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Multi-group invariance in a third-order factorial model: Attribute satisfaction measurement ☆

Helena Milagre Martins Gonçalves *

ISEG, School of Economics and Management, Technical University of Lisbon, R. Miguel Lúpi, no. 20, gab. 311, 1249-078 Lisboa, Portugal

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ABSTRACT

The definition and measurement of attribute satisfaction, AS, are important for marketing theory and marketing management. The conceptualization of AS integrates different streams of literature. Attribute satisfaction is a multidimensional and multilevel construct with three primary dimensions: the core of the service, the peripheral aspects of service quality (SQUAL), and value (VAL). Furthermore, SQUAL has three subdimensions and VAL has two. This paper estimates a confirmatory factor analytic third-order model. The model shows that the AS scale demonstrates good psychometric properties for reliability, and content, convergent and predictive validity. The paper also assesses the AS scale invariance: whether the scale has the same structure and meaning for different groups, and whether the scale can be used to study its relation with other constructs and to estimate mean differences in a valid way. In testing gender invariance, specifically, AS exhibits full configural and metric invariance and partial scalar invariance.

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1. Introduction

Customer satisfaction (CS) and customer satisfaction with specific attributes, or attribute satisfaction (AS), are different though related constructs. In particular, evidence exists that AS is an antecedent of CS (Oliver, 2009; Spreng, MacKenzie, & Olshavsky, 1996). However, other antecedents have been identified (e.g., Runyan, Sternquist, & Chung, 2010). The definition and measurement of AS are important (Szymanski & Henard, 2001). They are of special interest for managerial purposes because attributes have more diagnostic value than overall assessments of satisfaction (Lim & Chung, 2009; Mittal, Ross, & Baldasare, 1998). For example, the measurement of satisfaction at the level of specific attributes can identify problem areas in service delivery, help in segmenting customers, and help to understand how customers elaborate their evaluations of the distinct aspects that materialize as the product and the service. Yet, the structure and dimensionality of AS have not been researched.

This study integrates different streams of literature in a new and unique way to conceptualize AS: The tripartite model of satisfaction (Parasuraman, Zeithaml, & Berry, 1994), service quality (Brady & Cronin, 2001), and the value concept (Zeithaml, 1988). This paper fits a series of hierarchical models to test whether the measurement of AS has adequate construct validity (e.g., Brady & Cronin, 2001) and improves our understanding and explanation of customer judgments. For construct validation and managerial application purposes, this paper also tests for AS scale invariance. The study of invariance indicates whether the scale has the same structure and meaning for different groups that in turn implies whether the scale can be used to study its relation with other constructs and to estimate valid mean differences (Steenkamp & Baumgartner, 1998). That is, a scale must behave equivalently across groups in order to make a correct interpretation of group differences as attributable to attitudinal differences and not simply psychometric differences (Vandenberg, 2002). Gender is a common segmentation variable in diverse contexts. Different attributes can be important for distinct segments (Anderson & Mittal, 2000) and some research shows that CS varies with gender (Mittal & Kamakura, 2001), which raises the question as to whether differences at the AS level might also exist. This study extends the knowledge of CS research by presenting a unique, hierarchical, and theoretically grounded conceptualization for AS and demonstrating the good psychometric qualities of the AS scale by utilizing recent and robust techniques.

The study provides evidence that complex modeling is useful to understand marketing constructs and answers the request made by Dabholkar, Thorpe, and Rentz (1996) to apply more complex models in different contexts. The study suggests a process for the study of measurement invariance in third-order factorial models and gives the managers an AS diagnostic instrument that is managerially relevant. Therefore, this research has three main objectives: first, to present a theoretically and managerially relevant definition for AS; second, to evaluate the AS construct validity and to test for AS gender invariance by providing a better AS measurement instrument for

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* Tel.: +351 213925957.
E-mail address: helenamg@iseg.utl.pt.

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marketing decisions; third, to consider whether the measurement invariance extends to a third-order factorial structure.

2. Attribute customer satisfaction construct

When customers are satisfied, any measurement will do, but when customers are dissatisfied, managers want to know attribute-level information to be able to make improvements (Huang & Sarigöllü, 2008). To this end, the definition and measurement of AS is central (e.g., Chen, Hsu, & Lin, 2010; Mittal et al., 1998; Spreng et al., 1996). The sum of each attribute of satisfaction creates a global measure, CS or, as some authors have done, calculates a mean based index (e.g., Oliver, 2009; Spreng et al., 1996). These measurements assume that the attributes weights are identical, which is not correct unless proof exists for their veracity, and the contribution of each individual attribute is lost (Szymanski & Henard, 2001). In this case, the AS structure, its components and its relations, as well as the relevance of these components cannot be identified, making a diagnosis at the attribute's CS level impossible.

In this research, the definition of AS is the result of an individual assessment of a comprehensive set of specific features of the experience from using the product or service (credit card) where the level of performance corresponds to or exceeds initial expectations. In turn, CS with the product or service is a global response that results from the experience of using the product or service to which AS contributes.

Theory development requires operational measures for abstract constructs (Peter, 1981).

AS's scale development begins with the concept domain's definition (Churchill, 1979; DeVellis, 1991; Hayes, 1998) that comprises not only the core product aspects but also additional or peripheral aspects. Further, the attributes must be as distinctive and in-depth as possible (Anderson & Mittal, 2000).

2.1. Attribute satisfaction dimensions

To identify AS dimensions, the brand or the company's offer is the set of essential and peripheral aspects. The peripheral aspects can sometimes be the more relevant for satisfaction, so they need to be explicit. Parasuraman et al. (1994) present a tripartite perspective when they say that transaction satisfaction, intended as the satisfaction with a restricted part of the consumer experience (Rust, Zahorik, & Keiningham, 1995), is a function of service quality, product quality, and price. Note that the offer's essential aspects (e.g., credit limit for a credit card) are separate from the peripheral aspects (service quality), and include price as well. Their distinctions between service quality and satisfaction, and the inclusion of the importance of value or price, is consistent with many scholars (e.g., Athanassopoulos, Gounaris, & Stathakopoulos, 2001; Fornell, Johnson, Anderson, Cha, & Bryant, 1996; Voss, Parasuraman, & Grewal, 1998). Thus, this paper conceptualizes AS along these same three dimensions: the product or the service core (CORE), the peripheral aspects (SQUAL), and value (VAL) and also establishes their corresponding specific components.

2.2. Attribute satisfaction specific components

The CORE dimension, the basic offer (Oliver, 2009), for a simple service (credit card) does not suggest any other specification: in this study, two items represent the core features that many studies and customers reference the most. However, the literature suggests that the SQUAL and VAL dimensions should have different components.

2.2.1. Service quality

In service quality research, Grönroos (1984) identifies two dimensions: technical and functional quality. In turn, these dimensions contribute to the image of the company that ultimately influences the perceptions of service quality. The SERVQUAL scale (Parasuraman, Zeithaml, & Berry, 1988) has five dimensions – reliability, responsiveness, assurance, empathy, and tangibles – and has been widely utilized and applied in different contexts. SERVQUAL has not been uniformly confirmed in several situations (e.g., Cronin & Taylor, 1992; Dabholkar et al., 1996; Durvasula, Lysonski, & Mehta, 1999). In particular, electronic service quality measurement has emerged and evolved (Akinci, Atilgan-Inan, & Aksoy, 2010).

A three-component model for service quality seems to be somewhat more robust: service product, service delivery and service environment (Rust & Oliver, 1994). This model subsumes Grönroos's (1984) functional and outcome dimensions, and Bitner's (1990) physical evidence. Brady and Cronin (2001) present an analogous hierarchical service quality scale with three primary dimensions: interaction quality, physical environment quality, and outcome quality. The dimensions that distinguish between goods and services, such as the three additional P's of the marketing mix for services (physical, people, and processes), are general dimensions with which to study attributes.

Thus, the literature seems to point to a three dimensional model for SQUAL. Accordingly, for the AS scale, SQUAL has the following components: physical aspects, process aspects, and personal interaction aspects.

2.2.2. Value

Value has different meanings. For some, value is synonymous with low prices; for others, value equals the benefits received; for still others, value is the quality received in relation to the price paid. Synthesizing these positions, Zeithaml (1988, p.14) defines value as the result of the evaluation "…based on perceptions of what is received and what is given." Other marketing scholars seem to be in consensus with Zeithaml's concept of value (e.g., Heskett, Jones, Loveman, Sasser, & Schlesinger, 1994).

However, many researchers often consider the operationalization of value as a single dimension (e.g., Fornell et al., 1996) or a single variable, which does not distinguish each of these identified factors. Therefore, Cronin, Brady, Brand, Hightower, and Shemwell (1997) define two VAL components to develop a measurement instrument with higher diagnostic power. Thus, the component price (PRI) represents what the customer gives, and the additional benefits component (ABNF) reflects what the customer receives. Athanassopoulos et al. (2001) confirm that the dimensions of satisfaction are specific to industry and country, and the factors of satisfaction might well vary with the type of product, service, or business sector. These findings reinforce the need to adapt the components to the specific context of this study.

2.3. Attribute satisfaction conceptual measurement models

Evidence exists in the literature that suggests a multidimensional and multilevel structure for AS. In their study, Dabholkar et al. (1996) make the request to apply this kind of model to different contexts, and this research fulfills that request. So, the clarification of whether AS is a global evaluation, a component based evaluation, or a unique global construct evaluation due to components is important.

Therefore, proposing and testing alternative models for measuring AS are appropriate (e.g., Lichtenstein, Netemeyer, & Burton, 1995).The models for comparison (Fig. 1) are:

M(0), the null model that has only one underlying factor, AS, for all attributes;

M(1), a first-order factorial structure where all the components (including the CORE) correlate with each other;

M(2), a second-order factorial structure where all the first-order components (including the CORE) are indicators of one second-order factor, AS; and

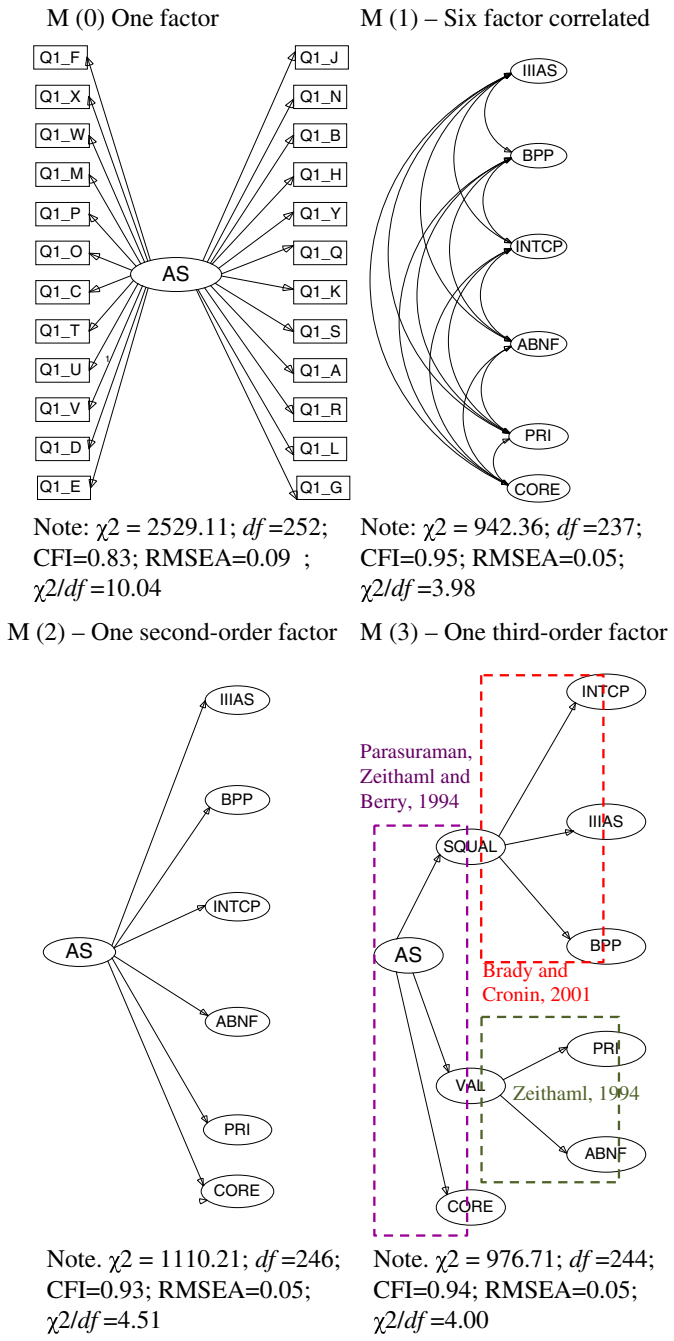

Fig. 1. AS alternative models and fits.

M(3), a third-order factorial structure where value (VAL) and service quality (SQUAL) are two second-order dimensions, and CORE is a first-order dimension. The third-order factor, AS, explains the correlation between SQUAL, VAL, and CORE. SQUAL has the following first-order components: billing and payment process (BPP), issuer image, assurance and reliability (IIAS), and interaction with the company (INTCP). Added benefits (ABNF) and price (PRI) are first-order VAL components.

3. Measuring attribute customer satisfaction

The paradigm introduced by Churchill (1979) and updated by Gerbing and Anderson (1988) is the basis for the measurement development of AS. The development has two data collection phases: scale development and purification, and scale confirmation and validation.

3.1. Scale development

This study focuses on purchases with credit cards and generates a list of attributes that draws on the literature, marketing manager expertise, and focus group results about consumer experiences (Churchill, 1979; DeVellis, 1991; Hayes, 1998; Kelley & Davis, 1994; Oliver, 2009). Practitioner and academic experts review the list to assure content validity (DeVellis, 1991). Following Ping (2004) and Gerbing and Anderson (1988), noting that the coefficient of Cronbach's alpha presupposes the existence of unidimensionality, the study assesses the measure's unidimensionality first, and only then evaluates the reliability and internal consistency. These analyses prune the list of items in the second phase to 24 items. AS scale validation comes from a confirmatory factor analysis (CFA).

3.2. Scale validation

Scale validation comprises reliability and validity analyses. Regarding the AS scale's validity this study evaluates content, convergent, and predictive validity, and scale invariance (Bagozzi & Yi, 1988; Peter, 1981). The measure's reliability needs to be established before studying the measure's validity (Peter, 1981; Ping, 2004). Composite reliability and average variance extracted (AVE; Fornell & Larcker, 1981) measure reliability (Baumgartner & Homburg, 1996). According to Chin (1998), the validity of the second-order factorial models should be tested, by analogy, like the factorial model of the first-order (Bagozzi, Yi, & Phillips, 1991). Following this line of reasoning, the test for the validity of the third-order factorial models should also follow this process.

Testing for measurement invariance (MI) implies a sequential process of estimating and comparing nested models (Byrne & Stewart, 2006; Steenkamp & Baumgartner, 1998; Vandenberg, 2002). The investigation of the measurement invariance is through multi-group confirmatory factor analyses.

In this research, the study of model equivalence between different groups uses the configural or weak factorial invariance (Steenkamp & Baumgartner, 1998; Vandenberg, 2002) where the factor loadings pattern is similar across groups; configural invariance establishes that the conceptualization of the same construct has the same meaning in each of the groups.

The study analyzes metric or strong factorial invariance (Steenkamp & Baumgartner, 1998; Vandenberg, 2002) that is a more restrictive invariance test, because this test imposes loadings equality constraints across the groups, in this case, for all three orders; the test's acceptance permits significant comparisons of the weights given by respondents of the different groups.

The study also examines scalar invariance (Steenkamp & Baumgartner, 1998; Vandenberg, 2002) as an even more restrictive invariance test because this test imposes intercepts equality constraints across the groups for all three orders. This test's demonstration is of particular importance when the research objective is the means' comparison between groups. Invariance at this level guarantees that the construct has the same structure and meaning across the groups and that means' differences between groups are effectively the result of means' differences in the underlying construct and are not a measurement artifact (Vandenberg, 2002). The possibility exists to observe both partial metric invariance and partial scalar invariance under certain conditions (Steenkamp & Baumgartner, 1998).

Goodness-of-fit indices evaluate the estimated measurement invariance models—the χ^2 test (which is sensitive to sample size), CFI and RMSEA, and also by differences between model fits (Byrne & Stewart, 2006; Chen, 2007).

4. Measures and data collection

Data collection uses a mail survey that always has a cover letter and a pre-paid envelope. In the first phase, data collection employs a correlational and factor analysis for the scale's development and purification. In the second phase, a CFA confirms and validates the AS measurement instrument. The definition of the population is the individual clients of a credit card company who have had their credit card for at least one year. In the first phase, 1000 surveys went to a random sample of clients with a response rate of 27.4%. In the second phase, a sample of 8500 was randomly selected from the clients list. Questionnaires were sent by mail. The study assessed 1213 questionnaires for analysis (response rate, 14.3%). The sample demographic profile is quite similar to their population, namely: 36% women (435) and 64% men (778).

The study of AS gender invariance uses the AS measurement instrument from the second phase. AS is a third-order factorial structure with two second-order dimensions–value (VAL) and service quality (SQUAL)–and the credit line (CORE), the product/core service, as a first-order dimension. The third-order factor, AS, explains the correlations between SQUAL, VAL, and CORE. Billing and payment process (BPP), issuer image, assurance and reliability (IIAS), and the interaction with the company (INTCP) are SQUAL components that represent the processes, physical evidence, and the people. Added benefits (ABNF) and price (PRI) are VAL components.

The first phase measures 21 attributes. After scale development and purification, the AS scale, in the second phase, has 24 satisfaction attributes (Table 1) that a nine-point scale with anchors "totally dissatisfied" and "totally satisfied" measures. Table 1 shows the dimensions with their attributes. Three items on different scales (seven- and nine-point scales) measure CS to reduce potential halo effects (Wirtz, 2001). For this reason, the questionnaire disperses these items (Wirtz, 2000). CS (composite reliability = 0.72 and AVE = 0.47) is measured for validity analysis development.

5. Results

This study analyzes different models to confirm and validate the AS scale. The assessment of the fit for all models studies the sign and size of the parameter estimates for their consistency with theory and their statistical significance along with the magnitude of the standard errors (Bollen, 1989).

The evaluation of models (Bollen, 1989; Kline, 1998) examines a set of indices: the Chi-square statistic, CFI, RMSEA and Chi-square/degrees of freedom indexes, (Baumgartner & Homburg, 1996). Based on the presented theory, model good fit (Fig. 1), and parameter estimates (Table 1), the preference is to use Model M(3) because AS has been proposed and confirmed as an explanation for the correlation between SQUAL, VAL, and CORE. Theoretically, Model M(3) offers a better explanation for the AS construct. Further, when analyzed, the loadings of the second and third order have values that are high and consistent with the theory. Following Brady and Cronin (2001) and Dabholkar et al. (1996) for third-order factor analytic model estimation, the study estimates two other models to test AS dimensions only (Chi-Square = 28.97, $df = 7$, CFI = 0.99, RMSEA = 0.05 and Chi-Square/$df = 4.14$) and to test dimensions and components only (Chi-Square = 976.71, $df = 244$, CFI = 0.94, RMSEA = 0.05 and Chi-Square/$df = 4.00$). The models have good fit and all the estimates are high and significant at the 0.001 level. The correlations for AS dimensions are CORE and VAL = 0.55, SQUAL and CORE = 0.67, and SQUAL and VAL = 0.75. All these results confirm the adequacy of AS structure and dimensionality that Model M(3) proposes and tests.

To assess Model M(3) reliability, Table 1 shows the calculation for the extracted variance for each construct. An extracted variance

Table 1
Estimates and reliability measures — M(3).

Variables/dimensions	Factors	Standardized estimates	R^2	Composite reliability	Average variance extracted
Attribute satisfaction (AS)				0.86	0.67
Credit line (CORE)	<——AS	0.70	0.49	0.95	0.86
Service quality (SQUAL)	<——AS	0.96	0.92	0.87	0.77
Value (VAL)	<——AS	0.78	0.61	0.86	0.67
Issuer image, assurance and reliability (IIAS)	<——SQUAL	0.98	0.96	0.87	0.58
Billing and payment process (BPP)	<——SQUAL	0.92	0.84	0.86	0.61
Interaction with the company (INTCP)	<——SQUAL	0.88	0.78	0.90	0.64
Price (PRI)	<——VAL	0.85	0.73	0.90	0.48
Added benefits (ABNF)	<——VAL	0.90	0.82	0.84	0.52
Speed to alter credit limit of the credit card	<——CORE	0.86	0.75		
Credit limit of the credit card	<——CORE	0.80	0.64		
Speed to substitute the credit card	<——IIAS	0.71	0.51		
Security in transactions	<——IIAS	0.69	0.48		
Ease of transactions	<——IIAS	0.78	0.61		
Competence of the credit card company	<——IIAS	0.81	0.64		
Strength of the company (UCC)	<——IIAS	0.80	0.65		
Waiting time until contact with company	<——INTCP	0.71	0.51		
Sympathy/courtesy of the employees	<——INTCP	0.85	0.72		
Speed and efficiency to solve issues/problems	<——INTCP	0.77	0.59		
Competence of the employees	<——INTCP	0.89	0.80		
Diversity of types of communication to contact the company	<——INTCP	0.76	0.58		
Company magazine	<——ABNF	0.63	0.39		
Group of shops where credit card owners get discounts	<——ABNF	0.75	0.56		
Insurances associated with the credit card	<——ABNF	0.70	0.49		
Clubs for credit card owners (wine club; golf club…)	<——ABNF	0.77	0.59		
Travel service for credit card owners	<——ABNF	0.76	0.57		
Timely receipt of credit card statement/balance	<——BPP	0.75	0.56		
Diversity and convenience of payment methods	<——BPP	0.78	0.61		
Information clarity/readability of the credit card balance	<——BPP	0.77	0.59		
Exactitude of credit card statement/balance information	<——BPP	0.82	0.67		
Grace period (interest free payment period)	<——PRI	0.71	0.50		
Credit card annuity	<——PRI	0.71	0.51		
Interest rate	<——PRI	0.65	0.43		

Note: All estimates are significant at $p<0.05$; Critical ratio > 13.85.

Table 2
Fit indices for AS gender invariance models.

Models	χ^2	*df*	TLI	CFI	RMSEA	Models	$\Delta\chi^2$	Δ *df*	P	ΔCFI
M1 — No constraints	1260.87[a]	488	0.99	0.94	0.04	M4–M1	24.74	18	0.13	0.00
M4 — Loadings equality in 1st order	1285.61[a]	506	0.99	0.94	0.04	M3–M1	29.35	21	0.11	0.00
M3 — Loadings equality in 1st and 2nd orders	1290.22[a]	509	0.99	0.94	0.04	M2–M1	29.42	22	0.13	0.00
M2 — Loadings equality in 1st, 2nd and 3rd orders	1290.29[a]	510	0.99	0.94	0.04	M5–M1	76.03	47	0.01	0.00
M5 — Loadings equality in 1st, 2nd and 3rd orders and intercepts equality in 1st order	1336.90[a]	535	0.99	0.94	0.04	M5–M2	46.61	25	0.01	0.00
M6 = M5 with no equality constraint intercept p1_n	1329.20[a]	534	0.99	0.94	0.04	M6–M2	38.91	24	0.03	0.00
M7 = M5 with no equality constraints intercept p1_n and p1_h	1323.36[a]	533	0.99	0.94	0.04	M7–M2	33.07	23	0.08	0.00
M8 = M5 with no equality constraints intercept p1_n, p1_h and p1_p	1318.51[a]	532	0.99	0.94	0.04	M8–M2	28.22	22	0.17	0.00
						M8–M1	57.64	44	0.08	0.00

[a] $p<0.001$.

higher than 0.50 is desirable (Fornell & Larcker, 1981), and only this model obtains that result. The PRI is slightly lower, but acceptable. The higher values of R^2 for SQUAL and VAL (also in Table 1) in Model M(3) suggest that the specification for this third-order structure is proper (Hong & O'Neil, 2001). The AVE estimates of 0.50 and above, the high values and significance of all the estimates, and the good fit of the model are evidence of convergent validity (e.g., Bagozzi et al., 1991; Ping, 2004). In model M(pv), the AS from M(3) is an antecedent of CS. Model M(pv) confirms the predictive validity: the estimates are high (loadings: 0.58–0.98) and significant (*t*-values: 14.26–20.37) at the 0.001 level, and model M(pv) has an adequate fit to the data (Chi-Square = 1168.91; *df* = 315; CFI = 0.94; RMSEA = 0.05; Chi-Square/*df* = 3.71). These results also support convergent validity. AS explains 79% of CS variance (R^2 for CS = 0.79).

The evaluation of the gender invariance in the AS scale estimates different models, see Table 2. M1 yields good fit indices and demonstrates configural invariance. All the loadings are significant and high. Models M2, M3, and M4, and their comparisons to Model M1, M2–M1, M3–M1 and M4–M1 show full metric invariance in first, second, and third orders, while holding for all equality constraints—the $\Delta\chi^2$ test is not significant and there are no changes in ΔCFI. When comparing the pattern of factor loadings, no marked differences exist for male and female groups. Considering that $\Delta\chi^2$ is significant in Models M5–M1 and Models M5–M2, full scalar invariance might be questionable. But ΔCFI = 0 indicates full scalar invariance and this test is preferable. The estimations of Models M6, M7, and M8 free the successive parameters. Differences tests of M8–M2 and M8–M1 show that the $\Delta\chi^2$ test is not significant and ΔCFI = 0, which confirms partial scalar invariance in this more conservative analysis.

6. Discussion and conclusions

This research advances methodological knowledge. Rigorous measurement models with complex hierarchical structures have been used in applied settings. The research also supports the conceptualization of a hierarchical, multidimensional factorial structure for AS and takes into account robust techniques such as confirmatory factor analysis, measures with multiple items, and explicit consideration of variables' measurement errors. The research tests a CFA third-order full model, and the complexity and testing of such a model is not common in the literature.

Confirmation exists for the configural and full metric gender invariance for AS, which means that the structure and meaning of AS is essentially the same for men and women. Further, this equivalence means that AS evaluations made by men and women might be combined. Also, AS full scalar invariance can be accepted based on ΔCFI = 0 (Byrne & Stewart, 2006; Chen, 2007). Evidence exists for the scale's generalizability across men and women and enhanced validity (Peter, 1979). Managers can and should exploit this information in CS's management, because the actions directed to the attributes that have a greater association with the corresponding component will have a greater influence on the assessment of this component in both groups. This study demonstrates other psychometric qualities of the AS scale and has the merit of using recent and sound modeling techniques for this purpose. The application of MI to a third-order factorial measurement model is new, to the best of our knowledge. Access to full and partial levels of invariance exists for a complex factorial structure. This research suggests a process for the study of MI in third-order factorial models.

The conceptual/theoretical contribution of this research includes the identification of the underlying structure of AS in a way that is managerially relevant. The three dimensions of AS are CORE, SQUAL, and VAL. SQUAL and VAL contain the specific components BPP, IIAS and INTCP, and PRI and ABNF respectively. Building on the work of Parasuraman et al. (1994), this hierarchical AS conception goes further and integrates other isolated measures into a unique AS scale that has empirical support.

This research also has managerial implications. With this AS diagnostic instrument, managers can understand which changes, and hence which investments, in specific attributes can result in enhanced satisfaction among customers.

7. Future research and limitations

Future research needs to check whether the AS structure is applicable to other contexts or to other cultures and nationalities. This comparison will give more generalization to the AS scale and give sounder validity. To refine the scale, qualitative research and evaluation of the new trends of service can be developed. Over time, certain service aspects might then be relevant, reflecting new trends, and others might have to be eliminated for their inadequacy in reality. New attributes that reflect the new uses will likely have to be added.

The development of the nomological network that AS is a part of might include constructs such as attachment (Park, MacInnis, Priester, Eisingerich, & Iacobucci, 2010), commitment, or the actual purchase behavior. Testing these additional antecedents or consequences are also topics for possible future research.

Scale invariance, which allows investigation of stability, could be analyzed in depth to take into account other variables such as age, the customer's relationship longevity with the company or brand, and the frequency of usage or involvement in the product category, and so forth.

This research contributes to the service quality literature. We invite additional studies into AS and its components in other contexts.

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