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Instrument Development and Validation of Social Commerce Success

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Abstract— **This paper provides a discussion on social commerce and describes the development of an instrument to measure social commerce success. Based on the literature and findings of an exploratory study, a measurement was designed and validated. Five constructs were posited to be interrelated, which are process quality, communication quality, security and payment, service quality and social commerce usage continuance. Using exploratory factor analysis, and confirmatory factor analysis, consistency between the data yielded by the scale were found. The model fit meets the CFA requirements and the values of composite reliability, AVE and discriminant validity surpassed the minimum values. It is concluded the instrument constitutes a unique and adequate measure of social commerce success. In practice, the validated instrument provides an important tool in assessing what factors drive customers to continue using social commerce. Hence, it may assist the social commerce operators to evaluate their best practices and develop strategies for improvement and for researchers to use the instrument as a basis for studying the various aspects of social commerce.**

Keywords— *social commerce, online business, social commerce success, instrument development*

1 Introduction

Social commerce is becoming a trend in the online business domain. It is not just about selling-buying a product. Since it involves social media, communication and relationships are important issues. Besides, from the many social commerce sites to choose from, many factors explain social commerce success. The literature is replete with discussions about antecedents of social commerce intention and some of the work includes [1, 2, 3].

This wide interest in the subject is attributed to the fact that social commerce has been found to be an emerging trend. As technologies evolve rapidly, customers' acceptance towards social commerce also intensifies rapidly. Thus, social commerce has become a common phenomenon. In information systems studies, the success is measured after the system reaches its adoption level. It is therefore important to develop new instrument and scales, which are directly targeted beyond social commerce intention usage and adoption.

The objective of the study is to develop an instrument to measure social commerce success from the perspective of buyers. This instrument and the proposed scale would be valuable to researches and social commerce operators. The paper is organised as follows; the next section reviews past studies on social commerce and information systems success. Then, it describes the measurement and steps involves in the scale development. The final section discusses applications of the scale.

2 Review of Literature
2.1 Social Commerce as an Online Business

As social commerce is growing, netizens and active social commerce buyers are spoilt with varieties of product choices. Hence, social commerce operators must be distinctive in offering their products and services, including adopting the customer relationship strategies. Such effort is fundamental in promoting customers' acceptance and ensuring the business survival and sustainability. In line with the emerging social commerce, debates continue on how to measure the customers' acceptance for social commerce effectiveness. In addition, the facilitation of social media signifies the importance of measuring communication and relationship qualities of social commerce. Similarly, the process

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of the buying-selling and the privacy aspects are not less than significance.

Process is a basis of any business [4]. In social commerce, it relates to the attributes of reliability, ease of use, design and purpose fit [5]. Failure to offer these qualities will put the customers in distance. As netizens are known to be the group who prefers speedy process that fulfils their needs, reliable social commerce is argued to be important. A good quality of communication and interaction is essential in business. It refers to the extent to which appropriate and useful information is provided. Client loyalty and their decision to continue using social commerce require improving the customer's experience [6]. Social commerce is about interactions. Therefore maintaining the interaction by giving prompt response is necessary [7].

Previous studies found that customer trust in social network online purchase is affected by the level of security quality [8]. As the communication and interaction is open, social commerce operators must provide a secure protection to customer's information. Customers who are confident with the privacy features will be more likely to return, thus promoting for higher social commerce continuance. Delivering service quality is very important, especially with the presence of web technologies. It is the extent to which the online site facilitates efficient and effective shopping, purchasing and delivery of products [9]. Service quality has been found as a significant predictor to social commerce adoption [10, 11].

2.2 Information System Success

The measurement of information system success or effectiveness is important for understanding the value and efficacy of IS investments [12]. The issue of an information system success has become a long standing discussion among information system researchers. Various ways of measuring the success have been introduced and used, with diverse terms to explain it for instance system effectiveness and performance improvement.

One of the models that has been mostly discussed, adopted and validated is the information system success model [12, 13]. Adopted from Mason's communication theory that seeks to examine the influence level, DeLone and McLean [12] posited six categories as the outcomes or success of

management information systems. They are information quality, system quality, use, user satisfaction, individual impacts and organizational impacts. After two decades, DeLone-McLean's model of information system success was revisited and revised. In the new model, DeLone and McLean [13] added service quality as an antecedent to use information system and user satisfaction. In addition, both individual impact and organizational impact of the former model were replaced with net benefits. It was assumed that positive net benefits from the perspective of the owner or sponsor of the system will occur as a result of use and user satisfaction [13]. As the information system success model is actually dependent, *inter*dependent variables, the factors identification are urged.

3 The Measurement Process

Several procedures govern scales development. The guidelines for creating and validating instruments in information systems research are suggested by [14], which the guidelines take into consideration the values of content validity, construct validity and reliability analysis. Essentially, several analytical techniques such as factor analysis and confirmatory analysis are also important. Related works of instrument development include [15] and [16]. Three generic steps are common, which are conceptualization, design and normalization [16]. Following [14] and [16], we developed the measurement process as discussed below.

3.1 Conceptualization

The first step in our measurement process is conceptualization. It involves delimiting the domain of construct and generating sample items that represent the concept of social commerce success. In this phase, two stages of work were deployed. One, an exploratory study of a focus group interviews with social commerce business operators were conducted with the aim at understanding their best practices that lead to their business sustainability. Further reading could be referred to [7]. Two, following the findings of the work, supports from the literature and related theories were searched. Twenty three items were then constructed that measure social commerce success as process quality, communication quality,

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security and privacy, service quality and social commerce usage continuance.

3.2 Design

In this phase, the selected items were arranged in a questionnaire format. Using a five point Likert scale, the instrument was subjected to refinement process. Content validity was conducted by asking two experts in the field to evaluate the items. Then, a pilot study was performed. The Cronbach's alpha results of greater than 0.70 show the scores for all items have the same range. Thus, the internal consistency was assumed. Then, data from 520 participants who have the experienced of purchasing products and services via social commerce were collected. All of them were from 18 to 40 years of age. Approximately 39% were males and 61% were females. 24% of them were students at higher learning institutions and 82% believed that they were IT competent.

Next, the 23 items meant to examine the construct dimensionality were factor analysed using the exploratory factor analysis of principal component and varimax with Kaiser Normalization rotation. [17] suggested that only items with loadings of .40 or greater are considered. The results revealed for 5 factors with eigenvalue ≥ 1, as shown in Table 1.

Table 1. Principal Component Analysis with varimax rotation

	Component				
	1	2	3	4	5
Process Quality					
Purchase is reliable					.809
Product received as expected					.779
SC design easy to understand					.644
Purchase achieved buying purposes					.500
Purchase was easy					.586
Communication Quality					
Received order acknowledgement			.649		
Prompt reply to comments			.820		
Quick response to request			.803		
Deal with product return			.667		
Communicate in good manner			.527		
Security and Privacy					
Confident business protect financial info	.800				
Confident business not share personal info	.866				
Purchase is protected by terms and regulations	.886				
Confident with security protection	.885				
Feel secured when release financial info	.700				
Service Quality					
Products delivered within time				.668	
Quality and quantity matched with order				.753	
Confident with purchase				.502	
Products free of defects				.692	
SC Usage Continuance					
Recommend products to others		.804			
Consider seller as first choice		.836			
Will do more purchase		.840			
Will recommend seller		.738			
Eigenvalue	9.197	2.953	1.828	1.243	1.126
Variance explained	39.987	12.837	7.947	5.403	4.896

The results produced a total variance of 71.070%. The KMO of 0.901 indicated factor analysis was appropriate. The MSA>0.5 suggested all variables should be included in the factor analysis, and the Bartlett's test is significant, implying that the variables were correlated. The data were then run for a reliability test. The internal consistency test shows the results of cronbach alpha are between 0.829 and 0.918. Thus, the items reliability was assumed.

3.3 Normalization and Validity

The analysis proceeded with the measurement model that includes testing for convergent and discriminant analysis. SEM AMOS was used to run the Confirmatory Factor Analysis (CFA) procedure. The results are displayed in Table 2. The results yield a CFA model that is acceptable [χ^2/df = 2.534, CFI = 0.965, GFI = .930, TLI = 0.956 and RMSEA = 0.060]. A test on normality distribution yielded the items' coefficients were within the ± 2.00 skewness and/or kurtosis range which indicated for an assumption of normality. Thus, the normality requirement was not violated.

The convergent analysis was run in order to assess the composite reliability and average variance extracted values. The composite reliability values which is to show the degree to which the items

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indicated the latent construct, ranged from 0.833 to 0.963. Hence, the composite reliability requirements are met since the values exceeded the recommended value of 0.7 as suggested by [18]. In addition, the average variance extracted was in the range of 0.627 and 0.781, which exceeded the recommended value of 0.5, according to [19].

The next procedure was to assess the discriminant validity by examining the correlations between constructs and their square root of the average variance extracted. The results show for adequate evidences that the square root of the AVE is greater than the correlation with other constructs. Thus, the measurement model reflects for acceptable convergent and discriminant validity.

The social commerce success validity and its five dimensions were also tested by examining the relationships between the constructs. All dimensions correlated significantly with each other. The strongest correlation is between service quality and social commerce usage continuance ($r = 0.754$, $p < 0.01$) whereas the lowest correlation is between security privacy and social commerce usage continuance ($r = 0.308$, $p < 0.01$). The results clearly give further credence to the sound psychometric properties of the instrument.

It is believed that the instrument, having undergone extensive evaluation and validation, represents significant progress towards the development of a standard instrument for measuring social commerce success. Besides, the instrument is precise and easy to be used.

4. Discussion

Social commerce is seen as a common phenomenon among members of community as it assists users in achieving efficiency and also indirectly helps to build trust among them. This leads to scholars demanding for the development of new instrument in measuring social commerce use as there are continuous debates on trust, efficiency and several other factors that affect social commerce usage and its continuance.

The present study is intended to develop and validate the instrument to measure factors that lead to social commerce success. Through a vigorous process, the 23 items measure was validated using data from 520 online users. The 23 items measure formed a clear factor structure comprising process

of quality, communication quality, security and privacy and service quality as conceptualised earlier.

Trust is important in social commerce as it accumulates when customers are satisfied with deliverable and speedy process during the transaction particularly with regards to how interaction, information and knowledge transfer assist users in achieving performance success. Therefore, it is crucial to measure the factors that lead to usage continuance, as trusted customers will remain loyal to the business operators.

5. Conclusion and Future Research

This study developed and validated items to measure social commerce success via two-stage process. The first stage is by using the findings and conclusion of an exploratory study of a focus group interview and literature search in order to derive the conceptual model. The second stage involves designing the instrument and validating the items by adopting the survey method. The results of the investigation produced five dimensions, which are process quality, communication quality, security and privacy, service quality and social commerce usage continuance. This study provides evidence for the 23 item psychometric properties of the instrument. As social commerce requires interaction between buyers and sellers via the social media platform, it is important to measure what the buyers or consumers feel, as they are the major system stakeholders who are not to be ignored.

In practice, the validated instrument provides an important tool in assessing what factors drive customers to use social commerce and to sustain it in the competitive environment. As social commerce allows for everyone to sell, business operators should be able to recognize the varying degrees of demands and strategize a formula to remain competitive. Hence, the findings could assist the social commerce operators to evaluate their best practices and work for improvement.

Nevertheless, instruments are always subject to further improvement. Therefore, fellow researchers are encouraged to work on future development in the area of social commerce to further establish the instrument so that the effectiveness of social commerce can be enhanced and subsequently will benefit the community.

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Table 2: Reliability, Validity and Inter-Construct Correlation

	α	AVE	CR	1	2	3	4	5
Process Quality	0.829	0.627	0.833	**0.792**				
Communication Quality	0.847	0.657	0.851	0.483**	**0.810**			
Security and Privacy	0.918	0.781	0.963	0.371**	0.566**	**0.883**		
Service Quality	0.838	0.637	0.840	0.595**	0.356**	0.320**	**0.798**	
SC Usage Cont.	0.887	0.674	0.924	0.540**	0.374**	0.308**	0.754**	**0.820**