Brand fidelity: Scale development and validation

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A B S T R A C T

The goal of this research is to develop and validate a multi-dimensional scale measure of *brand fidelity*. This paper reports the rigorous process of scale development, through two separate studies involving 592 US consumers. Study 1 involves scale item generation, content validation and scale purification, while Study 2 involves a two-wave data collection method, evaluating the refined brand fidelity scale within a nomological network of relationships. The results demonstrate the 20-item brand fidelity scale to have strong construct validity as a first-order reflective, second-order formative scale. The findings suggest that if consumers engage in the behaviours/cognitions (as defined within the brand fidelity scale), then consumer/brand relationships are likely to be stable and predictable; are likely to endure the ravages of time; and, importantly, are likely to remain monogamous. For practitioners, the overall brand fidelity score can be used to track brand performance over time and for industry benchmarking purposes. Additionally, the measured brand fidelity dimensions provide specific direction upon which remedial marketing action can be implemented.

1. Introduction

Well established in the literature is the notion that building strong and sustainable consumer/brand relationships is the cornerstone to contemporary marketing success. In fact, understanding how consumers respond to brands has dominated the marketing literature for decades. Early research was more product-focussed and centred around the understanding and measurement of customer satisfaction and perceived product performance (Anderson, 1973; Day, 1977), thus, providing insight into consumer response variables, through cognitive paradigms. The evolution of brand research, in the 80s and 90s, resulted in the focus turning to long-term consumer response variables, such as brand involvement (Beatty et al., 1988), brand loyalty (Amine, 1998), brand commitment (Morgan and Hunt, 1994) and, more recently, brand love (Albert and Merunka, 2013; Carroll and Ahuvia, 2006), underpinned by psychological and interpersonal theory. On this basis, Fournier and Yao (1997) were the first to proffer brands as 'relationship partners', with the view to understanding the dynamics of establishing stable and durable consumer/brand relationships.

While it is important to have a thorough understanding of the complexities of consumer/brand relationships, the meaningful measurement of such relationships is paramount for brand practitioners to strategize effectively. However, the current literature does not offer clarity in this respect. Problems associated with the interchangeability of construct terms and definitions, the blurring of construct dimensional specifications (e.g. Rossiter, 2012 vs Batra et al., 2012), and the inconsistencies of nomological positioning (e.g. Albert and Merunka, 2013 vs Loureiro et al., 2012) plague the literature. In addition, the validity of data is highly dependent on the subjects' (i.e. consumers) ability to self-report on psychological constructs that often have different meanings for different people (Gross and John, 1997). In an attempt to address these challenges, Grace et al. (2018) propose a focus on consumer/brand relationship maintenance behaviours as the potential key to effective measurement, over and above self-reported desires and emotions (e.g. brand commitment, brand love). It is on this basis, they coined the term "brand fidelity", specified as a multi-dimensional cognitive and behavioural framework, which assists in understanding what consumers *do* when they are highly committed or in love with the brand (Grace et al., 2018). Empirically, we draw on this conceptual framework to guide the development and validation of a scale to measure brand fidelity.

Specifically, this paper reports the findings of two separate studies that empirically establish construct validity in relation to the definitional boundaries, dimensionality and nomological positioning of the brand fidelity construct. Through the process of scale development and validation, the brand fidelity construct is re-defined as *the consumer's faithfulness to a brand partner manifested through various behaviours (i.e. accommodation/forgiveness – performance and price) and cognitions (i.e.*

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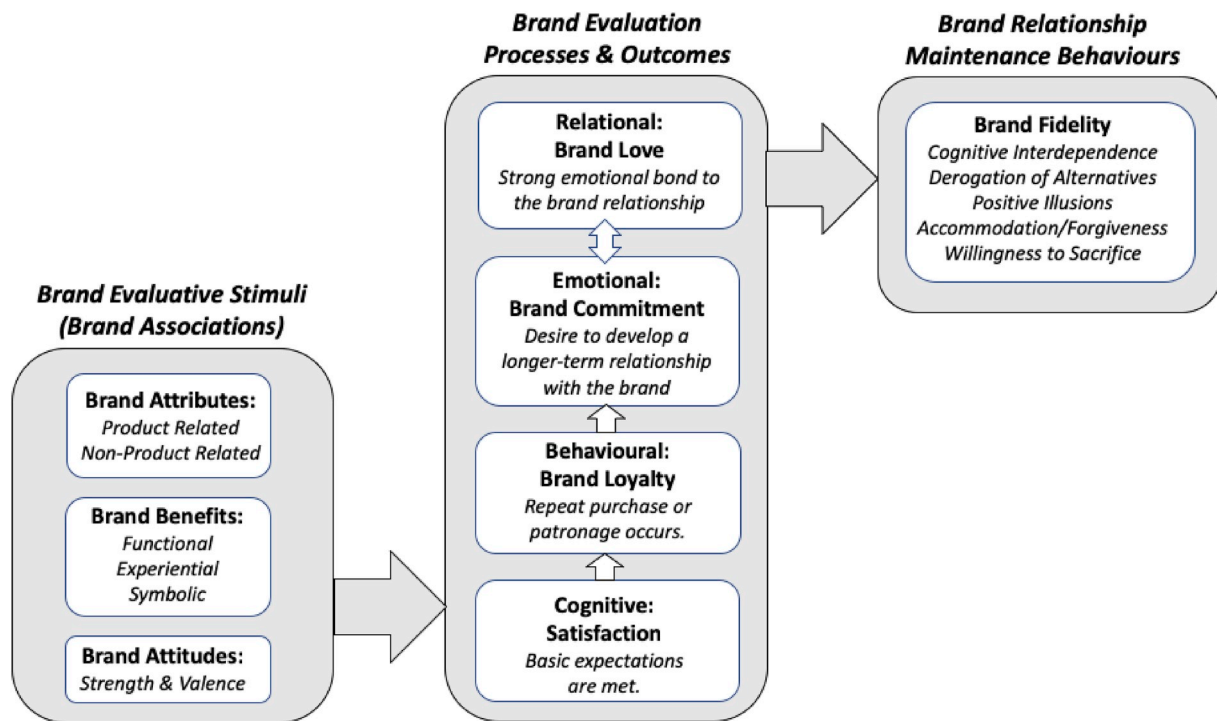
Fig. 1. Brand stimuli, evaluation and relational development & maintenance.

derogation of alternatives and cognitive interdependence) that maintain relationship stability and durability. Importantly, the brand fidelity scale provides opportunity to significantly enhance how we view and effectively measure consumer/brand relationships. Furthermore, we believe the brand fidelity scale demonstrates significant diagnostic potential, which will be of particular value to practitioners in the future and provide significant opportunity for research advancement in this important area.

2. Literature review

Given the complex nature of brands, as perceived by consumers, there has been a significant body of research focussed on consumer evaluations and behaviours in relation to brands (e.g. Bagozzi et al., 2017; Batra et al., 2012; Brick and Fitzsimons, 2017; Carroll and Ahuvia, 2006; Jacoby and Chestnut, 1978). While an in-depth review of this vast body of literature is beyond the scope of this paper, it is important to provide clarity as to the positioning of the brand fidelity construct within this body of work, as graphically depicted in Fig. 1. To begin, brand associations, centred around brand attributes (product related and non-product related), brand benefits (functional, experiential and symbolic) and brand attitudes, lay the foundation upon which consumer/brand realities are constructed (Gladden and Funk, 2001; Keller, 1993; Supphellen, 2000) and, thus, provide the stimuli upon which brand evaluation occurs. Consumer brand evaluation occurs at various levels over time with satisfaction (cognitive evaluation) fundamentally foreshadowing more complex behavioural, emotional and relational brand evaluation processes and outcomes (Oliver, 1980; Russell-Bennett et al., 2007). Brand loyalty, kicks starts these processes through repeated consumer experiences with brand touchpoints as a result of on-going purchase/patronage (Jacoby and Chestnut, 1978; Popp and Woratschek, 2017; Reichheld and Teal, 1996). In the event that on-going consumer brand experiences remain positive, the consumer's emotional connection to the brand (i.e. brand commitment, passionate brand love) drives their desire to develop and strengthen a relationship with the brand in the longer-term (Bagozzi et al., 2017; Batra et al., 2012; Carroll and Ahuvia, 2006). Ideally, a consumer's

emotional bond with the brand begins to transcend that of the brand, *per se*, to their proactive maintenance of the *relationship* they have developed with the brand (companionate brand love) (Hatfield et al., 1984; Rusbult et al., 2012). Thus, the notion of consumer/brand relationship maintenance and its underlying cognitive and behavioural dimensions has attracted recent interest in the literature.

2.1. Consumer/brand relationship maintenance

Largely, the work of Fournier (1998) and Rusbult et al. (2012) is fundamental to understanding potential cognitive and behavioural manifestations of brand commitment and love. Although contextually quite different, Fournier's (1998) work in the brand relationship quality arena and Rusbult et. al.'s (2012) work on romantic commitment processes share considerable common ground. For example, they both agree that heavily committed individuals act in more accommodating ways, make sacrifices, show tolerance and forgiveness, reject alternative partners and are often biased in their perceptions of the relationship. In addition, Rusbult et al. (2012) argues that individuals, who are romantically committed, are also cognitively interdependent in that they have a collective mental representation of the self-in-relationship (Agnew et al., 1998). Thus, in summary, we can say that relationship maintenance centres around the protective actions and internalisation of the brand by highly committed consumers (i.e. brand lovers). For example, in the event of diminished brand performance, consumers' forgiveness/accommodation (Fournier, 1998; Rusbult et al., 2001) and willingness to sacrifice (Rusbult et al., 2012; Xie and Peng, 2009) represent protective actions in order to maintain the relationship. In such circumstances of below-par brand performance, highly committed consumers, first and foremost, choose to "forgive" and act accordingly in a positive, constructive manner, as opposed to engaging in vengeful retaliation towards the brand (Finkel et al., 2002). Such actions may well be in direct opposition to self-interest which signals the consumer's willingness to make sacrifices for the good of the relationship (Albert and Merunka, 2013). As a consequence of brand love (Hegner et al., 2017), forgiveness essentially underpins positive consumer/brand maintenance behaviours (i.e. accommodation and
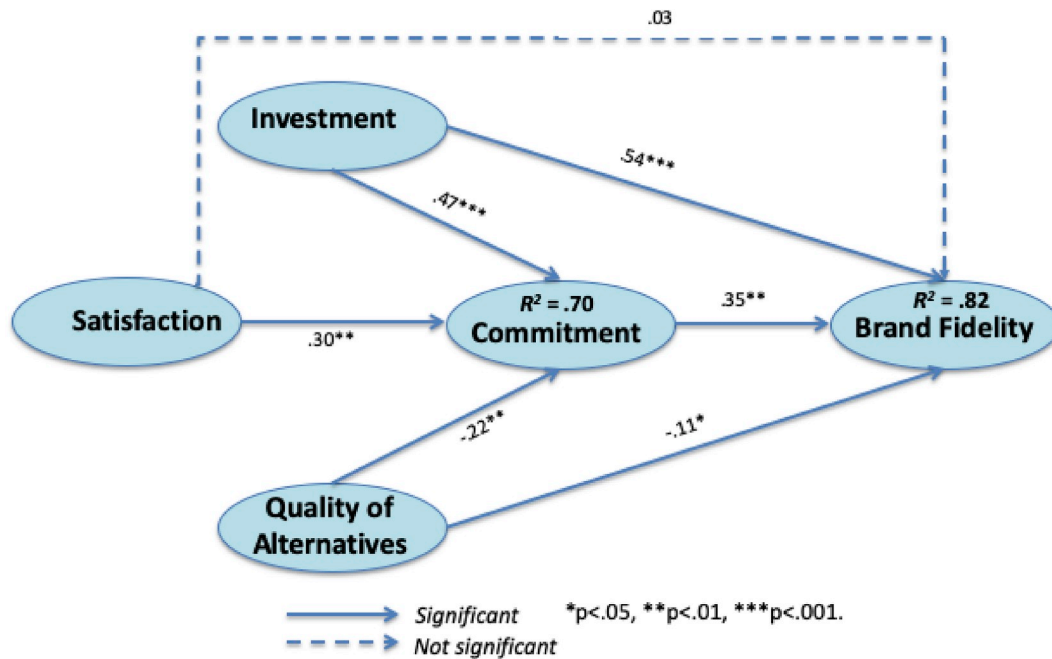
Fig. 2. Examining Brand Fidelity within the Investment of commitment Processes Model.

willingness to sacrifice).

Additionally, for the highly committed consumer, the internalisation of the brand manifests through language characterised by ownership (Kachersky and Palermo, 2013). For example, reference to "my brand" implies "a representation of the self-in-brand relationship and, as such, represents a cognitive manifestation of interdependence (associated with the brand)" (Grace et al., 2018, p. 584). When cognitive interdependence occurs, any opposition to the brand (i.e. competition, negative impressions) is internally felt by the consumer. In an attempt to diffuse cognitive dissonance (i.e. second-guessing their relationship with the brand), highly committed consumers cognitively downplay the attractiveness of alternative brands (e.g. the derogation effect) and, in some cases, idealise the relationship in a manner that may not, necessarily, reflect reality (Rusbult et al., 2001) but which captures a sense of conviction/security through the manifestation of positive illusions (Murray and Holmes, 1997).

The purpose of Fig. 1 is to provide clarity as to the positioning of consumer/brand relationship maintenance behaviours, labelled by Grace et al. (2018) as brand fidelity, within the processes of consumer evaluation. In doing so, we have outlined what brand fidelity is, and what it is not, thus, appropriately specifying the domain of interest (Churchill, 1979). Brand fidelity does not represent emotions (i.e. brand love) or desires (i.e. brand commitment) but rather the *cognitions and actions* of "brand lovers" who are highly committed to the relationship that they have with the brand (refer Fig. 1).

2.2. Brand fidelity

Overall, Grace et al. (2018, Fig. 2) define brand fidelity as "*the consumer's faithfulness to a brand partner demonstrated by an aggregate of behaviours (i.e. accommodation/forgiveness, willingness to sacrifice) and cognitions (i.e. derogation of alternatives, cognitive interdependence and positive illusions) that maintain relationship stability and durability*". As this definition implies, the underlying dimensions fall under two categories i.e. behaviours and cognitions. In terms of brand fidelity behaviours, Grace et al. (2018, Fig. 2) define the following two dimensions:

- *Accommodation/forgiveness* refers to the degree to which an individual is forgiving of and provides support to a brand partner in

times of price/performance variations;
- *Willingness to sacrifice* refers to the degree to which an individual is willing to make sacrifices to continue their relationship with the brand partner.

In relation to the cognitive manifestations of brand fidelity, Grace et al. (2018, Fig. 2) offer the following definitions of the three remaining dimensions:

- *Cognitive interdependence* refers to the degree to which an individual feels "at one" with the brand partner and takes personal ownership of the brand;
- *Derogation of alternatives* refers to the degree to which an individual focuses on the strengths of the brand partner and the weaknesses of its competitors;
- *Positive illusions* refer to the degree to which an individual has positive illusions of the brand partner, which may (or may not) reflect reality.

Not only do the above definitions provide the basis for the development of scale measures, the definitional *structure* of brand fidelity also informs the ensuing model specification.

2.2.1. Model specification

In accordance with the above definition of brand fidelity proffered by Grace et al. (2018), brand fidelity is a multidimensional construct (i.e. five dimensions) and, therefore, the nature of the relationships between the construct and its dimensions must be determined (Polites et al., 2012). As misspecification of measurement models increases the potential for biased estimates of structural parameters (Podsakoff et al., 2003), distinguishing between formative and reflective measurement models represents a vital preliminary step in the scale development process (MacKenzie et al., 2011).[1] As evidenced by the definition of

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[1] Moreover, Bollen and Bauldry (2011) argue that, in order to avoid confusion altogether, there are three types of measurement models; those with causal indicators (i.e. reflective), composite indicators (i.e. formative) and covariates. They propose that, in some cases, important covariates should be modeled as indicators in measurement models, as opposed to being modeled as extraneous

brand fidelity, "the dimensions of the construct combine in some way to create the meaning of the construct"; specifically, "the construct can be expressed as some algebraic function of its dimensions" (Polites et al., 2012, p. 39). In other words, as the sub-dimensions (i.e., *accommodation/forgiveness, willingness to sacrifice, derogation of alternatives, cognitive interdependence* and *positive illusions*) are the defining characteristics of the brand fidelity construct, it is considered to be aggregate in form and its dimensions formative in nature (MacKenzie et al., 2011; Polites et al., 2012). This does not imply that the dimensions are unrelated. In fact, formative indicator inter-correlations can take any form (e.g. no correlation to high correlation), provided they exhibit the same directional relationship (Coltman et al., 2008). In the case of brand fidelity, we do expect the dimensions to correlate to some extent. We further specify that the formative dimensions outlined in the definition (i.e., *accommodation/forgiveness, willingness to sacrifice, derogation of alternatives, cognitive interdependence* and *positive illusions*) are latent constructs, i.e. unobserved abstractions that are inferred from observable indicators. Specifically, we argue that each formative dimension is unidimensional, which can be represented by a single set of reflective indicators (Polites et al., 2012). Therefore, we propose brand fidelity to be best captured by a reflective first-order, formative second-order measurement model; in line with that described by Diamantopoulos et al. (2008), as a Type II model.

3. Method and results

The vital first steps of scale development, i.e. conceptual definition of construct, dimensionality of construct, relationship between the dimensions, and specification of the measurement model (Clark and Watson, 1995), have all been clearly explicated in previous sections. Given the nature of the brand fidelity construct (i.e. reflective first-order, formative second-order measurement model), scale development begins from the ground up, in that the first task is to develop an item pool of reflective indicators that tap each of the formative dimensions respectively.

3.1. Item generation and content validation

In order to generate items that effectively represent each of the brand fidelity dimensions (i.e., accommodation/forgiveness, willingness to sacrifice, derogation of alternatives, cognitive interdependence and positive illusions), we used a variety of sources, e.g., review of the relevant marketing and psychology literatures; author(s) deduction from the theoretical definition of brand fidelity and recommendations from experts in the field (Haynes et al., 1995; MacKenzie et al., 2011). The result of this process was that a total of 57 reflective items were generated, as potential representations of the underlying brand fidelity factors.

Importantly, the next step is to assess the content validity of the generated items (MacKenzie et al., 2011; Polites et al., 2012). This step involves assessing both the representativeness (i.e. do the items represent different aspects of the constructs?) and the totality of the item sets (i.e. do the set of items collectively represent the entire construct?) (MacKenzie et al., 2011; Straub et al., 2004). In order to do this we surveyed eight experts in the field of marketing-related measurement who were (1) provided with individual definitions of the brand fidelity sub-dimensions (2) asked to rate each item in terms of its representativeness of the respective definition (3) asked to rate each set of items in terms of the entirety of coverage of the individual dimensions and (4) asked for overall comment in relation to item improvement (Haynes

et al., 1995; Stone et al., 1995). In terms of representativeness of the construct definition (i.e. brand fidelity dimension), experts were asked to rate each item on a 5-pt Likert scale ranging from (1) not at all representative, (2) minimally representative (3) moderately representative (4) very representative and (5) completely representative. In terms of item coverage of the construct (i.e. brand fidelity dimension), experts were asked to rate each *set* of items as (1) not at all representative, (2) minimally representative (3) moderately representative (4) very representative and (5) completely representative. In order to analyse the responses, the CVI[2] (e.g., Davis, 1992; Rubio et al., 2003) for each item (in the first instance) and each set of items (in the second instance) was computed. Items with CVIs less than 0.80 (Davis, 1992) were considered for removal, or modification, depending on any respective qualitative comments. This process resulted in 15 items being deleted and the wording of 6 items was modified. As a result of this item generation process, the final 42 items were deemed to have face validity and were, thus, subjected to further assessment.

3.2. Scale purification and refinement (study 1)

Having developed the item pool, it is important to conduct a pre-test of a sample of the population in order to examine the psychometric properties of the proposed scale and conduct preliminary construct validity testing (MacKenzie et al., 2011). Thus, a survey (i.e. Study 1) included the 42 items developed to measure the underlying dimensions of brand fidelity, along with existing measures of conceptually-similar constructs i.e. 4 items measuring brand commitment (Chaudhuri and Holbrook, 2002); 6 items measuring brand identification (Nam et al., 2011) and 4 items measuring brand commitment (Wang, 2002),[3] was developed. All scale items were measured via 6-point Likert scales (ranging from 1 = strongly disagree to 6 = strongly agree or 1 = highly unlikely to 6 = highly likely). At this point, it is also important to consider the methodological steps that can circumvent bias in the resultant data (MacKenzie et al., 2011). On this basis, we included an instructional manipulation check (from Oppenheimer et al., 2009), in order to increase the statistical power and validity of the data set. Finally, demographic information, such as gender, age, and education, was gathered.

An online survey was administered to a convenience sample of US consumers via Amazon's Mechanical Turk (MTurk). MTurk attracts samples which "are slightly more demographically diverse than are standard Internet samples and are significantly more diverse than typical American college samples" (Buhrmester et al., 2011, p. 3), producing data that is as reliable as data collected via traditional methods. As all questions needed to be answered with a reference brand in mind (i.e. brand stimuli), fifteen well-known brands were chosen from *Interbrand's Best Global* Brands 2013 list (e.g. Apple, Ford, Samsung, Amazon, Panasonic, Colgate, Nestle, Smirnoff, Nike, Adidas, Gap, Dell, Pizza Hut, Kleenex and KFC).[4] Instructions at the beginning of the

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[2] CVI refers to the content validity index and, in this case, was calculated as the proportion of experts who rated (1) the item and (2) the set of items as 3, 4 or 5 i.e. moderately – completely representative.

[3] As brand fidelity is conceptualized in close proximity to brand commitment, we included two <u>different</u> brand commitment scales were included in the survey. While both scales had one common item i.e. "I am committed to the brand" the remaining items in each scale measured different aspects of brand commitment. For example, Wang's (2002) measure of commitment focused on emotional attachment (e.g. pride, strong attachment, loyalty), whereas Chaudhuri and Holbrook's (2002) measure focused on behavioural intentions (e.g. buy next time, keep purchasing, willing to pay higher price). In addition, brand identification was measured given that, conceptually, it is closely related to one or the brand fidelity dimensions i.e. cognitive interdependence.

[4] While brand stimuli were necessary in order for respondents to answer the survey questions, the brands were irrelevant in the analyses, which were conducted purely to establish the psychometric properties of the BF scale.

(*footnote continued*)
variables that affect latent constructs. However, there was no substantive reason to believe that a covariate should be included in the measurement model for brand fidelity.

survey asked respondents to select one of the 15 brands (with which they were familiar) and the survey software was programmed to insert the selected brand name automatically into the survey questions. The number of complete responses received was 360. Data screening resulted in 15 responses being deleted (i.e. failing the instructional manipulation check), thus, the final sample comprised of 345 US consumers, which is an appropriate sample size for preliminary scale testing (Comrey and Lee, 1992; MacKenzie et al., 2011). Respondents had a mean age of 34.5 years and exhibited an even gender split of 51% male and 49% female. Seven per cent of respondents had a Masters' degree or higher, 49% had a 2 or 4 year college degree, 26% had some college education, 16% had some high school education and 2% did not go to high school at all.

3.2.1. Dimension identification and data reduction

In order to establish the dimensionality of the data, using SPSS, all items were subjected to principle components factor analysis (with oblique rotation)[5] and factors were allowed to freely emerge. Items with factor loadings less than 0.50 (Hair et al., 2017) and cross-loadings greater than 0.40 were systematically removed which resulted in a clear 4-factor structure emerging. The worst performing items were those associated with positive illusions (POSILL) and willingness to sacrifice (WILSAC). Items measuring POSILL either had significant cross loadings or loaded with the derogation of alternatives items (DERALT), while WILSAC either had significant cross-loadings or were highly correlated (i.e. > 0.89) with the accommodation/forgiveness items (ACCOM). In addition to this pattern, the accommodation/forgiveness (ACCOM) items loaded onto two separate factors; those items relating to performance variations and those relating to price variations.

As a result of data reduction and dimension identification, 20 items, measuring four clear factors, represented the final solution. The factors were labelled as (1) accommodation/forgiveness (performance) ACCPERF, consisting of 4 items; (2) accommodation/forgiveness (price) ACCPRICE, consisting of 4 items; (3) cognitive interdependence (COGINT) consisting of 6 items; and (4) derogation of alternatives (DERALT), consisting of 6 items. As the data did not fall exactly as proposed (i.e. five factors) (refer discussion in the latter stages of this paper), it was necessary to revisit the definition of brand fidelity in order to ensure content validity. Recall that, with formative variables, the indicators are the defining characteristics of the measure. On this basis, brand fidelity was re-defined as *a measure of the consumer's faithfulness to a brand partner demonstrated by an aggregate of behaviours (i.e. accommodation/forgiveness – performance and price) and cognitions (i.e. derogation of alternatives and cognitive interdependence) that maintain relationship stability and durability.*

A point of clarification is required at this point. This data reduction stage served to test the dimensionality of the reflective measures (i.e. validate the dimensions of brand fidelity). The result of this testing, highlighted the need to collapse some dimensions into one (e.g. positive illusions and willingness to sacrifice into derogation of alternatives and accommodation/forgiveness) and divide some dimensions into two (i.e. accommodation/forgiveness into price-related and performance-related). Therefore, the factor analysis results indicate that empirical dimensionality (i.e. the actual number of dimensions present in the data) was different to conceptual dimensionality (the number of dimensions in a theoretical definition) (Bollen and Diamantopoulos, 2015). Recall that Grace et al. (2018) developed the theoretical definition for brand fidelity based on a framework associated with romantic relationships (i.e. Rusbult, 1980). This may explain why empirical dimensionality, in the context of consumer/brand relationships, was different to the

dimensionality proposed in the theoretical definition. As a result, it was necessary to redefine brand fidelity *prior* to measurement model testing (i.e. first order and second order). As argued by Bollen and Diamantopoulos (2015), "both causal-formative and reflective (effect) indicators may not be valid and could lead to a change in the empirical meaning of the construct" (p. 7). At this point, *prior* to testing the second-order formative measurement model, the formative dimensions were re-defined (based on their empirical meaning) which, inevitably, altered the overall definition of brand fidelity somewhat. The final scale items and the associated definitions appear in Table 1.

3.3. Analytical approach to measurement model evaluation

Given the exploratory nature of this study, and in view of the characteristics of the brand fidelity measurement model, Partial Least Squares (PLS-SEM) was considered the most appropriate analytical evaluation tool (Diamantopoulos and Winklhofer, 2001). In particular, PLS is aligned with the goals of this research which are highly exploratory at this stage and involve explanation of a target construct's variance (Hair et al., 2012) and the identification of potential relationships, rather than the magnitude of well-established relationships (Goodhue et al., 2012). In fact, Taheri et al. (2018) advocate that PLS is "suitable for early-stage theory building with construct(s) yet to receive appropriate empirical attention" (p. 2763). Alternative SEM covariance-based approaches (CB-SEM) are more appropriate for theory testing or confirmation (e.g. LISREL, AMOS); therefore, they do not support the goals of the present study (Hair et al., 2017). More importantly, PLS-SEM accommodates both formative and reflective measures together (Merz et al., 2018; Navarro et al., 2011) which was a major consideration for this study given that brand fidelity is specified as a first-order reflective/second-order formative variable. Over and above the appropriateness of use of PLS to this study, it has also become a widely accepted analytical tool, used for complex modelling situations (Hair et al., 2013).

3.3.1. First-order measurement evaluation

Primarily, it is important to evaluate the individual correlation matrices for each of the reflective dimensions (i.e. ACCPERF, ACCPRIC, COGINT, DERALT) through the KMO and Bartlett's Test, with a high KMO statistic and significant probability for the Bartlett's Test being indicative that there are sufficient correlations for factor analysis to proceed (Hair et al., 1998). As shown in Table 2, all KMO statistics were high (ranging from 0.795 to 0.889) and all Bartlett's Tests were significant. In addition, all bivariate correlations fell within the acceptable range of 0.30–90 for factor analysis to occur and the anti-image measures of sampling adequacy (MSA) were all well in excess of the required 0.50 (Refer Table 2).

SmartPLS 3.0 (Ringle et al., 2015) was used to evaluate the first-order reflective/second-order formative measurement model of brand fidelity. Table 3 reports the means and standard deviations of each item, along with first-order factor loadings, AVEs composite reliabilities, absolute skew and kurtosis results. Bootstrapping procedures[6] were used to examine the significance of the loadings and these are reported in Table 3, with significant loadings being demonstrated where $p < .05$ (5% significance level). The four first-order reflective factors exhibited convincing evidence of convergent validity with strong and significant factor loadings ($p < .05$), ranging from 0.77 to 0.92, AVEs well above 0.50 (Fornell and Larcker, 1981) and very strong composite reliabilities, ranging from 0.92 to 94 (Hair et al., 2017).

Before proceeding it was important to determine if the four components of brand fidelity were conceptually different. To do this, we

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[5] As previously discussed, the formative factors of brand fidelity were expected to correlate to some extent. As recommended by Tabachnick and Fidell (2007, p. 646), if the overlap is expected to be greater than 10%, then oblique rotation should be used.

[6] All bootstrapping procedures reported in this paper used subsamples of 5000, and the confidence interval method was bias-corrected and accelerated bootstrap (BCa).

Table 1
Definitions and measures of the brand fidelity scale.

BRAND FIDELITY refers to *the consumer's faithfulness to a brand partner demonstrated by an aggregate of behaviors (i.e. accommodation/forgiveness – performance and price) and cognitions (i.e. derogation of alternatives and cognitive interdependence) that maintain relationship stability and durability.*

FACTOR ONE
Accommodation/Forgiveness (Performance): The degree to which a consumer is forgiving of and provides support to a brand partner in times of performance variations.
ACCPERF1	If XXXX experienced some problems and the brand was temporarily not up to scratch, how likely is it that you would continue to use this brand?
ACCPERF2	If XXXX experienced some problems and the brand was temporarily not up to scratch, how likely is it that you would recommend this brand to others?
ACCPERF3	If XXXX experienced some problems and the brand was temporarily not up to scratch, how likely is it that you would support the brand when others were complaining about it?
ACCPERF4	If XXXX experienced some problems and the brand was temporarily not up to scratch, how likely is it that you would make excuses for the brand?

FACTOR TWO:
Accommodation/Forgiveness (Price): The degree to which a consumer is forgiving of and provides support to a brand partner in times of price variations.
ACCPRIC1	It doesn't bother me when XXXX increases its prices, as I will always use this brand anyway.
ACCPRIC2	Regardless of what price XXXX is, I will always strongly recommend this brand to others.
ACCPRIC3	When XXXX has had a price increase, it has been well justified.
ACCPRIC4	XXXX is still well worth the money even when its prices goes up.

FACTOR THREE:
Cognitive Interdependence: The degree to which a consumer feels "at one" with the brand partner and takes personal ownership of the brand
COGINT1	I refer to XXXX as "my" brand.
COGINT2	I feel I have a strong bond with XXXX.
COGINT3	I would be lost without XXXX.
COGINT4	XXXX says something about me.
COGINT5	XXXX is an important part of my life.
COGINT6	I would feel offended if someone said something bad about XXXX.

FACTOR FOUR:
Derogation of Alternatives: The degree to which a consumer focuses on the strengths of the brand partner and the weaknesses of its competitors.
DERALT1	There is really no other brand like XXXX.
DERALT2	If asked, I would be quick to point out how superior XXXX is to its competitors.
DERALT3	XXXX is one of a kind and, in my opinion, there is no competition.
DERALT4	It is impossible for another other brand to compete with XXXX.
DERALT5	XXXX is faultless.
DERALT6	I would be devastated if I could not buy XXXX anymore as nothing else will ever come near it.

Table 2
Evaluation of correlation matrices.

Dimension	KMO	Bartlett's Significance	Correlation Range	MSA Range
Accommodation (Performance)	.795	.000	.56–.78	.74–.87
Accommodation (Price)	.821	.000	.59–.72	.78–.86
Cognitive Interdependence	.880	.000	.56–.82	.84–.93
Derogation of Alternatives	.889	.000	.47–.80	.86–.92

used the more stringent heterotrait-monotrait (HTMT) method of discriminant validity testing; a method that is sensitive to discriminant validity violations through the examination of disattenuated correlations between constructs (Henseler et al., 2015). In particular, HTMT discriminant validity testing is recommended as it "offers the best balance between high detection and low arbitrary violation (i.e., false positive) rates" (Voorhees et al., 2016, p. 119). Discriminant validity violations are detected if the HTMT ratio is close to 1, with the most conservative criterion being HTMT$_{.85}$, (Kline, 2015), followed by HTMT$_{.90}$ (Gold et al., 2001). Furthermore, HTMT$_{inference}$ indicates discriminant validity problems if the 90 per cent bootstrap confidence interval of the HTMT criterion, with a Bonferroni adjustment, includes the value of one (Henseler et al., 2015). Table 4 presents the results of HTMT testing, which substantiate that there were no violations at the HTMT$_{.85}$, HTMT$_{.90}$ or HTMT$_{inference}$ criterion levels of assessment. On this basis, discriminant validity of the first-order factors (ACCPERF, ACCPRIC, COGINT and DERALT) was established. In summary, trait validity was established through reliability, convergent validity and discriminant validity testing (Peter, 1981).

3.3.2. Second-order measurement evaluation

As previously discussed, Partial Least Squares (PLS) is an appropriate method for evaluating formative variables (Hair et al., 2011). Recall that brand fidelity is a higher-order formative metric, measured by four lower-order reflective dimensions (i.e. ACCPERF, ACCPRIC, COGINT and DERALT). In order to effectively assess the formative

measures, the 3-step assessment procedure advocated by Hair et al. (2017) was followed. The first step involved the assessment of convergent validity via redundancy analysis. In order to run this test, we included 4 items measuring brand commitment (COMMIT1) (Chaudhuri and Holbrook, 2002); 6 items measuring brand identification (BRANDID) (Nam et al., 2011); and 4 items measuring brand commitment (COMMIT2) (Wang, 2002) in the survey. Specifically, the procedure involves using "the formatively measured construct as an exogenous latent variable predicting an endogenous latent variable operationalized through one or more reflective indicators" (Hair et al., 2017, p. 141). Path coefficients should range between 0.80 and 0.90 (Chin, 1998), translating to R^2 values ranging from 0.65 to 0.81. Results of three separate analyses show path weights to be 0.81 (COMMIT1), 0.83 (BRANDID) and 0.82 (COMMIT2), representing R^2 values of 0.66, 0.69 and 0.67 respectively. On this basis, convergent validity was established.

The second step involves the assessment of the formative measurement model for collinearity issues. Unlike reflective indicators where high correlations are expected, formative indicators need not necessarily correlate at all. As previously discussed, formative indicator inter-correlations can take be highly correlated, provided they exhibit the same directional relationship (Coltman et al., 2008). In our model, the formative factors do correlate (0.59–0.79), therefore it is important to evaluate whether collinearity, between the formative indicators, is evident. For example, variance inflation factor (VIF) values of 5 or higher would indicate high levels of collinearity between the formative

Table 3
First order reflective indicator characteristics (study 1 and study 2).

ITEM	STUDY 1 (n = 345)			STUDY 2 (n = 247)		
	Mean Std. Dev.	Loading	T-Value	Mean Std. Dev	Loading	T-Value
Accommodation/Performance (ACCPERF)						
ACCPERF1	3.59 1.25	.84	43.2	3.85 1.15	.79	24.7
ACCPERF2	3.33 1.28	.88	78.3	3.49 1.21	.89	61.7
ACCPERF3	3.26 1.22	.92	119.2	3.41 1.17	.91	70.7
ACCPERF4	2.90 1.22	.81	32.1	2.95 1.12	.82	25.5
	Average Variance Extracted	.76		Average Variance Extracted	.73	
	Composite Reliability	.93		Composite Reliability	.91	
Accommodation/Price (ACCPRIC)						
ACCPRIC1	2.99 1.25	.84	35.7	2.69 1.21	.89	56.1
ACCPRIC2	3.24 1.46	.87	64.4	3.00 1.35	.91	92.2
ACCPRIC3	3.26 1.19	.83	39.2	3.31 1.16	.86	34.6
ACCPRIC4	3.71 1.21	.90	92.8	3.46 1.17	.90	56.6
	Average Variance Extracted	.75		Average Variance Extracted	.79	
	Composite Reliability	.92		Composite Reliability	.94	
Cognitive Interdependence (COGINT)						
COGINT1	3.23 1.21	.85	56.9	3.28 1.48	.87	50.9
COGINT2	3.32 1.44	.85	52.3	3.47 1.43	.90	57.6
COGINT3	2.59 1.45	.82	34.9	3.32 1.57	.80	30.8
COGINT4	3.04 1.48	.86	53.1	3.45 1.39	.86	40.7
COGINT5	3.01 1.50	.87	51.0	3.70 1.47	.85	36.1
COGINT6	2.57 1.37	.83	44.5	2.79 1.43	.81	29.0
	Average Variance Extracted	.72		Average Variance Extracted	.72	
	Composite Reliability	.94		Composite Reliability	.94	
Derogation of Alternatives (DERALT)						
DERALT1	3.39 1.45	.85	46.4	4.03 1.41	.85	39.8
DERALT2	3.59 1.41	.81	39.6	4.06 1.43	.85	50.3
DERALT3	3.26 1.42	.89	74.5	3.88 1.42	.92	87.0
DERALT4	2.80 1.38	.84	38.1	3.21 1.46	.86	43.5
DERALT5	2.42 1.29	.77	33.1	2.72 1.40	.75	24.8
DERALT6	2.88 1.45	.85	47.1	3.30 1.51	.87	54.7
	Average Variance Extracted	.70		Average Variance Extracted	.73	
	Composite Reliability	.92		Composite Reliability	.94	

All values are significant at p < .001.

Table 4
HTMT assessment of discriminant validity (study 1 and study 2).

STUDY ONE (N = 345)

	ACCPERF		ACCPRIC		COGINT	
	HTMT Ratio	Confidence Interval	HTMT Ratio	Confidence Interval	HTMT Ratio	Confidence Interval
ACCPRIC	.69	[.62; .76]				
COGINT	.73	[.65; .79]	.65	[.57; .71]		
DERALT	.76	[.66; .79]	.66	[.58; .74]	.84	[.79; .89]

STUDY TWO (N = 247)

	ACCPERF		ACCPRIC		COGINT	
	HTMT Ratio	Confidence Interval	HTMT Ratio	Confidence Interval	HTMT Ratio	Confidence Interval
ACCPRIC	.66	[.60; .75]				
COGINT	.73	[.66; .79]	.62	[.53; .69]		
DERALT	.73	[.65; .81]	.58	[.49; .67]	.84	[.80; .88]

No violations HTMT.85; HTMT.90; HTMTinference.
ACCPERF = Accommodation/Performance;   ACCPRIC = Accommodation/ Price.
COGINT = Cognitive Interdependence; DERALT = Derogation of Alternatives.

Table 5
Second order factor weights, loadings (study 1 and study 2).

Factor	Mean	St. Dev.	Weight	t-value	Loading	t-value	VIF
STUDY ONE (N = 345)							
ACCPERF	3.37	1.08	.23	31.5	.83	44.8	2.22
ACCPRIC	3.34	1.08	.23	23.7	.78	36.9	1.89
COGINT	2.95	1.29	.36	37.6	.91	105.6	3.10
DERALT	3.05	1.17	.35	38.3	.91	97.7	3.16
STUDY TWO (N = 247)							
ACCPERF	3.42	1.00	.22	24.5	.82	32.8	2.23
ACCPRIC	3.11	1.19	.21	22.7	.75	28.2	1.76
COGINT	3.33	1.24	.36	35.3	.91	85.6	3.29
DERALT	3.53	1.23	.36	36.5	.91	77.9	3.23

All values are significant at p < .001.
ACCPERF = Accommodation/Performance;   ACCPRIC = Accommodation/ Price.
COGINT = Cognitive Interdependence; DERALT = Derogation of Alternatives.

indicators (Hair et al., 2017). In order to evaluate the VIFs, factor weights and significance levels of the formative factors, the repeated indicator approach (see Ringle et al., 2012) was used. As shown in Table 5, all VIFs were lower than 5 (i.e. < 3.17), indicating that the correlations between the formative factors were not problematic.

The final step in assessing formative measures involves examining the significance and relevance of the formative indicators (Hair et al., 2017). For formative indicators, outer weights are evaluated as these represent the indicators relative contribution to the construct and, in addition, bootstrapping procedures are used to determine the statically significance of the weights (Hair et al., 2017). In addition, it is important to also report the absolute contribution to the construct via the outer loadings (see Hair et al., 2017, p. 185 for implications in relation to item evaluation). As shown in Table 5, factor weights range from 0.23 to 0.36 and are significant ($p < .05$) and outer loadings are also significant ($p < .05$), ranging from 0.78 to 0.91.

As a result of the stringent testing of data in this study (Study 1), the final reflective-formative 20-item brand fidelity scale (as shown in Table 1) was put forward for further testing in Study 2.

3.4. Scale validation (study 2)

The purpose of Study 2 was to (1) further confirm the psychometric properties of the 20-item brand fidelity scale (MacKenzie et al., 2011), and (2) examine the nomological validity of brand fidelity (Borsboom, 2005). Nomological validity "refers to an observed relationship between measures purported to assess different (but conceptually related)

constructs (Peter, 1981, p. 138). Given that the body of Rusbult's work on romantic relationships largely underpins the conceptual development of the brand fidelity construct (Grace et al., 2018), it is appropriate to propose its nomological positioning within Rusbult's investment model of commitment processes. Rusbult et al.'s (2012) model clearly depicts satisfaction, quality of alternatives and investment as being antecedents of commitment and relationship maintenance behaviours (represented here as brand fidelity) as consequential to commitment.

3.4.1. Survey development

All survey items were drawn directly from the empirical study undertaken by Rusbult et al. (1998) of Rusbult's (1980) investment model of commitment processes. Therefore, in addition to the 20-item brand fidelity items (ACCPERF, ACCPRIC, COGINT, DERALT), 5 items measured satisfaction (SAT), 5 items measured quality of alternatives (QUALALT), 6 items measured investment (INVEST) and 7 items measured commitment (COMMIT) were included in the survey. Once again, we included the instructional manipulation check item (Oppenheimer et al., 2009) and 4 items measuring brand commitment (COMMIT1) (Chaudhuri and Holbrook, 2002), which were used for establishing

convergent validity in Study 1. Finally, demographic variables included gender, age, and education.

3.4.2. Data collection

A temporal approach to data collection, as recommend by Podsakoff et al. (2012), was used to minimize the potential of common method bias in the data. This involved a two-wave process of data collection, whereby half of the survey questions were included in the first wave of data collection and, one week later, the second half of the survey questions were collected from the same respondents. In the first wave, we included the 5 items measuring satisfaction (SAT), 6 items measuring investment (INVEST) and 10 items measuring two factors of the brand fidelity scale (i.e. ACCPERF and COGINT), the instructional manipulation check and the demographic questions. In the second wave, we included 5 items measuring quality of alternatives (QUALALT), 7 items measuring commitment (COMMIT), 10 items measuring two factors of the brand fidelity scale (ACCPRIC, and DERALT), the instructional manipulation check and the demographic questions.

As with Study 1 (and for the purpose of replication), data were collected via Amazon's Mechanical Turk (MTurk) and the brand stimuli included the same fifteen well-known brands chosen from *Interbrand's Best Global* Brands 2013 list (e.g. Apple, Ford, Samsung, Amazon, Panasonic, Colgate, Nestle, Smirnoff, Nike, Adidas, Gap, Dell, Pizza Hut, Kleenex and KFC).[7] In the first wave, 355 responses were collected, and the second wave produced a total of 260 matched responses, thus, representing an attrition rate of 26.8%. Of the 260 full responses, a total of 13 responses were removed due to failing the instructional manipulation check, resulting in a final sample of 247 respondents. Respondents had a mean age of 33.8 years and exhibited an even gender split of 53% male and 47% female. Ten per cent of respondents had a Masters' degree or higher, 53% had a 2–4 year college degree, 23% had some college education, 13% had some high school education and 1% did not go to high school at all.

3.4.3. First-order measurement evaluation

Data were firstly examined on a construct-by-construct basis to determine the factor structures and psychometric properties of the scales associated with the outer model. The scales for SAT, QUALALT, INVEST and COMMIT were all uni-dimensional and all factor loadings were significant ($p < .05$) and strong (with the exception of COMMIT4 which was removed from further analysis), ranging from 0.74 to 0.93. In terms of the first-order reflective brand fidelity factors (i.e. ACCPERF, ACCPRIC, COGINT and DERALT), all item loadings were strong, ranging from 0.75 to 0.91, AVEs ranged from 0.72 to 0.79 and composite reliabilities ranged from 0.91 to .94. The findings, in relation to the brand fidelity first-order factors, are closely aligned with those of Study 1 (refer Table 3 for comparisons). Furthermore, as shown in Table 4, discriminant validity (between the formative factors) was also confirmed via HTMT analyses, which resulted in no violations at the HTMT.85, HTMT.90 and HTMTinference being identified.

3.4.4. Second-order measurement evaluation

PLS was once again used to follow the three-step process of formative measurement assessment (refer Study 1 for details). Firstly, convergent validity was established by modelling brand fidelity (exogenous) with the brand commitment reflective variable (endogenous) (Chaudhuri and Holbrook, 2002). We achieved identical results, to those found in Study 1, with the path weight being 0.81 (R^2 of 0.66), thus, confirming convergent validity. Next, using the repeated indicator approach, we confirmed that collinearity contamination was not

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[7] While brand stimuli were necessary in order for respondents to answer the survey questions, the brands were irrelevant in the analyses, which were conducted purely to establish the psychometric properties of the BF scale and construct performance within a nomological network of relationships.

evident in the data as all VIFs were well under 5 (i.e. ranging from 1.76 to 3.29) (Bollen and Bauldry, 2011). Finally, the significance of the outer weights was established via a bootstrapping procedure. Outer weights ranged from 0.21 to 0.36 and were significant ($p < .05$) and outer loadings were all significant ($p < .05$), ranging from 0.75 to 0.91). Once again, these results were similar to Study 1 (see Table 5).

3.4.5. Structural model evaluation

In order to establish nomological validity, we collected data to measure the conceptual model from which the brand fidelity measure was derived (i.e. the investment model of commitment processes). Recall that Grace et al. (2018) used the relationship maintenance mechanisms of this model to develop the brand fidelity scale. Therefore, commitment (COMMIT) mediates the relationship between the antecedents, investment (INVEST), satisfaction (SAT), quality of alternatives (QUALALT) and the relationship maintenance mechanisms, which we measure as brand fidelity (BRANDFID).

In order to specify the structural model (refer Fig. 2), we generated latent variable scores for the four reflective brand fidelity factors and used these to serve as manifest variables in the higher-order measurement model (i.e. brand fidelity BRANDFID). Thereby, "the HOC [higher-order construct] is embedded in the nomological net in such a way that it allows other latent variables as predecessors to explain some of its variance, which may result in significant path relationships" (Hair et al., 2017, p. 283.). Prior to evaluating the direct and indirect effects within the structural model, we examined the outer model results. For the reflective constructs (INVEST, SAT, QUALALT and COMMIT), all factor loadings were above acceptable levels and significant (refer Fig. 2). BRANDFID was evaluated by its formative weights, which were significant and ranged from 0.18 to 0.43 (outer loadings ranged from 0.70 to 0.91). In addition, tests for discriminant validity between the five constructs (INVEST, SAT, QUALALT, COMMIT, BRANDFID) was conducted via HTMT and no violations were evident. Finally, variance inflation factors, ranging from 1.42 to 2.86, verified that collinearity was not evident in the data.

PLS was used to evaluate the structural (inner) model. The results of bootstrap sampling revealed that all paths (with the exception of the direct path between SAT and BRANDFID) were significant ($p < .05$) and in the direction as expected (refer Fig. 1 for path coefficients, significance level, effect sizes and confidence intervals). In addition, predictive accuracy was evident with COMMIT and BRANDFID exhibited strong R^2 values of 0.70 and 0.82 respectively. Furthermore, using a blindfolding procedure (with an omission distance of 7) we calculated the predictive relevance in relation to COMMIT (represented by Q^2), which was also strong at 0.57. Please note, this same procedure is not appropriate for formative variables such as BRANDFID (Hair et al., 2017). Therefore, nomological validity was demonstrated at a rudimentary level i.e. brand fidelity relates to constructs in the manner in which it is intended.

Prior to further evaluating the structural model, it was important to test for unobserved heterogeneity in the data (Lubke and Muthén, 2005). The theory upon which the brand fidelity construct (and its associated construct network) was based did not highlight any variable (or set of variables) that would account for differences in the estimated coefficients (i.e. observed heterogeneity) (Becker et al., 2013). For example, in some literatures, variables, such as gender, income and culture are obvious moderators or covariates (e.g., Bollen and Bauldry, 2011; Srite and Karahanna, 2006) and, therefore, can be determined *a priori*, as they are known variables (e.g. observed heterogeneity). However, it is important to test for unobserved heterogeneity (i.e. subpopulations in the data that are unknown) in order to avoid Type I and Type II errors in interpretation (Sarstedt et al., 2011; Sarstedt and Ringle, 2010). Therefore, prediction orientation segmentation (i.e. PLS-POS), which identifies heterogeneity in reflective and formative measurement models and overall structural models, was used to test for unobserved heterogeneity in the data (Becker et al., 2013). The results

Table 6
Mediation analysis.

	Direct Effect	t-value	Indirect Effect	t-value
Satisfaction (SAT) → Brand Fidelity (BF)	0.027	0.654	0.103	3.694*
Investment (INV) → Brand Fidelity (BF)	0.540	10.926**	0.160	5.055*
Quality of Alternatives (ALT) → Brand Fidelity (BF)	−0.105	2.413*	−0.075	4.205*

*p < .05, **p < .01.

did not provide any evidence of substantial and/or meaningful segments in the data.[8]

After concluding that unobserved heterogeneity does not critically affect the results, and to get a deeper appreciation of the nomological efficacy of brand fidelity, we further examined the direct and indirect effects in the model. Recall that, based on Rusbult's (1980) theory in the investment model, commitment should mediate the relationships between the antecedents (INVEST, SAT and ALT) and the relationship maintenance mechanisms (i.e. brand fidelity). Mediation analysis followed the procedure of examining direct and indirect effects recommended by Zhao et al. (2010) and Hair et al. (2017), the results of which appear in Table 6. Inspection of the direct effects showed that both INV (investment) and ALT (quality of alternatives) both had significant direct effects on brand fidelity (BF), whereas SAT (satisfaction) did not. However, SAT, INV and ALT all had significant indirect effects. These results indicate that COMMIT (commitment) partially mediates (i.e., exemplifying complementary mediation) the relationships between (1) INV and BF and (2) ALT and BF and fully mediates (i.e., exemplifies indirect-only mediation) the relationship between SAT and BF (Zhao et al., 2010).

Finally, in order to extend the results in relation to effects within the model, we undertook important-performance matrix analysis (IMPA) to determine both the importance and the performance of the latent variables in relation to the target construct, brand fidelity. Once again, SmartPLS 3.0 (Ringle et al., 2015) enabled this additional dimension of analysis by contrasting the total effect of each latent variable on the target construct (importance) with the average values of the latent variable scores of the target construct's antecedents (performance) (Hair et al., 2017). The latter involves the rescaling of latent variable scores to values ranging between 0 and 100 (Höck et al., 2010), with 0 indicating lowest performance and 100 indicating highest performance. The results, as shown in Table 7, show that importance scores ranged from SAT (0.16), ALT (−0.18), COMMIT (0.33) to INV (0.68). In terms, of peformance scores, a different pattern emerged with scores ranging from ALT (46.8), INV (55.9), COMMIT (64.1) and SAT (76.8). These results make sense given that satisfaction is a rudimentary reqirement of subsequent positive brand evaluation (i.e. commitment) and, as such, is likely to show the highest performance scores. In other words, while consumers may be satisfied with the brand (i.e. high performance scores) it does not mean that all of these consumers are also committed to the brand (i.e. performance scores are expected to be lower). In addition, the results confirm the sequential linking from satisfaction to commitment to brand fidelity.

On the basis of measurement model, structural model, mediation and Importance-performance evaluation, the goals of Study 2 are met. In particular, the psychometric properties of the 20-item brand fidelity scale are further confirmed, through the alignment of results with Study 1. In addition, the nomological performance of brand fidelity, within the conceptual framework from which it was derived, is empirically substantiated through multiple analyses.

Table 7
IMPA analysis: Target variable - brand fidelity.

Latent Variable	Importance (Total Effect)	Performance (Index Value)
Satisfaction (SAT)	0.162	76.808
Investment (INV)	0.675	55.876
Quality of Alternatives (ALT)	−0.182	46.895
Commitment (COMMIT)	0.326	64.142

4. Discussion

The brand fidelity measure, with its multiple components, allows for a rich understanding of the mechanisms that support the durability, stability and exclusivity of consumer/brand relationships. First, it is important to acknowledge that the final brand fidelity measure did not exactly mirror the brand fidelity dimensions conceptually proposed by Grace et al. (2018). Dimensions such as *positive illusions* and *willingness to sacrifice* were not well differentiated in the data. However, Grace et al. (2018) alluded to the potential for some overlap in the brand fidelity dimensions, when applied in the context of consumer/brand relationships, as opposed to romantic relationships (e.g., Rusbult et al., 2012). For example, individuals quite often have unrealistic (or overly positive) illusions about their partners either because (1) they only see what they want to see i.e. they view their partner through rose-coloured glasses, or (2) they only see what their partners (may deceitfully) portray themselves to be. While this latter behaviour is common in humans, brands that pretend to be something they are not (or that over-promise) very soon lose customers who are quick to partner up with their competitors. Therefore, the creation of positive consumer brand illusions is more likely to represent relationship deterioration, rather than strength. Furthermore, given that the derogation effect, not only involves the downplaying of attractive alternatives, but also the over-estimation or lenience in relation to the relationship partner (Rusbult et al., 2012), then it is not surprising that three of the five items developed to measure positive illusions collapsed into the derogation of alternatives dimension.

In a similar vein, the results indicated a connection between *willingness to sacrifice* and *accommodation/forgiveness*, with the willingness to sacrifice items not forming a "stand alone dimension", but rather cross-loading or correlating highly with the accommodation/forgiveness dimensions. This connection was also pre-empted by Grace et al. (2018), in that they argued that if a consumer was willing to accommodate or forgive the brand, in times of performance or price variation then, in doing so, it is likely they would be making a sacrifice of some sort (e.g., financial, convenience, social, or other). In addition, significant brand competition also means that consumers are less willing to make sacrifices when attractive alternatives exist. On this basis, willingness to sacrifice is much more pertinent to human relationships that are essentially based on reciprocal, rather than negotiated, social exchanges (Lawler and Yoon, 1996).

This research has also identified that, in the context of consumer/brand relationships, accommodation/forgiveness is multi-faceted. This is because of the often-differential effect of price and performance variations on relationship allegiance in negotiated exchange situations (i.e. consumer/brand relationships), rather than reciprocal exchange

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[8] The PLS-POS algorithm was run a total of 6 times (as recommended by Wedel and Kamakura, 2000). The best solution produced two segments; one 93% of the sample and one 7% of the sample. The second segment was considered too small to be meaningful, but rather expected to reflect outliers, respondent error or other statistical artifacts (Becker et al., 2013).

situations (interpersonal relationships). On this basis, it is not surprising that scale items measuring accommodation (forgiveness) in relation to performance variations loaded separately to those measuring accommodation (forgiveness) in relation to price variations.

4.1. Contributions to theory

This paper provides a new empirically-validated measure that helps us to gauge the potential longevity and sustainability of relationships that exist between consumers and brands. Previous research (e.g. Carroll and Ahuvia, 2006; Coulter et al., 2003; Moorman et al., 1992; Reichheld and Teal, 1996) has concentrated heavily on an array of consumer cognitions (e.g. customer satisfaction), emotions (e.g. brand love), and behaviours (i.e. repeat purchase) that serve to *shape* consumer/brand relationships, but not necessarily sustain them. As contemporary marketing is all about establishing and maintaining strong consumer/brand relationships (Christodoulides and De Chernatony, 2010), then this is an important distinction to make. In theory, there is nothing wrong with existing measures such as customer satisfaction (Churchill and Surprenant, 1982), involvement (Mittal and Lee, 1989), loyalty (Jacoby and Chestnut, 1978), commitment (Mattila, 2006), brand love (Albert and Merunka, 2013), and the like, provided the resultant data is interpreted in the manner in which it was measured. For example, if brand loyalty is measured via repeat purchase, then claims about future purchase intentions, relationship strength and on-going profitability is wrought with danger.

Similarly, as self-reported feelings and emotions are highly dependent on the self-diagnostic capabilities of the respondent, then the accuracy of the resultant data comes under scrutiny. So, why ask respondents to self-diagnose? Psychologists don't ask individuals to tell them if they have Type A or Type B personalities because (unless in they were working in field) they wouldn't know. Psychologists ask individuals about the thoughts they have and the behaviours they enact so that, as professionals in the field, they can "diagnose" the personality type for the individual. In this paper, we argue that consumers don't know what they don't know. So why not ask them things they *do* know, such as what they think and what they do, and leave the relationship diagnosis up to the researcher/practitioner. Consequently, in measuring the demonstrated behaviours/cognitions of consumers, that underpin both proactive and reactive relationship maintenance, we circumvent the self-diagnostic issues, outlined by Grace et al. (2018). Furthermore, we can say that if consumers engage in the behaviours/cognitions (as defined within the brand fidelity construct), then consumer/brand relationships are likely to be stable and predictable; are likely to endure the ravages of time; and, importantly, are likely to remain monogamous. It is on this basis, that the *brand fidelity* construct makes its most significant contribution to the marketing literature.

4.2. Contributions to practice

A good brand measure is one that is simple to use, meaningful, actionable, repeatable and time bound (Munoz and Kumar, 2004). We believe the brand fidelity scale meets all of these important criteria. For example, the 20-item scale is not one that is over-taxing on respondents, yet it produces meaningful data that links brand building efforts to brand performance, thus, providing a sound basis for business decisions. The preliminary testing of the scale in this paper indicates that it is reliable and consistent (although further testing is recommended) and, as such, demonstrates excellent potential as a tool for temporal and/or industry benchmarking.

For brand practitioners, the brand fidelity scale represents a useful tool that provides rich information, over and above commonly used practitioner metrics such as the American Satisfaction Index (ACSI) (Fornell et al., 1996), Net Promoter Score (NPS) (Reichheld, 2003) and, more recently, Brand Passion Score (BPS) (Halloran, 2015). While such single-index metrics are universally used to measure and benchmark

brand performance and form the basis for marketing decision-making, they have been highly criticized for their (in)ability to predict growth (e.g., Reichheld, 2003 in regard to ACSI), their mathematical and substantive flaws (e.g. Keiningham et al., 2007 in regard to NPS) and the lack of empirical validation (e.g. in relation to BPS). While comparative research has been conducted on the ACSI and NPS (albeit with mixed results), to date, there has been little (if any) in-depth scrutiny of these metrics (old or new) in relation to their relative importance and performance in the context of brand value prediction. We believe, the brand fidelity scale addresses most of these criticisms in that it is empirically validated as a measure of consumer/brand relational behaviour that underpins stable and durable relationships, thus, implying growth sustainability (although further testing is required) and, in addition, is a scale that is mathematically and substantively validated.

However, one of the key practical advantages of the brand fidelity scale (i.e. over other practitioner metrics) emanates from the multi-dimensional nature of the scale. This is so because the four dimensions of brand fidelity (i.e. accommodation/forgiveness (performance), accommodation/forgiveness (price), cognitive interdependence and derogation of alternatives) are presented here as distinguishable and valid (reflective) measures in themselves. On this basis, the benefits of the brand fidelity scale to practitioners are twofold. First, the overall brand fidelity score can be used to track brand performance over time or be used for industry benchmarking purposes. Second, the performance of the individual brand fidelity dimensions can be scrutinised in order to provide specific direction upon which remedial marketing action can be implemented. An excellent method of evaluating dimensional efficacy (and inform decision-making) is to apply importance-performance matrix analysis (IMPA). IMPA "permits the identification of areas of improvement that can subsequently be addressed with marketing or management activities" (Höck et al., 2010, p. 199) and, thus, would have significant value to practitoners who wish to effectively monitor their brand's relational performance.

4.3. Limitations and future research

The exploratory nature of this initial work on brand fidelity measurement must be acknowledged. There is still much work to be done to address the limitations of this study. To begin, further confirmatory research would help in examining the first-order dimensions through global fit statistic, prior to formative assessment. Second, as the same brand stimuli was used for each of the studies in this paper, further work should examine brand fidelity in different brand contexts (e.g., single brands versus brand categories), and over strong and weak brands. Third, examination across different consumer samples (such as users versus non-users; demographic characteristics) and within-respondent comparisons across multiple brands will all assist in extensively validating the scale from many different perspectives. From a theoretical standpoint, we offer brand fidelity as representing the cognitive/behavioural aspects of relationship maintenance. Thus, the use of human relationship theory may help us define and understand possible behavioural mechanisms that can be used to effectively measure the initial stages of the consumer/brand relationship (i.e. the antecedent behaviours to commitment/brand fidelity). Much could be learnt from tracking behavioural change as consumer/brand relationships develop from conception (e.g., infatuation) to maturity (e.g., fidelity) and beyond (e.g., divorce).

Furthermore, it is important that future research continues to examine the predictive qualities of the brand fidelity measure in order to develop a meaningful metric that brand practitioners can access, and upon which they can confidently base their decisions. As the predictive potential of brand fidelity is yet to be fully explored, future research must further test its ability to predict outcome performance (i.e., financial, market share, CLV, customer churn, likelihood to recommend, etc.) against other measures, such as brand identification, brand equity, brand loyalty, brand commitment, and brand love. Cross validation,

through out-of-sample validity testing, should also be used to examine the predictive qualities of the brand fidelity scale. In addition, the evaluation of brand fidelity in the company of popular industry measures such as the ACSI (Fornell et al., 1996), the Net Promoter Score (Reichheld, 2003) and, more recently, the Brand Passion measure (Halloran, 2015). If the brand fidelity measure, in its current or enhanced form, is to be of value to brand practitioners, then its efficacy in predicting performance must be clearly established and continually validated through empirical evidence.

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