (1) expansion of the customer empowerment model, including new antecedents or views of empowerment; (2) further exploration of hypothesized relationships, including new methods of investigation; (3) exploration of the relationship between s-commerce quality and customer empowerment and (4) development and application of the instrument as a tool for practitioners.

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