



A SECOND-ORDER STRUCTURAL EQUATION MODELLING OF SOCIAL MEDIA CUSTOMER ENGAGEMENT AND CUSTOMER SATISFACTION IN THE SERVICE INDUSTRY

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Abstract

This study was based on a second-order structural equation modelling of social media customer engagement and customer satisfaction in the Nigeria service industry. Social media has continued to gain traction in marketing and business hence business firms continue to use them in stimulating customer engagement. This study was informed by the need to explore social media customer engagement and customer satisfaction in the service industry in Nigeria with emphasis on Anambra State. The study adopted a cross-sectional survey research design and was based on a captive sample of 215 respondents. The components of second social media engagement used are customer vigour; dedication; and absorption, and social media interaction. All these components served as the first-order while social media engagement serve as second-order. Data were collected through structured questionnaire and the gathered information were analysed with structural equations modelling with the aid of AMOS 23 software. Customer vigour was constrained for identification and all the components significantly load into the second-order construct which show significant and positive relationship with customer satisfaction. Discussions were made and implications were discussed.

Key words: social media, customer, satisfaction, second-order, first-order.

Introduction

The use of social media has been tremendous as they are now ubiquitous even among business/marketing firms all over the world. According to statista.com, the global active social media users as at Jun 21, 2022 stood at 4.7 billion; while the global social media penetration rate is estimated at 58.4%. as of January 2022, Nigeria had 32.9 million active social media users. Statista.com further reports that WhatsApp is the most popular platform used in the country, with over 90 million users; Facebook, You Tube, and Instagram followed as the most used social media platforms in Nigeria. The social media also referred to as owned media is gaining popularity as veritable online activities among customers globally; as marketing firms follow their customers and pursued customer engagement with their customer base with the social media platforms (Kujur & Singh, 2017). The notion of customer engagement relates to the wider spectrum of customer involvement and activism in value co-creation hence it has been attracting the attention of both academics and practitioners. According to Żymkowska (2019), customer engagement took an important position as a topic of discourse in marketing academia in 2010 and was

catalysed by the Marketing Science Institute (MSI). Żyminkowska (2019) report that special issues on the subject of customer engagement attracted the attention of leading marketing journals like the *Journal of Service Research; Journal of Marketing Management 2016; and Journal of the Academy of Marketing Science* among others. The concept was also included in the agenda of the most reputable marketing conferences within Europe and the United States of America (Żyminkowska, 2019). This study was motivated by the need to explore social media customer engagement in the service industry and stem from the fact that the service industry is the biggest segment of the Nigerian economy accounting for 43.79% of gross domestic product in (see Central Bank of Nigeria (CBN), Statistical Bulletin, 2021), hence a research of social media customer engagement in the sector is very imperative.

Numerous works have already been done to conceptualize and operationalize the CEB in marketing literature, there are still important gaps to be addressed. Within the African context, very few studies: Agyei et al (2020) and Glavee-Geo (2019) have been conducted. While majority of the studies have been conducted on customer engagement in diverse areas, only few studies (example: Kujur & Singh, 2017 and Cheung, Lee & Kim, 2011) have dwelt on social media customer engagement. Cheung et al (2011) study has involvement and social interaction as antecedents of customer engagement; vigour, dedication and absorption as components of customer engagement; while online social participation and word of mouth were the outcomes/consequences or behavioural engagement. This study adapted the Cheung et al. model utilising vigour, dedication, absorption and social media interaction and customer satisfaction as the outcome of social media customer engagement in the service industry. The study is a second-order structural equations modelling as the four constructs were taken as first-order variables while the social media customer engagement is the second-order used to formulate the hypothesis for the study. The main objective of this study is to explore social media customer engagement and customer satisfaction in the Nigeria service industry with select customers. The hypothesis for the study is formulated thus:

H_a: there is significant positive relationship between social media customer engagement and customer satisfaction in the Nigeria service industry.

Review of Related Literature

Social Media Customer Engagement

Social media usage is gaining traction creating in turn online social communities where consumers share information and feelings and disseminate information concerning their enthusiasm or lack of it about their favourite brand with their friends, contacts and other acquaintances. Cheung et al. (2011) state that consumers freely join online brand communities in social platforms and social networking sites to be engaged in these online social platforms through ongoing communication processes (e.g., providing positive comments or videos, pictures related to the brand

or company, and the like). The advent and popularity of social media is the reason customer engagement is receiving significant attention in recent times among marketers and practitioners. Social media is gaining traction and has become an important channel for online consumer engagement. Like many new concepts, customer engagement as a concept still lacks clear definitions and applications; even as it has become commonplace among academics and practitioners in marketing. Organisations all over the world investing and continuously investing in social media and brands to grow and expand their online customer fan base. Additionally, having social media presence online facilitates a number of advantageous networks and platforms for the brand owners in relation to advertising, product development and market intelligence by observation and analysis of the user generated content (UGC) (in Kujur & Singh, 2011). Organisations and businesses can easily develop loyalty if they appreciate and understand customer engagement better than their competitors (Smith & Zook, 2020). While Dwivedi (2015) define customer engagement as consumers' positive fulfilling, brand-use-related condition of mind demonstrated by vigour, dedication and absorption, Pansari and Kumar (2018) refers to customer engagement as customers emotional attachment to a firm and its product offerings. There appears to be no unified definition of the concept of customer engagement which many believe is normal for emerging new concept and tool. What is not in doubt however is that customer engagement has significant impact on customer co-creation and loyalty intentions. Customer engagement in an online social platform is defined as *the level of a customer's physical, cognitive, and emotional presence in connections with a particular online social platform* (Cheung et al. 2011, p.3).

Theoretical Review and Framework

Understanding the theory of customer engagement is a good way to enhance our understanding of the differences between customer engagement and other customer relationship constructs (Pansari & Kumar, 2018). Several theories and models have been employed by researchers in trying to explain and understand the phenomenon of customer engagement. Some of these are Service-dominant logic, customer engagement model, consumer involvement profile and three H's model. Others are the theory of planned behaviour (TBP), unified technology acceptance and use theory; and Prahalad and Ramaswamy (2014) dialogue, access, risk assessment, and transparency (DART) model, uses and gratifications (U&G) theory among others. Customer engagement is defined as customer activism in value cocreation and the import of the S-D logic in this study can be seen in the axioms especially axioms 2, that value is cocreated by multiple actors including the beneficiary; axiom value is always uniquely determined by the beneficiary. It is also paramount to note axiom 1: that service is the fundamental basis of exchange. Thus, customer engagement is about customer involvement and activism in cocreating and defining value. While agreeing with Newman and Harrison (2008) Cheung et al. that a multidimensional perspective of customer engagement model could best capture the breadth and complexity of this construct. This study adapted the model from the work-in-

progress of Cheung et al. (2011) model utilising vigour, dedication and absorption as components/antecedents of engagement; social media interaction as the mediating variable; and social involvement and customer satisfaction as the outcomes/consequences of customer engagement.

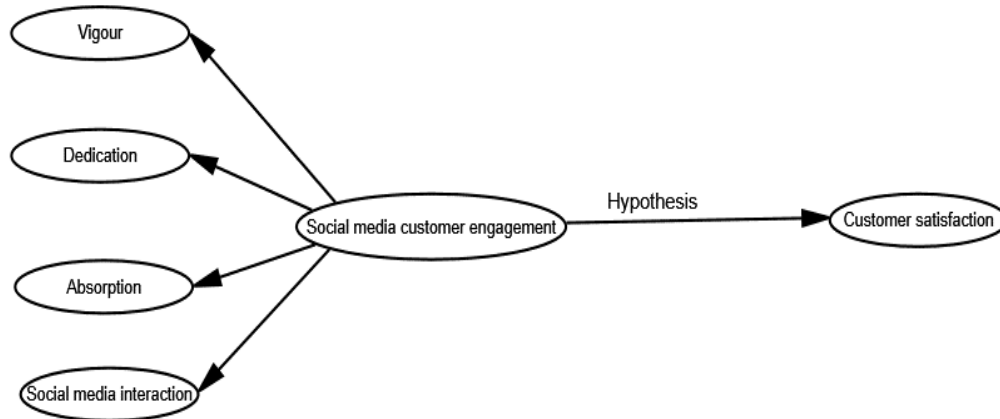


Figure 1: The research model

The three key dimensions of customer engagement are explained: vigour (physical) relates to the level of energy and mental resilience in using an online social platform, zeal to invest time and effort in one's position and role as a customer; absorption (cognition) implies being actively and fully and deeply engrossed in an online social platform; and dedication (emotion) relates to the sense of significance, enthusiasm, inspiration, pride, and challenge towards an online social platform (Cheung, et al. 2011). Social media involvement is part of the antecedents of customer engagement. By observing conversations and interactions on social media, a firm can appreciate customers' needs and this will lead to involvement of members of the online brand community in the co-creation of value through the generation of ideas (in Kujur & Singh, 2017). Online social media interaction and participation is among the outcomes and behavioural components of customer engagement. decisions. With personal interactions and participations, firms can relate with customers directly and have better ideas about the source of problems, preferences, and needs; as the terms engagement and participation have become the central non-transactional constructs, used to describe the nature of participants' experiences (Cvijikj & Michahelles, 2013). Social Involvement: Through customers' feedback or by observing conversations on online social media, a firm can learn about customers' needs, potentially leading to the involvement of participants or members of the online community in the co-creation of value through the generation of ideas (Palmer & Koenig-Lewis, 2009). Interaction relates to customers' online and off-line participation with the brand as well with other customers outside of purchase (So, King & Sparks, 2014). It is identified as one of the characteristics that define customer engagement literature. we define customer satisfaction is a customer deep commitment to buy and rebuy a preferred product or service over a period of time

and to communicate positively to friends and acquaintances about the firm and or its brand. Leong, Syuhaily and Laily, (2017) noted that the competition in the service and hospitality industry has led to firms discovering consumer loyalty as a key success factor. In general, customer satisfaction is one of the outcomes of customer engagement as gleaned from literature and as used in this study.

Empirical Review

Patterson et al. (2011) study was on understanding customer engagement in services. The aim of the paper was to establish a conceptual understanding of customer engagement. Drawing from management, marketing, applied psychology literature and marketing practitioners' views, an initial working definition of customer engagement was formed. Customer engagement describes the level of a customer's various "presence" in their relationship with the organisation. The presences include physical presence, emotional presence and cognitive presence. Customer engagement is conceived as a higher-order construct which consists of four components, namely, vigour, dedication, absorption, and interaction. Given the intangible nature of services and that a degree of customer provider social interaction is typically required in delivery of services, we contend the construct has high relevance in service industries. Eight related marketing constructs were identified and compared to customer engagement. The paper discussed key reasons for devoting research attention to customer engagement. These are that customer engagement focus on the affective element of the customers adding that the similar benefits of enhancing relationship closeness may also be obtained by enhancing customer engagement. The paper also maintain that the overall customer engagement possesses broad and unique characteristics that may enable customer engagement to offer unique contributions to the service industries, where customers are often part of the product and service delivery process.

Cheung, et al. (2011) study based on conceptual model and scale development as it relates to social media customer engagement. They noted that the rise of new online social media channels in the last few years has altered the ways customers communicate and exchange information and emphasised that customer relationship management through social media engagement has become an important dimension of successful electronic marketing strategies. Their study was motivated by the paucity of theory-guided empirical research in customer engagement in online social media platforms adding that consensus as to the definition, forms, dimensionality and operationalisation of customer engagement is still lacking even as the subject continue to attract considerable attention in the academia. The authors presented a conceptual model of customer engagement and also propose a rigorous approach in scale development and validation. The work contributes to the development of online community literature as well as to the repository of usable research instruments. Our study was based on a modified variant of the instrument.

Kujur and Singh (2017) study engaging customers through online participation in

social networking sites noted that brands are developing presence in online social networking sites to meet customer engagement, brand awareness and word of mouth. The study was motivated by the need to analyse the factors that condition consumers interactions with branded content. They applied use and gratification (U&G) theory to seek explanation on why people actively participate in media usage and interact highly with the communication media. The study which was based on 394 respondents relied both online and offline questionnaire while structural equations modelling was utilised for analysis. The outcomes show that the U&G theory significantly explains consumers' attitude to social networking sites. The outcomes also show that content characteristics of the network sites: vividness, interactivity, entertainment and information have direct impact on the consumers' online participation and engagement behaviour whilst incentive show no impact. The results of the study also show that positive attitude toward SNA, vividness, interactivity, information and entertainment show partial mediation effect on the consumers' online participation and engagement behaviour while incentive show full mediation effect. The study concluded that the social media users with positive attitude toward network activities are more likely to surf the Net and feel more engaged. Our study relies on engagement model and uses mediated moderation analysis to assess social media engagement behaviour.

Salem (2021) study on relationship marketing constructs that enhance customer retention in the service industry was based on 188 copies of questionnaire collected from service guests in Malaysia to evaluate the structural relationships between the relationship marketing constructs: conflict handling, trust, and customer commitment and performance of the measurement model using SmartPLS 3.2.3. Importance-performance map analysis (IPMA) was used to identify measures that could be utilized to enhance management activities. The outcomes of the study indicated that customer retention is directly influenced by conflict handling, whereas customer engagement is directly affected by trust, conflict handling, and commitment. However, conflict handling, commitment, and trust indirectly affected customer retention via customer engagement. The IPMA also revealed several aspects to help decision-makers and managers prioritize their actions efficiently. The study concluded that service managers prioritize their customers' complaints and resolve them effectively. Leong, et al. (2017) studied on the relationship between consumer involvement and consumer engagement behaviour with consumer loyalty in Tourism and Hospitality Industry proposed that the newly emerged term of consumer engagement behaviour acts as the mediator of the relationship between consumer involvement and consumer loyalty. They adopted the theory of Service-Dominant Logic while the supporting foundations are Consumer Engagement Model, Consumer Involvement Profile, and 3H's Model. The study concluded that consumer involvement and consumer engagement behaviour influence consumer loyalty in tourism and hospitality industry. The above review help through some light on constructs and theories that help explain and define social media customer engagement and also help to define how the constructs relate and impact engagement

behaviour and customer satisfaction.

Methodology

This adopted quantitative research methodology which involve collecting data with structured questionnaire and analysing quantitatively. The study also adopted survey research design and this type of survey adopted is the cross-sectional survey research since data were collected at one point within the first quarter of 2023. The data were collected from customers of the services organisations visited like transport companies, hotel guests, and event centres. The study was based on one core predictor variables: social media customer engagement, the second order construct while the antecedent of customer engagement: consumer vigour, dedication, absorption and social media interaction were measured at first-order that were used to form the second order or hierarchical construct. Customer satisfaction was dependent variable. Customer vigour and dedication were measured with six items each while the remaining two independent variables were measured with five items each. The dependent variable, customer satisfaction was measured with five items also. All the items were measured with five-point Likert scale. Four socio-demographics: gender, age, education and occupation were included in the study. The population of the study is infinite; and the study was based on a sample size 400 respondents out of which 215 responded and returned valid and usable questionnaire information. The sampling method adopted was the quota sampling method and the aim was to ensure that service industry used cover different gender, income and other socio-demographic characteristics. Face and content validity were used to ensure that the questionnaire measures what it is intended to measure.

The analysis was done with the aid of AMOS 23 software on a hierarchical/second-order basis. Hierarchical confirmatory factor analysis models show at least one variable/construct as a second-order factor that is not directly measured by any indicator. This exogenous second-order factor is also presumed to have direct effects on the first-order factors, which have indicators (see figure 1). The first-order factors are endogenous and therefore do not have unanalysed associations with each other (Kleine, 2011). Instead, their common direct cause, the second-order factor, is presumed to explain the covariances among the first-order (Kleine, 2011).

Analysis

The sample size for this study is 400 and 215 copies of the questionnaire were returned as duly filled and usable. The responses to the four socio-demographic variables are as follows: gender, 71.9% are males while 28.1% are females. The results also show that 57.5% of the respondents are within 20-30 years age bracket; 30.6% fall within 31-40 years age bracket; 7.0% are within 41-50 years age bracket while the only 4.8% are above 51 years. On education, 9.0% have basic education, 14.6% have ND/NCE, 48.3% are holders of HND and BSc, while 28.1% are holders of postgraduate qualifications. The implication of this is that the respondents are well educated to appreciate the import of the study and gave valid information.

Lastly on occupation, 70.8% of the respondents are civil/public servants, 23.6% are private firm’s employees while 5.6% are self-employees. Our respondents are balanced among the various employment categories. The implications of these are that majority of the respondents have reasonable education to understand the import of the study. The analysis and the validation of the hypothesis formulated for this study was done with covariance based structural equations modelling and was based on a hierarchical or second-order analysis. The dimensions of social media customer engagement (SMCE) used in this study: customer vigour (Vig), dedication (Ded), absorption (Abs) and social media interaction (SMI) are the first-order while the SMCE was the second-order not measured with any items. Covariance based structural equations modelling and many other SEM models have two components: the measurement model and the structural model. We first analyse the measurement model before the structural model.

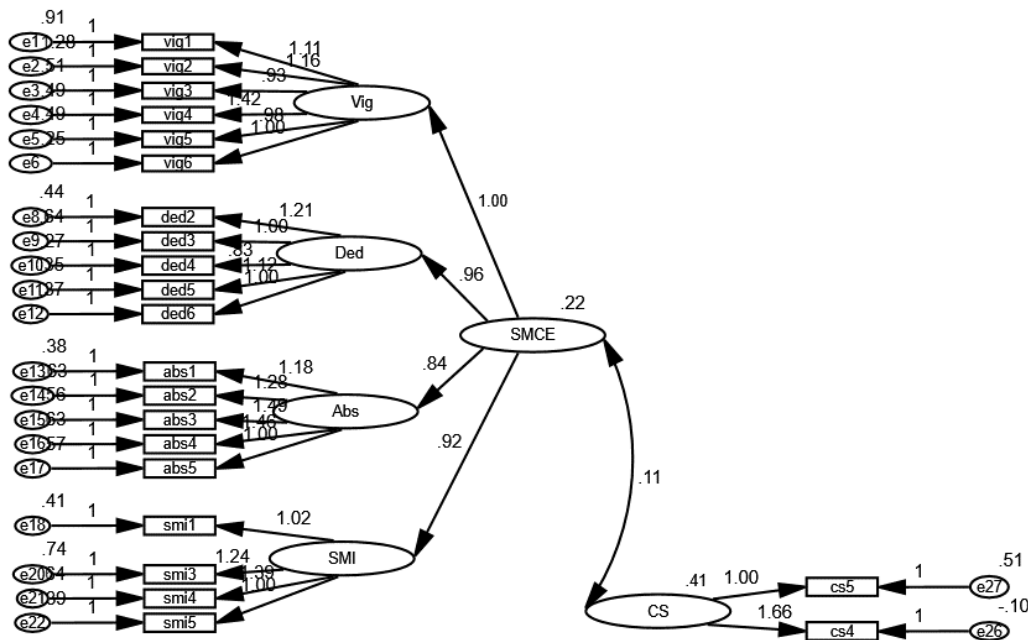


Figure 2: Second-order measurement model

Measurement Model: Under the measurement model we look at several items like the item loadings, the average variance extracted (AVE), and the composite reliability (CR) as well as the model fit indices. One of the parameters SMCE→VIG. was constrained for identifiability. The result of the measurement model is as shown in figure 2 while the text outputs are shown as the psychometric properties.

Psychometric Properties of the Construct					
	Vig	ded	Abs	Smi	cs
vig6	0.683				
vig5	0.547				

vig4	0.689				
vig3	0.519				
vig2	0.432				
vig1	0.477				
ded5		0.65			
ded4		0.587			
ded3		0.488			
ded2		0.631			
abs5			0.461		
abs4			0.586		
abs3			0.614		
abs2			0.533		
abs1			0.600		
smi5				0.565	
smi4				0.598	
smi3				0.527	
smi1				0.563	
cs4					0.947
cs5					0.667
AVE	0.321	0.351	0.315	0.318	0.671
CR	0.811	0.905	0.895	0.903	0.879

A total of twenty-seven items were used to measure the four IVs and one DV and these were used on the AMOS 23 measurement analysis. The first produced χ^2/DF ratio of 8.707. Items that measured very poor like the first three items of customer satisfaction. One item was removed from dedication and another one item was removed from social media interaction. These improved the χ^2/DF ratio to 4.857 which is slightly above the threshold of 3.5. Further elimination of items that were loaded slightly below 0.6 (psychometric properties of the construct) did not improve the model fit hence were left. The root mean residual of the final accepted measurement model is 0.94 while the root mean square error approximation is 0.97 which are slightly above threshold but still acceptable hence, we proceed with this model with five items removed. All the average variance extracted (AVE) except for customer satisfaction loaded below the 0.5 threshold. An AVE of .5 or higher is a good rule of thumb suggesting adequate convergence. An AVE of less than .5 indicates that, on average, more error remains in the items than variance explained by the latent factor structure imposed on the measure (Hair et al. 2014). The rule of thumb for either reliability estimate is that .7 or higher suggests good reliability. On composite reliability, all the constructs loaded above the 0.7 threshold showing that our data has internal consistency and merit further analysis. **Measurement Invariance:** Measurement invariance refers to multiple- samples confirmatory factor analysis (CFA) is concerned with whether a set of indicators/items measures the same constructs with equal precision over different samples (Kleine, 2016). Testing for measurement invariance in CFA is explained and illustrated with two examples. There are many approaches to testing for measurement invariance but in

this study, we split the sample into two for the invariance test and we used the SPSS random split to divide the sample into two. The results of the analysis show that our scale is invariant across groups, which is a boost on validity of the scale. We now analyse the structural model and validate the hypothesis.

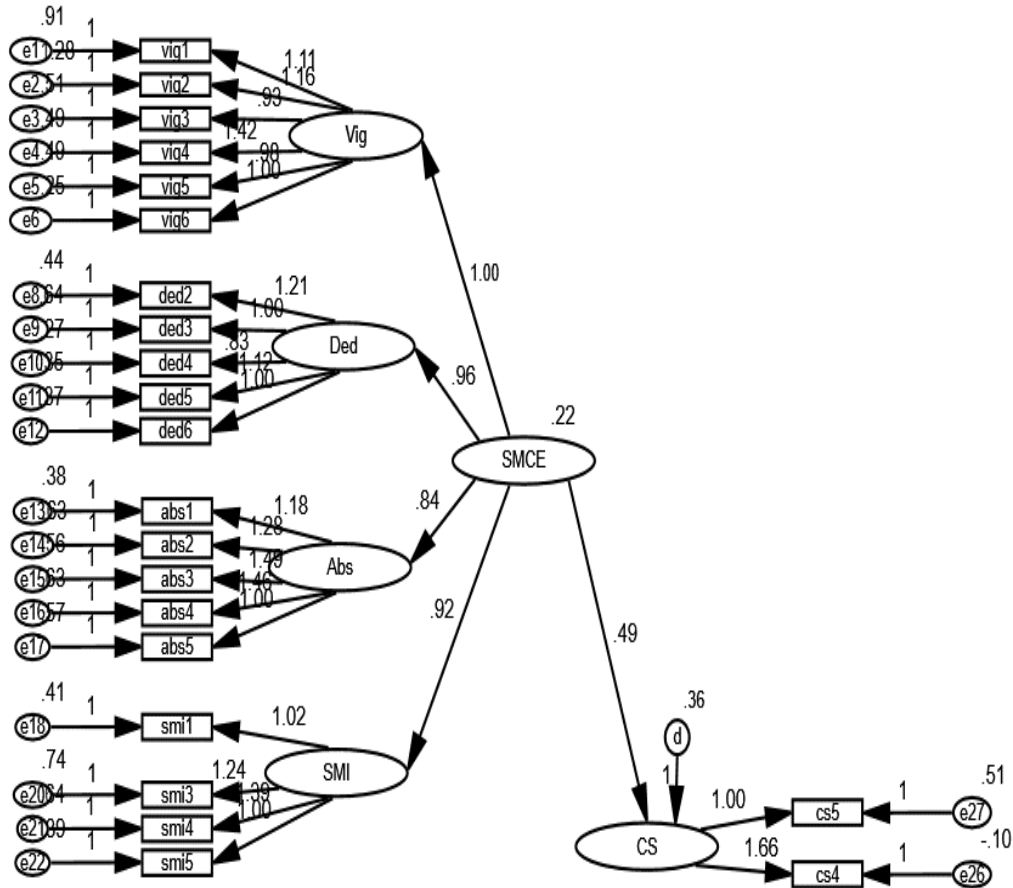


Figure 3: Second-order structural model

Regression Weights: (Group number 1 - Default model)

		Estimate	S.E.	C.R.	P	Label
Ded	<--- SMCE	.960	.120	8.003	***	
Abs	<--- SMCE	.838	.133	6.314	***	
SMI	<--- SMCE	.918	.120	7.668	***	
Vig	<--- SMCE	1.000				
CS	<--- SMCE	.490	.148	3.321	***	Accepted

Structural Model: A structural model is where observed and or latent variables can be predictors or outcomes and used in validating the hypothesis. In a general SEM model, structural models are represented by latent exogenous variables. Figure 3 is the structural model and the regression weights are the output. As already mentioned

under the measurement model, and for identifiability, constraint was imposed the vigour construct. The χ^2/DF , the RMR, the RMSEA and TLI are all good. The SMCE→CS has coefficient of 0.490, a critical ration of 3.321 and is highly statistically significant at 0.000 which well below the 0.05 margin of error hence we accept the alternate hypothesis that social media customer engagement positively and significantly influences customer satisfaction in the service industry.

Conclusions, Discussions and Implications

This study found that there is a significant positive relationship between social media customer engagement and customer satisfaction in the service industry. Social media customer engagement was proxied by four components: customer vigour, dedication, absorption and social media interaction. These constructs were measured and analysed on second-order and they all contribute positively to the first-order variable which is social media customer engagement. Our finding on significant positive relationship between SMCE and customer satisfaction agrees with Cheung, et al 2011; and Cvijikj and Michahelles (2013). The findings also agree with Kujur and Singh (2017) in part. Social media has continued to gain traction in marketing and business hence business firms continue to use them in engaging their customers and building trust and relationships. Social media platforms like Facebook by usage rate has emerged as the single largest community in the world. This implies that business firms continue to use it in reaching to their target customers and engaging them. The findings of this study show that customer vigour, dedication and absorption have significant effect on social media customer engagement interaction which in turn has significant and positive effect on social involvement and customer satisfaction. The findings of this study have several implications for social media customer engagement marketing. First, social media marketers need to focus on creating and enhancing customer vigour, dedication and absorption which includes videos, images and status which draws attention of social media users to view the social platforms and social media brand pages. This would keep customers engaged both with visual and audio of the human sensory in platforms and cyber space. This is because vigour, dedication and absorption values were found to be significant in impacting social media interaction. This study has implication for theory as it has contributed to the literature on customer engagement and most importantly on second-order analysis.

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