

VALIDATING THE IMPACT OF CUSTOMER PERCEIVED VALUE ON CUSTOMER SATISFACTION AND BEHAVIOURAL INTENTIONS. THE CASE OF MOBILE COMMUNICATION USERS IN UNIVERSITIES

¹Albert Makore, ²Munyaradzi Mutsikiwa, ³Lovemore Rutendo Chitambara, ⁴Phanos Matura

¹Management Studies Department, Great Zimbabwe University, amakore@gzu.ac.zw

²Graduate Business School, Great Zimbabwe University, mmutsikiwa@gzu.ac.zw

³School of Hospitality, Tourism, and Culture, Great Zimbabwe University, Ichitambara@gzu.ac.zw

⁴School of Hospitality, Tourism, and Culture, Great Zimbabwe University, pmatura@gzu.ac.zw

Abstract

This research pursues to extend our understanding of the dimensions of customer perceived value and its effects on behavioural intentions in various segments of the mobile communications industry adapting the Perval and Gloval scales in a replication study. A multi-dimensional model of customer perceived value was applied in measuring effects of the value dimensions on customer satisfaction and customer behavioural intentions. A sample consisting of 328 usable responses from mobile communication users was utilised in determining reliability and validity of six dimensions of customer value with 26 items. Confirmatory composite analysis software, Adanco PLSc-SEM was utilised to analyse the applicability of the customer perceived value latent constructs in line with theory and then test the hypothesized measurement model. The study findings acknowledge the importance of previous studies which note the importance of network coverage in mobile communications, hence marketers need to focus on dimensions that enable them to convert attitudes to actual purchase. The practical application focus of this research is to build cognitive awareness of the key contribution of customer perceived value towards strategic advantage.

Keywords: customer perceived value; structural equation modelling; customer behavioural intention; customer satisfaction; reflective; formative latent constructs.

INTRODUCTION

It is critical to analyse the effect of customer perceived value on customer satisfaction together with attitudinal and behavioural loyalty to enhance our understanding of the antecedents of customer perceived value. Based on the assertions that research on customer perceived value remains fragmented (Zauner, Koller, & Hatak, 2015), this paper focuses on contributing to the literature on the antecedents of customer perceived value and it tests hypotheses based on previous studies to evaluate the effect of customer perceived value on customer satisfaction and behavioural intentions. This is

supported by several researchers who agree that a study may extend previous studies or specifically apply the study in a different environment to validate the results (Schutt, 2019). The research literature covering customer perceived value clearly states that customer value influences customers' behavioural intentions such as behavioural loyalty and attitudinal loyalty (Carlos Fandos Roig, Sanchez Garcia, Angel Moliner Tena, & Llorens Monzonis, 2006). The concept of customer perceived value continues to receive attention in the service industry and therefore the need to clearly understand how the antecedents of customer perceived value influence behavioural

intentions in tourism, financial services sector, mobile communications as well as retailing (Carlos Fandos Roig et al., 2006; Petrick, 2002).

This research acknowledges the need to extend the debate which seeks to clarify the conceptual character of the customer perceived value construct as a higher-order construct. The research adopted the model concept where the first-order latent factors have reflective indicators and in turn, these first-order factors affect a second-order construct as reflective indicators (Anderson & Gerbing, 1988; Bagozzi & Yi, 2012; Jarvis, MacKenzie, & Podsakoff, 2003).

BACKGROUND

Marketing Managers need have a prerogative to the concept of customer value particularly in terms of what a customer perceives as the value which translates into a purchase. When customers purchase a service, it has been noted that customers are buying an experience created within the service department of the organisation providing the service (Lemon & Verhoef, 2016).

There has been an upsurge in the number of studies on customer experience in terms of the customer interactions with service providers which translate to various perceptions or feelings (McColl-Kennedy et al., 2015) and customer experience management can create customer loyalty enhancing some form of competitive advantage in most industries (Tyrväinen, Karjaluoto, & Saarijärvi, 2020; Verhoef et al., 2009). Customers are the ones that determine the success of products and services and marketers make use of customer perceived value to determine how their product or service should be perceived by customers.

“Customer Perceived Value is defined as the consumer’s total evaluation of the usefulness of a product offering premised on a perception of what is received and what is given by the service provider” (Zeithaml, 2010; Zeithaml, Parasuraman, Berry, & Berry, 1990).

Understanding the past customer experiences, the present experiences and future experiences will bring about innovative solutions to customers’ needs (Helkkula, Kelleher, & Pihlström, 2012). Hence the refinement of the

factors that influence customer perceived value is acknowledged as an imperative management aspect in extending the knowledge base in marketing particularly from the customer relationship management perspective (Sánchez-Fernández, Iniesta-Bonillo, & Holbrook, 2009). Research has also noted that the core product and the augmented product adds to customer value and in customer relationship management the branding concept contributes to how customers perceive product performance (Payne & Frow, 2013). The consumer experience is largely defined by a combination of the product and service which complement each other and hence differentiation strategies can be enhanced by a combination of both the product and the services components (Mittal, Kumar, & Tsiros, 1999; Mittal Vikas, 2015).

The other perspective of defining Customer Perceived Value is to view it from three angles, noting the values, desired values and the desired value judgements. Values are viewed as the core beliefs that guide behaviour, while desired customer value consists of customer perceptions of the type of service the customers want to receive and the third aspect “value judgement” is the value generated by the supplier and assessed by the consumer in terms of the benefits and sacrifices (Eggert & Ulaga, 2002; Flint, Woodruff, & Gardial, 1997; Graf & Maas, 2014). As noted, value in use does not affect Desired Customer Value and this is more enduring than Perceived Customer Value (Flint et al., 1997). Experiential value of interacting with the product or service in use is of essence in this study. Research carried out noting the relationship of experiential value, relationship excellence and low customer churn has evaluated the robustness of these relationships across various demographic characteristics and the findings are such that customers do engage in loyal behaviour when the emotional experience is positive (Jin, Line, & Goh, 2013). The position that perceived customer value influences behavioural intentions is supported highlighting that the effects differ depending on market segments researched (Floh, Zauner, Koller, & Rusch, 2014).

Perceived value is a key determinant in terms of loyalty of customers in the hospitality industry, insurance business, retailing (Ruiz-Molina & Gil-Saura, 2008) as well as the mobile communications industry and hence we

specifically analyse perceived value effects on customer satisfaction and behavioural intention (Carlos Fandos Roig et al., 2006). Past studies have noted the fact that customers in the hospitality industry do exhibit loyalty behaviours when exposed to favourable emotional experience (Dick & Basu, 1994; Yoon & Uysal, 2005), however further analysis is required due to the subjective nature of how value is perceived in various market segments (Line & Runyan, 2012).

There is evidence to the factor that the constructs that influence perceived value are supported by the idea that customer perceived value is a multidimensional construct (Floh et al., 2014). Research done by several authors has led to the adoption of an extended model depictions of perceived value dimensions encompassing the cognitive and affective components (Oliver, 2014; Sheth, Newman, & Gross, 1991; Sweeney & Soutar, 2001). This conceptual replication validates the impact of customer perceived value on customer satisfaction and behavioural intention utilising the PERVAL Perceived Value (Gallarza, Maubisson, & Rivière, 2020; Sweeney & Soutar, 2001) and GLOVAL Global Perceived Value Scale (Carlos Fandos Roig et al., 2006; Özer, Başgöze, & Karahan, 2017). Noting the encouragement to enhance discipline-specific empirical evidence in marketing the study adopts a replicative process using multi-item measures as a way of theory confirmation (Block & Kuckertz, 2018; Easley, Madden, & Dunn, 2000; Hubbard & Vetter, 1996). To further buttress the concept of discipline-specific research the study addresses the theoretical gap based on the domain theory of customer perceived value (Zauner et al., 2015) and reports the generalisation of results from earlier research studies (Brendel, Greulich, Niederman, & Trang, 2020).

Development of theoretical model and research hypothesis

The role of theory is critical in the process of specifying the measurement model and structural model in Structural Equation modelling (Hair, Black, Babin, & Anderson, 2019). To reinforce the application of theory in research, rigour is key as this enhances practical relevance (Garver, 2019; Hair et al., 2019; Johnston, 2014). A cross-sectional research method was adopted and model development is premised upon the customer perceived value

theory (Pura, 2005; Zauner et al., 2015) noting the key constructs which influence both attitudinal and behavioural components of customers. Researchers have noted the call for theory generalisability but as noted there are segmental differences that emanate when it comes to customer perceived value theory (Gallarza, Gil-Saura, & Holbrook, 2011; Zauner et al., 2015; Zeithaml, Verleye, Hatak, Koller, & Zauner, 2020). To extend our confidence in the application of customer perceived value theory the study notes the studies underlining the desire to analyse how individual constructs influence behavioural intentions. The consumer perceived value (PERVAL) scale has four measurement constructs (quality, emotional, price and social value by (Sweeney & Soutar, 2001) with 19 items, however, several extensions have been done to include other variables (Carlson, Rahman, Rosenberger, & Holzmüller, 2016; Gallarza, Arteaga, Del Chiappa, Gil-Saura, & Holbrook, 2017; Pura, 2005). The GLOVAL (Global purchase perceived value) scale was also applied in other studies to measure the purchase and service experience of customers (Carlos Fandos Roig et al., 2006; Özer et al., 2017).

Functional value is defined as the customer experience emanating from prior expectations about the service or product and the outcome behaviour influenced by customer satisfaction has been noted (Wang, Lo, & Yang, 2004). However the value-in-use concept is defined or customer specific during the consumption of the product or service and this is context-specific as experience differs with the situation (Buttle & Maklan, 2015; Grönroos & Voima, 2013; Ranjan & Read, 2016; Vargo & Akaka, 2009).

The functional value represents the expectations the customer has about a product in terms of functional and utilitarian performance (Sheth et al., 1991). Quality, reliability and durability aspects make up the functional value attributes of a product (Williams & Soutar, 2009).

Functional value is a key influencer in most buying decisions processes, however, it is noted that this is not the only variable of importance as other dimensions are very influential depending on the type of product being purchased (Sweeney & Soutar, 2001). The heterogeneity of customers is a key determinant factor in terms of how the perceived customer value constructs

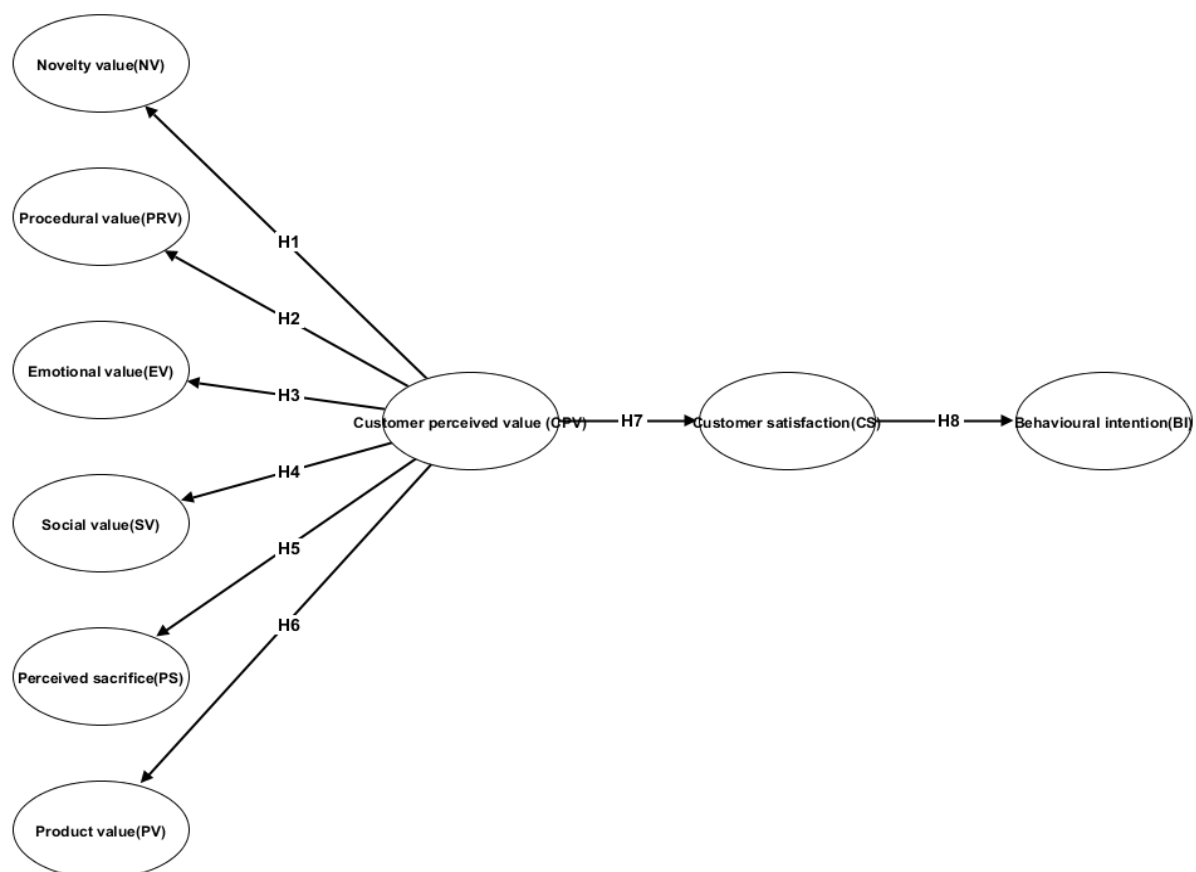
influence the decision-making process (Williams & Soutar, 2000, 2009). A framework based on customer perceived value theory comprising of Procedural, Product, Personnel, Emotional, Social and Perceived value dimensions is adopted in this study and the multi-dimensions are utilised (Gallarza et al., 2020; Gounaris, Tzempelikos, & Chatzipanagiotou, 2007; Sweeney & Soutar, 2001).

As key sub dimensions of relationship quality ,customer perceived value dimensions have effects on satisfaction and loyalty (Carlos Fandos Roig et al., 2006; Fandos Roig, García, & Moliner Tena, 2009; Gounaris et al., 2007; Pura, 2005). This study notes the definition of the major construct of customer perceived value and its effect on behavioural intention of loyalty (Floh et al., 2014; Zauner et al., 2015). It has been posited that behavioural intentions by

customers are indicators of their willingness to either create a relationship or not (Gallarza, Arteaga, Del Chiappa, & Gil-Saura, 2015; Gallarza & Saura, 2006; Gill et al., 2007). In conceptualising customer perceived value, we capture the view that the functional dimension which incorporates the quality dimension of the product or the service is important as well as the affective dimension comprising of emotion and social attributes (Carlos Fandos Roig et al., 2006; Sweeney & Soutar, 2001).

Based on the conceptualisation of the customer perceived value dimensions by the various authors (Boulding, Kalra, Staelin, & Zeithaml, 1993; Koufteros, Babbar, & Kaighobadi, 2009; Schreiber, Nora, Stage, Barlow, & King, 2006; Zeithaml et al., 2020) noting CPV as a second-order construct, for clarity in the analysis, we summarise the relational hypotheses of the constructs in Figure 1.

Figure 1 *Proposed Theoretical framework showing Customer perceived value relationship with customer satisfaction and behavioural intention*



Note: Conceptualising Customer perceived value dimensions as first-order latent factors affecting a second-order construct as reflective indicators.

Novelty value

Novelty value is the capability of a creation or a service to evoke an element of surprise that provides utilitarian benefits to the user (Sheth et al., 1991; Williams & Soutar, 2009). Variety seeking behaviour may also trigger new product search, desire to experience new technology and acquire knowledge (Hirschman, 1980). Surprise and novelty can direct the attention of a customer towards the desired goals of a market offering. The motivation to acquire new knowledge leads to the cognitive learning process resulting in exploratory behaviour to know more about the service on offer (Carlson et al., 2016).

H1: Novelty value has a positive influence on customer perceived value.

Procedural value

Gounaris, Tzempelikos and Chatzipanagiotou (2007) assert that procedural value is collectively the utilitarian benefits that customers enjoy from the company. It is also further noted that procedural value comprises of the processes that companies or entities put in place focusing on providing excellent customer service through friendly, responsive behaviour to meet customer expectations at various levels of interaction such as before, during and after the purchase (Buttle and Maklan, 2015, p.262).

H2: Procedural value has a positive influence on customer perceived value.

Emotional value

Emotional value is an affective dimension that effectively focuses on the various states or feelings of a customer (Eid, 2015). Emotional value is experienced when affective states or feelings are evoked resulting in pleasant memories about a service or a created offering (Sheth et al., 1991; Sweeney & Soutar, 2001). Past studies in mobile telecommunications state that customers may also seek to enjoy and have fun playing games using network technology and the innovativeness of the service will motivate customers' behaviour (Pura, 2005).

H3: Emotional value has a positive influence on customer perceived value.

Social value

Social value proceeds from the interaction process which occurs between individuals (Eid, 2015; Gallarza & Saura, 2006). Customers have expectations when they enter into a relationship and these may be driven by sociological factors or institutional influence factors such as norms and values (Kim & Seock, 2019). The purchase of a product by a customer provides or brings hedonic benefits such as enjoyment and pleasure to the individual. The behaviours exhibited by customers consist of such aspects as strong preferences for particular brands and these can be driven by cognitive appeals (information) and affective appeals (emotion) (Valette-Florence & Valette-Florence, 2020; Zajonc & Markus, 1982).

H4: Social value has a positive influence on customer perceived value.

Perceived sacrifice

Consumers have different perceptions of value and this is based on the view that a low price may provide a positive assessment of a product, however, others may evaluate superior value based on quality and special features as well as augmented product benefits (Zeithaml, 1988). Pura (2005) states that price which is defined as a sacrifice by a customer (Cronin Jr, Brady, & Hult, 2000; Dodds, Monroe, & Grewal, 1991) has a positive relational effect on behavioural intentions (Sullivan & Kim, 2018). The influence of perceived sacrifice on perceived value from past research confirm that there are both negative and positive effects experienced by customers (Luk, Sharma, & Chen, 2013). However from an experiential perspective perceived sacrifice has been noted to have negative effects which can be overcome by benefits provided by the service provider depending on customer focus (task or experiential) (Fang, George, Shao, & Wen, 2016; To, Liao, & Lin, 2007). This is a significant factor in clarifying the behaviour of customers, hence we adopt the following statement.

H5: Perceived sacrifice has a positive influence on customer perceived value

Product value

The value accruing to customers emanates from the benefits obtained compared to the sacrifices

(Zeithaml, 1988). Customer value propositions are key enablers that are harnessed in the product offering and these bring about positive customer value perceptions, attitude as well as behavioural intentions (Payne, Frow, & Eggert, 2017; Ranta, Keränen, & Aarikka-Stenroos, 2020; Rintamäki, Kuusela, & Mitronen, 2007). Customer perceptions of a product vary depending on the stage of interaction such as before purchase, during usage and after usage of the product (Parasuraman & Grewal, 2000). The customer value hierarchy concepts explain how customers comprehend the desired value in what is termed as the means-end process (Buttle & Maklan, 2015; Woodruff, 1997). As alluded to by various authors, the following stated hypothesis is proposed.

H6: Product value has a positive influence on customer perceived value.

Customer perceived value and customer behaviour

Customer Perceived Value(CPV) is a hierarchical construct without manifest indicators and it is measured utilizing other constructs (Rintamäki & Kirves, 2017; Zeithaml et al., 2020). The association between customer perceived value and customer behaviour has been distinguished to be positive thereby leading to purchase intention or repurchase (Dodds et al., 1991; Parasuraman & Grewal, 2000). Customer satisfaction plays a key role in inducing behavioural loyalty but this occurs in conjunction with other factors (Bloemer & Kasper, 1995). Satisfaction as a variable may compete in clarifying the effect of customer perceived value on behaviour, hence this is an area that requires critical analysis to establish its intervening characteristics (Li & Petrick, 2010). It has been noted that customer value controls the customer behavioural intentions of loyalty provided the service is premised on superior value (Buttle & Maklan, 2015; Chang & Wildt, 1994; Cronin Jr et al., 2000). The positive association between customer satisfaction and behavioural intentions is well recognized (Lin & Hsieh, 2006). Customer satisfaction with other variables such as trust enhances loyalty and largely customer satisfaction positively influences customer behavioural intentions (Deng, Lu, Wei, & Zhang, 2010; Shahid Iqbal, Ul Hassan, & Habibah, 2018). The past interactions a customer has with a service provider over some time may predict a user's

post-purchase behaviour (Johnson & Fornell, 1991; Wang et al., 2004). The behavioural intention concept was measured using three items adapted from prior studies (Cronin Jr et al., 2000; Wang et al., 2004; Zeithaml, Berry, & Parasuraman, 1996). The customer satisfaction concept was also measured using three items noting the cumulative aspect of the service provider's offering (Fornell, Johnson, Anderson, Cha, & Bryant, 1996). Having noted various evidence from previous studies the following research hypotheses are also adopted in this research.

H7: Customer perceived value has a positive relationship with customer satisfaction.

H8: Customer satisfaction has a positive relationship with customer behavioural intentions.

METHODS

Data collection

Data was collected from University students doing part-time studies using the purposive sampling technique to evaluate their perception of mobile service providers as well as their behavioural intentions using a quantitative deductive research approach. The three items used in the endogenous construct, behavioural intentions were adopted from past research studies (Cronin Jr et al., 2000; Wang et al., 2004; Zeithaml et al., 1996). The exogenous dimensions comprising of cognitive and affective value dimensions used in this study were also adopted from past studies (Eid, 2015; Gallarza et al., 2011; Gallarza & Saura, 2006; Sánchez-Fernández et al., 2009). A Likert scale ranging from strongly agree denoted by a score of five (5) to strongly disagree denoted by one(1) was used for all items in the study(Sweeney & Soutar, 2001). For data analysis, SPSS 23 was utilised for descriptive statistics, Cronbach's alpha calculation and confirmatory factor analysis was done to analyse convergent and discriminant validity. To test the model and the hypotheses, structural equation modelling (SEM) was used for validating model fit. Data processing adopted a two-step approach to ensure that the constructs or the unidimensional measures conform to the overall model fit indices (Anderson & Gerbing, 1988).

Sample profile

Data collection utilised a structured questionnaire survey which was distributed to a sample of 400 students and a total of 328 usable responses were solicited denoting an 82% response rate.

Based on the recommendations that PLS-SEM can assist to achieve higher levels of statistical power when dealing with complex models or small samples regarding a 5% significance sample size should at least be 90 (Hair Jr, Hult, Ringle, & Sarstedt, 2017). A usable sample size of 328 is supported by the basic rule of thumb for sample sizes which stipulates that it should be 10 times the number of items per latent construct to achieve the required statistical power (Hair Jr, Hult, Ringle, & Sarstedt, 2017:24).

Data were screened for missing or unusable responses and hence a total of 328 was finally selected for analysis. This meets the minimum criteria for evaluating the data using Structural

Equation Modelling (Hair et al., 2019) and Adanco (Henseler, 2017) 2.0.1. The three-part questionnaire contained a section with demographics and a section with the exogenous dimensions comprising of cognitive and affective value dimensions followed by the endogenous constructs, behavioural intentions and customer satisfaction. The survey instrument utilised in the research study was pre-tested and critically analysed by three PhD holders in the Management Studies department to ensure survey instrument validity.

The details of the respondents to the survey were predominantly male (57.9%) and female (42.1%) as noted in Table 1. The student respondents who are in the 54% category are at the undergraduate level, 37.8% postgraduate level comprises of students likely to be frequent users of mobile communications as 79.3% are full-time employees. Online surveys provide a different scenario in terms of respondents characteristics (Chi & Kilduff, 2011)

Table 1 *The profile of the respondents*

Gender			
		Frequency	Percent
Valid	female	138	42.1
	male	190	57.9
	Total	328	100
Age			
		Frequency	Percent
Valid	18-25	10	3
	26-35	107	32.6
	36-45	192	58.5
	45-55	7	2.1
	>56	12	3.7
	Total	328	100
Education			
		Frequency	Percent
Valid	O level	2	0.6
	A level	8	2.4

	Certificate	2	0.6
	Diploma	15	4.6
	Bachelor's	177	54
	Master/s	124	37.8
	Total	328	100
Employment			
		Frequency	Percent
Valid	Student	28	8.5
	Part-time employee	17	5.2
	Fulltime employee	260	79.3
	Self-employed	21	6.4
	Unemployed	2	0.6
	Total	328	100

Note: This table shows the response rates in terms gender, age, education and employment status of the respondents

Data analysis method and results

The data analysis and results section present the detailed results from the analysis of the data. PLSc (Henseler, 2017) analysis which includes the assessment of the measurement model and structural model is applied. The measurement model establishes the reliability and validity of the constructs and the structural model ascertains the significance of the hypothetical relationships. Several hypotheses have been put forward to evaluate the relationships of the various predictors on the outcome variables.

Measurement Model

To assess the psychometric properties of the measurement scales, confirmatory factor analysis (CFA) was also carried out to evaluate the hypothesized relationships and develop a more elaborate understanding of the relationships. The two-stage process is necessary to extract the theorized constructs for further analysis (Anderson & Gerbing, 1988; Schmidt & Hollensen, 2006). At the first stage, assessment of the measurement model was done (Benítez-Ávila, Hartmann, Dewulf, & Henseler, 2018) and the research hypotheses were tested in the second stage (structural model) utilising the repeated indicator procedure (Sarstedt, Hair, Cheah, Becker, & Ringle, 2019) for hierarchical second-order constructs noting the

challenges of using the procedure (van Riel, Henseler, Kemény, & Sasovova, 2017). The consistent partial least squares (PLSc) was used to analyse the six first-order constructs and the indices were noted (Dijkstra & Henseler, 2015). Reflective indicators with low outer loadings denoted below 0.40 were selected with the recommendations that they should be eliminated from the construct having done due analysis on what effect they have on content validity (Bagozzi, Yi, & Phillips, 1991; Hair, Ringle, & Sarstedt, 2011). Some items were removed from further analysis due to failure to meet the required criteria (CS1, PS1, PS4, NV4, PRV4, PV4 and PV5). The investigation was re-run.

Table 2 shows that the values of confirmatory factor analysis and goodness of fit of the model assessed based on standardized root mean squared residual (SRMR) and based on the recommendation that (SRMR) may be assessed based on cut-off values rules instead of statistical inference and a value of 0.0840 was noted (Benitez, Henseler, Castillo, & Schuberth, 2020). The Confirmatory factor analysis results show that the customer perceived value measurement model provides a reasonably good model fit and it is suitable for further analysis noting the fact that these indices provide an acceptable indication of how well the proposed theory fits the data.

Table 2 *The Goodness of model fit (saturated model) Results of the confirmatory factor/composite analysis*

	Value	HI95	HI99
SRMR	0.084	0.045	0.047
d _{ULS}	1.925	0.548	0.611
d _G	0.743	0.375	0.390

Factor loadings

“Factor loadings refer to the extent to which each of the items in the correlation matrix correlates with a given principal component. Factor range from -0.1 to +0.1 with higher absolute values indicating a higher correlation of the item with the underlying factor” (Collier, 2020:64). Several items were dropped from the study due to lower correlation with their underlying factors and these were below the 0.50 criteria. Table 3 shows the retained factors.

Table 3 *Factor loadings*

Indicator	CS	BI	NV	PRV	EV	SV	PS	PV
CS2	0.783							
CS3	0.783							
NV1			0.843					
NV2			0.823					
NV3			0.796					
PRV1				0.810				
PRV2				0.908				
PRV3				0.805				
EV1					0.857			
EV2					0.890			
EV3					0.790			
EV4					0.813			
SV1						0.828		
SV2						0.845		
SV3						0.793		
PS2							0.872	
PS3							0.872	
PV1								0.883
PV2								0.880
PV3								0.803
BI1		0.901						
BI2		0.896						
BI3		0.888						

Indicator Multicollinearity

The Variance Inflation Factor (VIF) is utilised to evaluate multicollinearity in the indicators. The recommended cut-off criteria for VIF are values

below 5 according to (Hair Jr, Hult, Ringle, & Sarstedt, 2017:164). Table 4 presents the VIF figures for the indicators in this research and the results show that all the values are below the threshold.

Table 4 *Multicollinearity Statistics (VIF) for indicators*

Indicator	CS	BI	NV	PRV	EV	SV	PS	PV
CS2	1.601							
CS3	1.601							
NV1			1.633					
NV2			1.552					
NV3			1.444					
PRV1				1.686				

PRV2	2.315		
PRV3	1.660		
EV1		2.350	
EV2		2.713	
EV3		1.797	
EV4		1.838	
SV1			1.578
SV2			1.647
SV3			1.439
PS2			1.374
PS3			1.374
PV1			2.134
PV2			2.117
PV3			1.539
BI1	2.466		
BI2	2.395		
BI3	2.270		

Note: Variance inflation factors (VIF)

Reliability Analysis

According to (Schmidt & Hollensen, 2006) “Reliability refers to the ability of a scale to produce a consistent result if repeated measurements are taken”. The methods commonly used to measure reliability are Cronbach Alpha and Composite Reliability (CR). To determine the degree of freedom from random error noting the fact that each variable is measured by multiple items internal validity must be assessed to establish internal consistency. In order to validate the reliability of the indicators in terms of how effectively they are measuring the various constructs Cronbach’s alpha is calculated and this is important in analysing the consistency of responses across the items within a construct (Collier, 2020). According to (Nunnally & Bernstein, 1994) the satisfactory level of reliability should be above 0.7 despite the various drawbacks and assumptions which note that indicators have equal influence on constructs. The results of both Cronbach Alpha and the Composite Reliability are presented in Table 5. The Cronbach Alpha ranged from 0.700 to 0.876 whereas Composite Reliability statistics ranged from 0.760 to 0.923. Both statistics are noted to be above the recommended threshold level of 0.700 (Hair Jr et al., 2017) and hence construct validity is established.

Table 5 *Cronbach Alpha and Composite Reliability*

Construct	Dijkstra-Henseler's rho (ρ_A)	Jöreskog's rho (ρ_c)	Cronbach's alpha(α)
CS	0.760	0.760	0.760
BI	0.876	0.923	0.876
NV	0.759	0.861	0.758
PRV	0.800	0.879	0.793
EV	0.861	0.904	0.858
SV	0.761	0.862	0.760
PS	0.686	0.864	0.686
PV	0.821	0.891	0.817

Construct validity

Statistically, when using PLSc (Dijkstra & Henseler, 2015) convergent validity as well as discriminant validity should be established.

Convergent Validity

“Convergent validity is the degree to which multiple attempts to measure the same concept are in agreement. The idea is that two or more measures of the same thing should covary highly if they are valid measures of the concept” (Bagozzi, Yi, & Phillips, 1991:425). When the AVE value is above or matching the recommended value of 0.5 this is an indication that the items converge to measure the underlying construct and hence convergent validity is established (Fornell & Larcker, 1981). Convergent validity results based on the

AVE statistics in the current study show all constructs having an AVE greater than 0.50 hence convergent validity is established. Table 6 shows the AVE values for each of the constructs.

Table 6 *Construct Convergent Validity (AVE)*

Construct	Average variance extracted (AVE)
CS	0.613
BI	0.801
NV	0.674
PRV	0.709
EV	0.703
SV	0.676
PS	0.761
PV	0.733

To measure convergent validity, the Average Variance Extracted (AVE) was calculated for each construct. As noted by Fornell and Larcker, (1981) the denoted value should be higher than 0.50 as a sign of convergent validity. The factor loading calculated using Confirmatory Factor Analysis (CFA) estimates the effects of the indicators on the unobservable constructs of Customer Perceived Value. The standardised estimates enable comparisons of indicators and by squaring the standardised factor loadings, analysis of calculated variance is done to ascertain the acceptability of indicators. An

Table 7 *Discriminant Validity Fornell and Larcker Criterion*

Construct	CS	BI	NV	PRV	EV	SV	PS	PV
CS	0.613							
BI	0.030	0.801						
NV	0.012	0.350	0.674					
PRV	0.174	0.294	0.226	0.709				
EV	0.018	0.343	0.287	0.218	0.703			
SV	0.055	0.124	0.103	0.088	0.116	0.676		
PS	0.141	0.016	0.044	0.052	0.008	0.011	0.761	
PV	0.060	0.175	0.145	0.244	0.051	0.047	0.019	0.733

Note: Squared correlations; AVE in the diagonal.

Heterotrait-Monotrait Ratio of Correlations (HTMT)

Heterotrait-Monotrait Ratio of Correlations (HTMT) is based on the estimation of the correlations between constructs. Discriminant validity is established based on the HTMT ratio. There has been some debate in the various

indicator denoted by factor loading greater than 0.7 or $R^2 (0.70)^2 = 0.50$ at least explains 50% variance in the indicator (Collier, 2020).

Discriminant validity

Discriminant validity measures the divergence of the research constructs and this is obtained by squaring the correlation coefficients of the composite variables and then comparing this figure with the Average Variance Extracted (AVE)(Collier, 2020,p.83).

A correlation coefficient enables the process of differentiating the results obtained from the construct being measured and the other constructs we would not expect them to correlate with, in the process of analysing convergent and discriminant validity. The research analysis should endeavour to demonstrate sufficient results of convergent validity and discriminant validity (Campbell & Fiske, 1959).

Fornell and Larcker Criterion

Discriminant validity condition is recognised when the square root of AVE for a construct is above its correlation with the other constructs in the study (Fornell & Larcker,1981). As shown in Table 7, the square root numbers of all constructs in this study are greater than the correlations of the constructs.

studies in terms of the threshold values and some authors suggested a threshold of 0.85 (Voorhees, Brady, Calantone, & Ramirez, 2016). There are other flexible cut off values such as 0.90 or less (Henseler, Ringle, & Sarstedt, 2015). The HTMT results in Table 8 show that the HTMT ratio is less than 0.85 the required threshold.

Table 8 *Discriminant Validity Heterotrait-Monotrait Ratio of Correlations (HTMT)*

Construct	CS	BI	NV	PRV	EV	SV	PS	PV
CS								
BI	0.186							
NV	0.131	0.726						
PRV	0.466	0.650	0.613					
EV	0.148	0.675	0.663	0.565				
SV	0.267	0.434	0.426	0.388	0.427			
PS	0.453	0.164	0.294	0.307	0.117	0.145		
PV	0.270	0.492	0.485	0.611	0.272	0.274	0.184	

Table 9 *Measurement model Confirmatory factor analysis (CFA) for six first-order latent factors and two second order latent factors and reliability analysis*

Constructs	Indicator	Standardised Factor loading	Cronbach's alpha	CR Jöreskog's rho (pc)	AVE
Customer satisfaction Adapted from (Fornell et al., 1996)	CS2 (Using mobile services has met with my expectations)	0.783	0.76	0.76	0.613
	CS3 (My decision to use mobile services was a wise one)	0.783			
Novelty value Adapted from (Sheth et al., 1991)	NV1 (The service satisfies my needs)	0.843	0.876	0.923	0.674
	NV2 (The products and services provides a unique experience)	0.823			
	NV3 (Self-service applications provide an authentic experience)	0.796			
Procedural value Adapted from Arnderson and Narus (1998)	PRV1(The service offered is reliable)	0.81	0.793	0.879	0.709
	PRV2(Service delivery does not have any delays)	0.908			
	PRV3(The service provided is error-free)	0.805			
Emotional value Adapted from (Carlos Fandos Roig et al., 2006)	EV1 It is very pleasant when using this network service provider)	0.857	0.858	0.904	0.703
	EV2(The service makes me feel good	0.89			
	EV3(This is the one I enjoy most in	0.79			

	terms of what I experience)				
	EV4(The service provider makes me anxious)	0.813			
Social value Adapted from (Sánchez-Fernández et al., 2009)	SV1 (Improves my image)	0.828	0.76	0.862	0.676
	SV2 (Makes good impression)	0.845			
	SV3 (Gives me social approval)	0.793			
Perceived Sacrifice Adapted from (Sweeney & Soutar, 2001). (Gounaris et al., 2007)	PS2 (The service provider has reasonable prices)	0.872	0.686	0.864	0.761
	PS3 (The services have some economical use to me)	0.872			
Product value (Adapted from (Sweeney & Soutar, 2001). (Sheth et al., 1991)	PV1 (The product on offer is very reliable)	0.883	0.817	0.891	0.733
	PV2 (The product has good quality)	0.88			
	PV3 (The products are safe to use)	0.803			
Behavioural Intention Adapted from (Zeithaml et al., 1990)	BI1(I would say positive things about my service provider)	0.901	0.876	0.923	0.801
	BI2(I would say positive things about my service provider)	0.896			
	BI3(I feel that I can spend more with the company)	0.888			

Note: Composite Reliability (CR); Average Variance Extracted (AVE)

Validating Higher-Order Construct

The validation of higher-order constructs commences at the level of the measurement model assessment. The higher-order construct was also tested for discriminant validity as recommended (Sarstedt, Hair, Cheah, Becker, & Ringle, 2019:199).

The results for reliability and validity of the higher-order constructs show that both reliability and validity was established (Table 10). The reliability and convergent validity for all constructs were established as the value for reliability are greater than 0.70 and the AVE is greater than 0.50. The results of the Fornell and Larcker (1981) criterion show that the square root of AVE is higher than the correlations of the

constructs. Table 11 shows the squared loadings of the items associated with the constructs.

Discriminant which is important to show that different constructs capture different concepts and this is evaluated based on the Heterotrait-Monotrait ratio of correlations (HTMT) (Henseler et al., 2015) and the statistics depicted in Table 12 are lower than the recommended threshold.

Table 10 *Higher order construct reliability and convergent validity*

Construct	Dijkstra-Henseler's rho (ρ_A)	Jöreskog's rho (ρ_c)	Cronbach's alpha(α)
CS	0.767	0.763	0.760
BI	0.923	0.921	0.876

CPV	0.738	0.789	0.728	CPV	0.4991	0.8583
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Table 11 *Discriminant Validity Fornell and Larcker (1981) Criterion*

Construct	CS	BI	CPV
CS	0.617		
BI	0.034	0.796	
CPV	0.301	0.350	0.389

Squared correlations; AVE in the diagonal.

Table 12 *Discriminant Validity Heterotrait-Monotrait Ratio of Correlations (HTMT) Higher -order construct*

Construct	CS	BI	CPV
CS			
BI	0.1864		

Table 13 *Path coefficients (Repeated indicator Approach)*

Total Effects Inference

Effect	Original coefficient	Standard bootstrap results					
		Mean value	Standard error	t-value	Cohen's f ²	p-value (2-sided)	p-value (1-sided)
H8: CS -> BI	0.185	0.193	0.058	3.177	0.0353	0.002	0.001
H7: CPV -> CS	0.345	0.345	0.057	6.074	0.1349	0.000	0.000
CPV -> BI	0.064	0.068	0.027	2.371		0.018	0.009
H1: CPV -> NV	0.780	0.781	0.028	27.847	1.5507	0.000	0.000
H2: CPV -> PRV	0.791	0.792	0.027	29.009	1.6692	0.000	0.000
H3: CPV -> EV	0.764	0.765	0.044	17.309	1.4005	0.000	0.000
H4: CPV -> SV	0.570	0.568	0.052	11.002	0.481	0.000	0.000
H5: CPV -> PS	0.361	0.363	0.086	4.208	0.1495	0.000	0.000
H6: CPV -> PV	0.628	0.624	0.056	11.314	0.6519	0.000	0.000

Table 14 *Path coefficients (Second order composite model Approach)*

Standard bootstrap results								
Effect	Original coefficient	Mean value	Standard error	t-value	Cohen's f ²	p-value (2-sided)	p-value (1-sided)	
H8:CS -> BI	0.185	0.194	0.058	3.167	0.0355	0.002	0.001	supported
H7: CPV -> CS	0.549	0.557	0.043	12.841	0.4309	0.000	0.000	supported

Table 15 *Coefficient of determination*

Construct	Coefficient of determination (R ²)	Adjusted R ²
CS	0.3012	0.2990
BI	0.0343	0.0313

Note: Path coefficients (Repeated indicator method)

The Mediation Analysis

Customer satisfaction (CS) mediates the relationship between Customer perceived Value

(CPV) and Behavioural Intention. Mediation analysis to validate the mediating role of Customer Satisfaction (CS) was carried out and the results are shown in Table 12. The total influence of Customer Perceived Value (CPV) on Customer satisfaction (CS) was significant ($\beta=0.185$, $p<0.001$) with a t-value of 3.167. Customer satisfaction exhibits medium influence on Behavioural intention (BI) as shown by ($\beta=0.549$, $p<0.001$) with a t-value of 12.841) with an effect size of 0.430 which falls within the $0.15 \leq f^2 < 0.35$ moderate threshold (Benitez et al., 2020)

Structural model results

Eight of the hypothesized associations are supported by the findings. The results show that the path coefficients indicate a positive association between the customer perceived value constructs (product, novelty, procedural, emotional and social dimensions) and the dependent variables comprising of customer satisfaction and behavioural intention.

The results of the structural model show how Customer Perceived Value (CPV), the second-order factor affects customer satisfaction and behavioural intention, the dependent variables utilizing the first-order constructs as reflective indicators in the second-order construct. All the hypothesized relationships in the proposed model were analysed and eight were statistically significant.

The standardized path coefficients for the hypothesized model findings show that novelty value significantly predict customer perceived value as denoted by ($\beta=0.780$, $p=0.001$) and hypothesis (H1) is supported. H2 notes that procedural value has a positive influence on the perceived value of customers with a path coefficient of ($\beta=0.791$, $p<0.001$) which is significant and hence the hypothesis is supported. H3 results are that emotional value has a positive influence on the perceived value of customers and this is statistically significant ($\beta=0.764$, $p<0.001$).

H4 test indicates that social value has a positive influence on customer perceived value and it was also noted to be statistically significant ($\beta=0.570$, $p<0.001$). H5 indicate that perceived sacrifice has a positive effect on the perceived value of customers with a path coefficient of ($\beta=0.361$, $p<0.001$) and hence supporting the hypothesis.

H6 test indicates that product value has a positive influence on customer perceived value as depicted by a statistically significant path coefficient ($\beta=0.628$, $p<0.001$).

H7 indicates that customer perceived value dimensions have a positive relationship with customer satisfaction and the path is denoted by ($\beta=0.345$, $p<0.001$) with a t-value of 6.074. The results are supported by (Floh et al., 2014; Gill et al., 2007) with varying contributions from the dimensions. H8 results indicate that customer satisfaction has an effect and behavioural intention ($\beta=0.185$ with a t-value of 3.177) and the hypothesis is accepted.

The overall predictive capacity of the research is assessed through the coefficient of determination (R^2) and this denotes the percentage of variation of the dependent variable determined by the independent constructs. The six independent constructs of customer perceived value explained 30.12% of the total variance in customer satisfaction and behavioural intention only denoted 3.43% variation as explained by customer satisfaction. The six customer perceived value variables have significant positive relationship relationships with customer satisfaction and behavioural intention.

DISCUSSION AND CONCLUSION

The foremost determination of this study is to extend the debate which seeks to clarify the conceptual character of the customer perceived value construct given the various modelling approaches such as formative or reflective. This research adopted the model concept where the first-order latent factors have reflective indicators and in turn, these first-order factors affect a second-order construct as reflective indicators (Anderson & Gerbing, 1988; Jarvis et al., 2003; Koufteros et al., 2009). Several studies did focusing on customer perceived value as a second-order construct has noted challenges in data analysis (Carlson, Rosenberger, & Rahman, 2015; Rintamäki & Kirves, 2017) and several options in terms of how the second-order construct may be treated have also been proffered (Benitez et al., 2020; Koufteros et al., 2009).

Based on a sample of (N=400) University students, the study examined the influence of

customer perceived value constructs on customer satisfaction and behavioural intention. The conclusions of the study indicate that the constructs have an effect on the outcome variables with credible effect emanating from novelty value (Carlson et al., 2016), emotional value (Pura, 2005) and procedural value (Gounaris et al., 2007).

Theoretical implication

The overall effect of customer perceived value dimensions on customer's behavioural intention is in line with previous findings supporting the notion that multiple dimensions affect customers depending on the purchase situation (Flohr et al., 2014). There is additional value in designating customer perceived value as a composite variable comprising of multidimensional constructs such as perceived sacrifice, product value, novelty value, procedural value, emotional value and social value which may independently or collectively influence customer satisfaction and customer behaviour depending on the purchase situation (Zauner et al., 2015). Model parsimony is essential in research, hence model retention is recommended and the model may provide an opportunity for further research.

LIMITATIONS AND FUTURE RESEARCH

The study provides some contributions to the subject customer perceived value, however, the generalisability of the findings are noted as several challenges to obtain results from multiple samples which is important in terms of cross-validation of results was not achieved (Browne & Cudeck, 1989). The research study has also some limitations emanating from data collection constraints, as the data was collected from a small geographical area, hence the need to use online methods to collect data or larger samples.

The second limitation of the study concerns the measures of customer perceived value in terms of model adoption looking at higher-order constructs. Further research on the causal influence of customer perceived value dimensions on behavioural intention, in line with theory, should be examined. The variability of services provides a basis to test these proposed hypotheses in different settings

by other researchers. Further studies should be done focusing on the various segments in the mobile communications industry as well as other industries noting the higher-order multidimensional conceptualization of customer perceived value with either reflective or formative latent constructs.

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