

# How service quality affects university brand performance, university brand image and behavioural intention: the mediating effects of satisfaction and trust and moderating roles of gender and study mode

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**Abstract** University brand (UniBrand) is a recent concept, and its theoretical modelling is still somewhat inadequate. This paper examines how perceived service quality affects UniBrand performance, UniBrand image and behavioural intention. Using an online student survey, the present study obtained 528 usable responses. The conceptual model was validated using structural equation modelling. The study makes an innovative theoretical contribution by establishing a relationship between experience-centric brand performance and brand image, and the antecedents and consequences of this link. In addition, student satisfaction and trust were demonstrated to mediate the relationship between perceived service quality, brand performance, brand image and behavioural intention in a higher education context. However, there were no moderating effects of gender or mode-of-study on the model, confirming that the model is invariant across these variables. Overall, this model suggests the importance of experience-centric service quality attributes and how they affect university branding strategies for sustained positive intentions.

**Keywords** Service quality · Satisfaction · Trust · Brand performance · Brand image · Behavioural intention

## Introduction

‘Branding’ of universities is a recent marketing tool that aims to attract, engage and retain students and position universities in the competitive higher education environment (Wilson and Elliot 2016; Sultan and Wong 2014). As higher education continues to grow and becomes increasingly globalised, increased competition and reduced government funds place more significant pressure on institutions to market their courses and programs. There are several reasons why universities need to adopt customer-oriented marketing and branding strategies, including to improve funding through greater numbers of domestic and international students, to cover rising tuition fees and increased promotional costs, and to attract top academics and executives, more donated and research money, media attention and more strategic partners (Nguyen et al. 2016; Hemsley-Brown et al. 2016; Joseph et al. 2012). Universities are social institutions as well, as students not only get an academic degree but also engage themselves in a complex educational and social system (Rutter et al. 2017). For example, graduates from universities contribute to sociopolitical and economic transformations and may become valuable alumnae and component of their respective university brands. Therefore, branding a university brings both economic and social outcomes.

Branding involves developing emotional and rational expectations of consumers that differentiate a brand from its competitors (Keller 2002; de Chernatony and McWilliam 1990). For example, in the domain of higher education, integrated marketing communications (that is, social media and other advertising avenues) can create brand awareness, image, positioning, reputation and, finally, brand identification, in progressive effect (Foroudi et al. 2017). A university’s brand comprises the institution’s

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distinct characteristics that will elevate it when compared with others. A brand reflects the university's ability to fulfil student needs, engenders trust in its capacity to deliver the required services and helps potential students make right course decisions (Nguyen et al. 2016). Thus, a brand establishes characteristics and services that can be marketed even during intense competition for resources (e.g. sourcing fund, capable human resources) and customers (i.e. students) (Drori et al. 2013). Empirical evidence suggests that, if successful, a branding endeavour in the arena of higher education could improve university services, as well as attract and retain students (Watkins and Gonzenbach 2013; Sultan and Wong 2012, 2014).

Despite the growing importance of university branding, little research has been undertaken on the issue (Chapleo 2011). Although the recent literature in the higher education context integrated components of marketing communications (IMC) and brand identification (Šerić et al. 2014; Foroudi et al. 2017), the current literature fails to indicate how higher education service components influence brand identification, including how a brand performs, how brand image is formed, and how these affect behavioural intentions (e.g. word-of-mouth) and behavioural consequences (e.g. brand loyalty). Although recent research has considered how perceived university service quality affects university image, university brand performance and behavioural intentions (Sultan and Wong 2012, 2014), the current literature is inconclusive regarding how brand performance and brand image diverge or correlate as outcomes of perceived quality performance in a university service context. The present paper addresses this apparent research gap with a single research question: how does perceived service quality affect university brand performance, university brand image and behavioural intention? To answer, this research examines eleven causal relationships and some mediation and moderation tests and establishes a theoretical model.

## Theoretical background, construct definitions and research model

### Perceived quality and service performance

Perceived service quality (PSQ) is defined as 'the consumer's judgement about a product's overall excellence or superiority' (Zeithaml 1988). Consumer's overall evaluation of service quality attributes can be measured in two major ways: attitude-based measure (Cronin and Taylor 1992, 1994) and disconfirmation-based measure (Parasuraman et al. 1988). The current literature found that attitude-based measure (or perception-based measure) is better than disconfirmation-based measure (or gap assessment)

(Duggal and Verma 2013) as 'current performance adequately captures consumer's perception of service quality offered by a specific service provider' (Cronin and Taylor 1992, p. 58). The current study is based on the attitude-based measure and defines perceived service quality as a perceptive process of judgement of quality by students that includes an appraisal of perception, learning, reasoning and understanding of service features, and consists of three major dimensions: academic, administrative and facility service provisions (Sultan and Wong 2012, 2014).

Service performance and service quality have a direct and positive correlation and often used as synonymous. However, their perspective and application are different. While service quality is an overall evaluation of tangible and intangible service attributes from a consumer's standpoint, service performance is the control of tangible and intangible service attributes to connect to corporate and marketing strategies from an organisation's standpoint (Chenet et al. 1999).

There has been some discussion in the service quality literature, where PSQ was found to be a direct causal factor of student satisfaction and an indirect casual factor of student loyalty (Hennig-Thurau et al. 2001; Sultan and Wong 2014).

Several studies (see, for example, Alves and Raposo 2007; Brown and Mazzarol 2009) empirically tested Cassel and Eklöf's (2001) European Customer Satisfaction Index (ECSI) model in the higher education sector and detected negative and insignificant relationships. For example, Alves and Raposo (2007) found that expectation is significantly negatively associated with satisfaction in the context of Portuguese's universities. Brown and Mazzarol (2009) found that image, value, satisfaction and loyalty had sequential casual effects, but other effects were insignificant, weak and indeterminate. The ECSI and relevant empirical studies considered image construct as a determinant of perceived quality and expectation; however, the recent literature suggests that perceived image may be the indirect consequence of both PSQ (Sultan and Wong 2012) and brand identity (Foroudi et al. 2017).

### Brand performance

Brand performance is defined as the relative measurement of the brand's success in a defined marketplace (O'Cass and Ngo 2007). Brand performance measure includes a subjective assessment of brand awareness, brand reputation, brand loyalty and brand satisfaction (Wong and Merrilees 2007, 2015; Sultan and Wong 2014). The brand performance measure has been also considered as an index of penetration, purchase frequency and market share (Jung et al. 2016). The brand performance measure in the current study is defined as the brand's relative success in the



marketplace, which is often driven by cognitive attitudes (Akhoondnejad 2018).

The current literature on experience-centred branding is inadequate, particularly in the context of higher education (Merrilees 2017; Sultan and Wong 2010b, 2012, 2013). In commercial settings, however, the focus of many studies has been to explore and develop brand performance measures and consider market share, price premiums and purchase frequency. Replication of such a measure for a university branding could prove weak and inappropriate as universities are perceived as societal assets that relate to human development and societal well-being. Therefore, borrowing a commercial branding measure/concept would not be suitable for a university branding measure (Chapleo 2010).

A few attempts have been made to examine how brand performance and brand image function in a university branding context. Nguyen et al.'s (2016) study, for example, conceptualised 'brand performance' as a five-dimensional 24-item construct comprising: product quality, service quality, price, competence and distribution. This conceptualisation is quite eccentric in that the brand performance was conceptualised as a second-order construct with five dimensions, which are regarded as separate constructs in the current literature. For example, the product and service quality constructs are well appointed with an established body of service quality theories, including a perception-only approach (Cronin and Taylor 1992, 1994) and disconfirmation-based approach (Parasuraman et al. 1988). Therefore, considering students' perceptions of product and service quality within a brand performance measure/construct is conceptually flawed. A review of the items further delineates that Nguyen et al.'s (2016) 'brand performance' construct includes product or service quality and marketing mix variables, such as price and distribution. The 'brand image' construct, however, includes technical advancement, trustworthiness, innovativeness, product and customer centeredness of the brand and reported that the 'brand performance' affects the brand image in the context of some Chinese universities (Nguyen et al. 2016).

In contrast, Sultan and Wong (2014) defined the Uni-Brand performance construct as student perception about the relative performance of the university brand in the marketplace and validated eight items that had been derived from the focus group data. The eight items include graduates' employment rates, starting salary, graduates' relative success rates in securing employment, graduates' pride, the merit of the degree, and reputation and international standing of the university. Thus, the current study considers Sultan and Wong's (2014) definition of Uni-Brand performance construct.

## Brand image

Perceived image towards a brand refers to customers' beliefs and subjective insights of brand associations (Yuan et al. 2016). Thus, a brand's image can consist of tangible and intangible cues, which may include cognitive and emotive evaluations and affective responses. The current study measured university brand image by perceived innovativeness, 'goodness' and 'seriousness' of education and business practices, maintenance of ethical standards and social responsibilities, provision of opportunities and individualised attention (Sultan and Wong 2012).

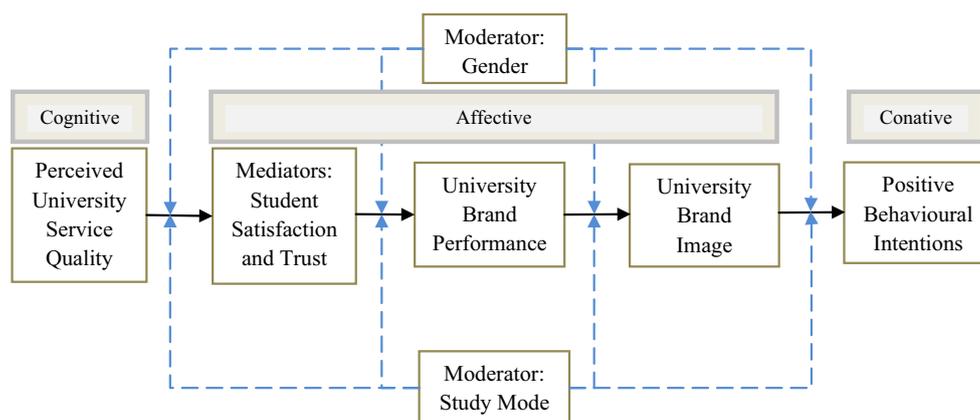
Marketing communications are well understood to have direct and indirect relationships with brand image (Sultan and Wong 2012; Šerić et al. 2014; Foroudi et al. 2017). For example, brand image has a direct relationship with the quality perception of hotel customers (Šerić et al. 2014). In a university context, however, current students develop satisfaction and trust in the institution's brand over their duration of studies. Thus, a direct relationship between brand image, brand performance and perceived quality may be spurious in university branding context. Indeed, this was echoed by Šerić et al. (2014), who suggested that future research should consider the role of customer satisfaction as an independent and mediating construct between brand image and perceived quality. For the present study, satisfaction, trust and behavioural intention constructs are conceptualised in accordance with current studies (Sultan and Wong 2012, 2014).

## The research model

The present research model takes an attitude-loyalty framework and considers three critical stages, including cognitive, affective and conative by following the extant literature (see Fig. 1). While the cognitive phase is based on one's experience and includes an overall evaluation of attributes, the affective and conative phases are based on emotion (e.g. satisfaction, trust) and behaviour/action (e.g. commitment, intention, loyalty), respectively (Oliver 1999; Fishbein 1967; Pike and Ryan 2004; Han et al. 2011). Inspired by the current literature, this study then theorises that student's conative attitude is the result of affective attitude induced by cognitive attitudes.

An experience-centric branding approach has been recently coined in a conceptual paper stating that most consumers do not just buy products, they also buy products and experiences together, and thus, the experiential value as a differentiation tool could play a significant role for 'on-brand' experience (Merrilees 2017). The value-based higher education is very much experience driven, where students learn about service attributes through their experiential values, and advance cognitive and affective





**Fig. 1** Theoretical model

attributes in their judgement, and develop corresponding conative or behavioural attitudes in branding and reputation management (Vinhas Da Silva and Faridah Syed Alwi 2006). As a result, research argued that the traditional branding approaches do not work for universities because of their complexity and inside-out perspective to brand development (e.g. by engaging internal forces to promote brand name) (Whisman 2009). Although branding initiatives can build awareness and shape the image of a university, research in university branding is limited and has highlighted the complexity of university branding (Joseph et al. 2012).

Research into experience-centric branding in higher education is limited, particularly from an outside-in perspective (e.g. student's perception of the relative performance of a brand in the marketplace). The present study addresses this gap, and also, it examines the antecedents and consequences of brand performance and brand image in a higher education context. This study demonstrates how a quality-led service function as perceived by the students can improve brand performance and brand image and subsequently lead to positive behavioural intentions.

In contrast to previous studies, where Nguyen et al. (2016) conceptualised brand performance as a five-dimensional construct and included product quality, service quality, price, competence and distribution, the current study theorises and empirically validates that service quality is an exogenous construct and has three dimensions and that service quality has indirect causal relationships with brand performance mediated through student satisfaction and trust.

The definitions and relationship of brand performance and brand image in higher education context are scarce. The current study defines and empirically validates the relationship between these two constructs and advances the research frameworks as proposed by Sultan and Wong (2012, 2014). The current literature demonstrated how PSQ

influences brand image (Sultan and Wong 2012) and how PSQ influences brand performance and behavioural intentions (Sultan and Wong 2014). In contrast to these studies, the current study demonstrates that—(1) student satisfaction, trust, brand performance and brand image play the mediating roles between PSQ and behavioural intention relationships, confirming that affective attitudes play as mediators between cognitive and conative attitudes, (2) brand performance affects brand image, and (3) gender and mode-of-study do not play moderating roles in the model.

## Research hypotheses

Satisfaction is a fundamental tenet of marketing theory and application, and a direct causal outcome of perceived quality, which is driven by attitude (Cronin et al. 2000). Thus, perceived quality represents overall evaluation, the outcome of which is satisfaction. In a university context, satisfaction is found to be directly influenced by service quality (Alves and Raposo 2007) and indirectly influenced by service quality via perceived value (Brown and Mazzarol 2009). Therefore,

**H1** Perceived service quality has a positive relationship with satisfaction.

Service quality and perceived trust represent another fundamental relationship in marketing (Berry 2002). Indeed, service quality evaluation by university students is a major determinant of trust (Hennig-Thurau et al. 2001), since integrity and dependable service execution engender confidence in future service encounters at the university, which fosters trust. Thus:

**H2** Perceived service quality has a positive relationship with perceived trust.



Satisfaction is transaction specific (Cronin and Taylor 1992), and trust is consumer confidence in the quality and reliability of the services offered by a provider (Garbarino and Johnson 1999). In the context of higher education, trust has been defined as a cognitive understanding and a thorough belief that the future service performance and subsequent satisfaction will be identical (Sultan and Wong 2014). Trust exists as customers' normative affect through the test and usage evaluations and satisfaction (Delgado-Ballester and Munuera-Aleman 2001). Students' cumulative satisfaction with the institutional services leads them to believe that those services have the capacity to satisfy their needs consistently and in the long term. Trust once established is more permanent as compared to perceived satisfaction. Hence, trust emerges from one's judgements and is transaction specific, evaluative, affective or emotional in nature. Therefore:

**H3** Satisfaction has a positive relationship with trust.

Brand performance can be defined as the achievement of a brand in a stipulated market that prescribes market share, switching and brand's overall perception (Sultan and Wong 2013). For example, customer satisfaction is found to influence the brand performance outcomes in the context of hotel industry because satisfaction leads to increased sales and prices (O'Neill et al. 2006). Similarly, satisfied students are ready to perceive the UniBrand as worthy and reliable positively. Thus:

**H4** Satisfaction has a positive relationship with UniBrand performance.

According to Andreassen and Lindestad (1998), human interprets their perceptions about a brand image by developing their knowledge schemas about a brand. The image formation process is cognitive as human uses their ideas, feelings, experiences and satisfaction with an organisation or a brand and then transforms those into a meaningful construct/concept in their memories (Nguyen and LeBlanc 1998). Thus, transaction-based satisfaction has an effect on the UniBrand image. Thus:

**H5** Satisfaction has a positive relationship with university brand image.

A strong link has been detected between satisfaction and student loyalty and positive behavioural intentions (Helgesen and Nettet 2007; Sultan and Wong 2014). Satisfied customers perpetuate high investment (Zeng et al. 2009), and there is a strong likelihood they will present positive interpretations of the company, product or brand, such as passing on recommendations or returning later to study at the same institution. Therefore:

**H6** Satisfaction has a positive relationship with behavioural intentions.

Improved brand reputation (or brand performance) results from customer trust in that brand (Jøsang et al. 2007; Harris and de Chernatony 2001). Thus, experiential trust can affect brand reputation (Delgado-Ballester and Munuera-Aleman 2001). Similarly, student trust may enhance the marketability of a university's brand (Sultan and Wong 2012, 2014). As students accumulate trust over the duration of their studies, increasing pride serves to uphold the university brand's comparative performance. Therefore:

**H7** Trust has a positive relationship with UniBrand performance.

Corporate image is the sum of stakeholder impressions built over time (Sultan and Wong 2012) and accumulated customer satisfaction and trust. Similarly, students develop trust over time, which has a cognitive impact and portrays the university in a positive light. Thus:

**H8** Trust has a positive relationship with UniBrand image.

The trust-behavioural intention relationship has received significant attention and support particularly in both e-commerce customer and provider contexts (Jarvenpaa et al. 1998; Liu et al. 2004). Similarly, student trust corresponds to the assurance of identical service performance in future, which enhances their positive and future behavioural intentions. Therefore:

**H9** Trust has a positive relationship with behavioural intentions.

The brand image may be viewed as the framework establishing the need for consumers (Roth 1995), or the image constructed by stakeholders (Sultan and Wong 2012). The successes of brand image strategy are dependent on the suitability of the brand in local and international markets. While brand performance is a partial measure of a brand's marketplace achievement (O'Cass and Ngo 2007), the brand image represents an overall impression of the brand. Consequently, brand performance may be expected to affect brand image. Therefore:

**H10** UniBrand performance has a positive relationship with UniBrand image.

Behavioural intention predicts customers' intentions regarding loyalty to an organisation (Zeithaml et al. 1996). Better perceived brand experience increases market demand. A positive correlation has been detected between image and intention in the tourism and hospitality industries (Xu et al. 2017). Similarly, a link has been found



between image and loyalty in green consumption (Lin et al. 2017). Therefore:

**H11** UniBrand image has a positive relationship with behavioural intentions.

### Mediating effects

The current literature in higher education lacks to demonstrate the mediational effects of satisfaction, trust, university brand performance and university brand image between perceived service quality and behavioural intentions. Successful relational exchanges are motivated by trust, commitment and satisfaction (Garbarino and Johnson 1999). In the literature, the mediating effects of satisfaction and trust were confirmed between motivational factors and supportive behavioural intentions, including word-of-mouth (Swanson et al. 2007), and between attitudes and future intentions (Garbarino and Johnson 1999) in the performing arts and nonprofit sectors, respectively. A university is a social and value-based institution, and its services are highly relational. Therefore, integrating relationship variables including satisfaction and trust between cognitive, affective and conative attitudes improve the relationship quality between customer and service provider.

This study theorises that student perception of university service quality affects university brand performance, university brand image and behavioural intention through the mediational effects of student satisfaction and trust over time in a relational context. The mediation test establishes whether or not student satisfaction and trust in higher education service performances are deliberate processes of achieving the UniBrand performance, UniBrand image and positive behavioural intentions. Therefore,

**H12a** Satisfaction mediates the relationship between perceived service quality and university brand performance.

**H12b** Trust mediates the relationship between perceived service quality and university brand performance.

**H12c** Satisfaction mediates the relationship between perceived service quality and university brand image.

**H12d** Trust mediates the relationship between perceived service quality and university brand image.

**H12e** Satisfaction mediates the relationship between perceived service quality and behavioural intentions.

**H12f** Trust mediates the relationship between perceived service quality and behavioural intentions.

**H12g** Satisfaction mediates the relationship between perceived service quality and trust.

**H12h** Trust mediates the relationship between satisfaction and university brand performance.

**H12i** Satisfaction and trust mediate the relationship between perceived service quality and university brand performance.

The empirical research on the role of brand performance and brand image as mediators is relatively scarce. It is evident in the literature that subjective brand performance mediates between brand management systems and objective financial performance (Dunes and Pras 2017) and that corporate brand image mediates between customer satisfaction and customer loyalty (Ryu et al. 2008; Alwi and Kitchen 2014). However, the literature also stated that a direct relationship between brand image and brand loyalty exists when the brand attributes are used in an online setting (Merrilees and Fry 2002). The mediating effects of subjective brand performance and brand image between satisfaction, trust and behavioural intentions have never been tested. Building brand performance and brand image in higher education context are strategically different as compared to commercial brand building activities. In a higher education context, for example, the brand building includes ensuring satisfaction and trustworthy academic, administrative and facility-related services in accordance with strategic investment plans to generate positive behavioural intentions. Therefore,

**H12j** UniBrand performance mediates the relationship between satisfaction and UniBrand image.

**H12k** UniBrand performance and UniBrand image mediate the relationship between satisfaction and behavioural intentions.

**H12l** UniBrand performance mediates the relationship between trust and UniBrand image.

**H12m** UniBrand performance and UniBrand image mediate the relationship between trust and behavioural intentions.

**H12n** UniBrand image mediates the relationship between UniBrand performance and behavioural intentions.

### Moderating roles

Understanding the role of 'gender differences' in the proposed model is also important. Gender was found to be an important moderating variable between the relationships of performance, value, satisfaction, intention and loyalty in various contexts, including mobile banking, hospitality and tourism (Sharma et al. 2012; Han et al. 2017). However, no research has been undertaken in university contexts to examine the moderating effect of gender on perceived quality, satisfaction, trust, brand performance, image and intention relationships.



Research examining the moderating effect of ‘mode-of-study’ (i.e. face to face and online) in the relationships between communication, challenge, competence and evaluation has not found any significant effect in a single course at a single university context (Ganesh et al. 2015). However, examining the potential effects of mode-of-study in the model is important as face-to-face students (compared with online, distance or flexible students) get real-time interaction and sensory effects in their learning and understanding of service quality assessment, which may subsequently affect their cognitive (e.g. satisfaction and trust), affective (e.g. brand image and brand performance) and behavioural evaluations (e.g. behavioural intentions). Therefore:

**H13a** Gender moderates the hypothesised relationships between H1 and H11.

**H13b** Mode-of-study moderates the hypothesised relationships between H1 and H11.

## Measurements and data collection

The survey instruments for each of the constructs were adapted from the current literature, including PSQ—21 items (Abdullah 2006; Cronin et al. 2000; Sultan and Wong 2010a, 2012, 2014); satisfaction—seven items (Cassel and Eklöf 2001; Sultan and Wong 2012, 2014); trust—12 items (Sultan and Wong 2012, 2014; Chaudhuri and Holbrook 2001; Delgado-Ballester and Munuera-Aleman 2001); UniBrand performance—eight items (Sultan and Wong 2014); UniBrand image—eight items (Sultan and Wong 2012); and behavioural intention—six items (Sultan and Wong 2014; Swanson et al. 2007). A seven-point Likert-type scale was used to measure the responses.

A random sampling technique was adopted, and an online survey link was prepared and delivered to the students of an Australian university through an email invitation. Although an online survey has some advantages including the intention to participate and low processing fees, web-based surveys often achieve a low response rate (Sax et al. 2003; Deutskens et al. 2004; Sultan et al. 2018). The online survey for the present study generated a seven per cent response rate (i.e. 1032 completed responses). There were no missing data due to the ‘required completion answer’ constraint; however, there were some incomplete cases. The participants who had studied for less than 6 months along with the incomplete cases were deleted, and this resulted in 528 usable responses. This study employed the extrapolation method in determining the non-response bias: usable responses were apportioned in early and late responses’ groups. The results showed that the  $p$  values for all measurement items were  $> 0.05$  in the

Levene’s test for equality of variances. Thus, equal variances for these two groups were assumed, and a non-response bias was not considered to be a major concern for the 528 cases (Anees-ur-Rehman et al. 2018; Ho 2006; Pallant 2011).

## Data analysis and results

An overview of the demographic profiles of the respondents revealed that there were 139 males and 389 females. The average age of the sample was 20 years. Respondents comprised 259 full-time students and 269 flexible, online or distance students.

### Exploratory factor analysis (EFA) and reliability test results

Table 1 shows the results of EFA, Cronbach’s alpha coefficient, Kaiser–Mayer–Olkin (KMO) measure of sampling adequacy. Although the EFA test results demonstrated a single factor solution for each construct, the PSQ construct with 21 items shows three factors, namely academic service quality (ACSQ), administrative service quality (ADSQ) and facilities service quality (FSQ). Because of low factor loadings, two PSQ items (SQ17 and SQ15) were deleted. Cronbach’s alpha coefficient results were  $> 0.70$  in the reliability tests for each of the constructs, suggesting strong internal reliability (Hair et al. 2010).

### Convergent validity test results

The confirmatory factor analysis (CFA) test results show that the critical ratio values were  $> 1.96$  for each item at the  $p \leq 0.05$  level, suggesting robust convergent validity (Sultan and Wong 2014; Wong and Merrilees 2007). The square root of the total variance was used to compute the average variance extracted (AVE) for all study constructs. Results show that AVE was  $> 0.5$  for each of the study constructs, suggesting a strong convergent validity for each construct (Hair et al. 2010). These two results confirm that the constructs have convergent validity.

### Discriminant validity test results

The pairwise (28 pairs)  $\chi^2$  difference tests were performed on the eight constructs. Discriminant validity was supported as the  $\chi^2$  difference for each pair was significant ( $p < 0.01$ ). Second, a comparison table (Table 2) was developed for AVE and squared correlation estimates. The results show that AVE estimates are greater than squared



**Table 1** Exploratory factor analysis, reliability test and other test results

Constructs	Items	Factor loadings	Cronbach's alpha	Total variance explained (%)
ACSQ	Lecturers show sincere interest in solving my academic problems (SQ_2)	0.84	0.913	63.43
	I find that lecturers are skilled in teaching (SQ_6)	0.80		
	Lecturers provide feedback about my progress (SQ_4)	0.78		
	I receive adequate time for consultation with lecturers (SQ_5)	0.74		
	I find that academics at this university are knowledgeable (SQ_1)	0.73		
	The academic backgrounds of the lecturers are excellent (SQ_7)	0.68		
	My academic performance is recorded correctly (SQ_3)	0.57		
ADSQ	I find that the administrative staff is prompt to provide service (SQ_9)	0.85	0.912	
	I find that the administrative staff is courteous (SQ_8)	0.88		
	I find that the administrative staff keeps accurate records (SQ_10)	0.82		
	I find that the administrative staff is skilled (SQ_13)	0.81		
	The admission department of this university is very helpful (SQ_11)	0.74		
	The overall environment of this university is friendly (SQ_14)	0.51		
	I find that the university's career counselling service is very helpful (SQ_12)	0.43		
FSQ	I find that this university has good infrastructure (SQ_21)	0.78	0.849	
	I find that the classroom facilities are adequate (SQ_19)	0.80		
	I find that this university has up-to-date equipment (SQ_18)	0.72		
	I find that the library facilities are adequate (SQ_20)	0.71		
	I find that the scenic beauty of this university is excellent (SQ_22)	0.65		
Satisfaction	Overall, I am satisfied with this university (S_4_ECSI)	0.94	0.942	75.05
	Overall, it is a good university (S_3)	0.92		
	Overall, this university fulfils my needs (S_5_ECSI)	0.91		
	It has been a good decision to select this university (S_7)	0.88		
	Overall, I am satisfied with the service performance (S_1)	0.87		
	Overall, I am satisfied with the quality relative to price (S_2)	0.77		
	Overall, the university provides satisfaction compared to an alternate higher education institution (S_6)	0.76		
Trust	I trust this university (T_4)	0.92	0.953	66.78
	I can depend on this university (T_3)	0.91		
	Overall, this university is honest with me (T_10)	0.87		
	I feel secure at this university (T_2)	0.85		
	This university provides reliable quality of services (T_7)	0.84		
	This university guarantees satisfaction (T_5)	0.84		
	This university guarantees best value (T_6)	0.82		
	The university staff is trustworthy (T_1)	0.82		
	My emotional relationship with this university is strong (T_9)	0.78		
	I find that this university keeps promises (T_11)	0.76		
	I always get help from staff, if I ask for it (T_12)	0.73		
	I am confident that I will get a good job after graduation (T_8)	0.67		
UniBrand performance	___University as a brand is reliable (BP_5)	0.90	0.935	69.24
	A degree from this university is worthy (BP_2)	0.89		
	This university performs well (BP_4)	0.88		
	I found that this university has a good reputation (BP_3)	0.87		
	I am proud to be a student of this university (BP_1)	0.87		
	A degree from this university enhances employability (BP_7)	0.82		
	The graduates of this university receive a good salary (BP_6)	0.73		
	Employers prefer graduates from this university (BP_8)	0.70		



**Table 1** continued

Constructs	Items	Factor loadings	Cronbach's alpha	Total variance explained (%)
UniBrand image	Overall, the image of this university is good (I_1)	0.86	0.929	67.54
	This university of serious about education (I_2)	0.85		
	This university gives me the opportunity to be what I want to be (I_3)	0.82		
	The staff of this university pay a close attention to the students (I_4)	0.74		
	Overall, the business practice of this university is good (I_5)	0.83		
	This university maintains ethical standards ((I_6)	0.84		
	This university performs its social responsibilities (I_7)	0.79		
	This university innovative (I_8)	0.83		
Behavioural intentions	If I had to choose today, I would select this university (BI_6_ECSI)	0.91	0.950	80.27
	If I had to choose today, I would select the study programs of this university (BI_8_ECSI)	0.91		
	I will recommend others to study at this university (BI_1_ECSI)	0.91		
	I will definitely consider this university as my future study destination (BI_2)	0.89		
	I will recommend the study programs of this university to others (BI_7_ECSI)	0.91		
	I will recommend this university in preference to other options (BI_5)	0.86		

**Table 2** Discriminant validity using AVE (bold and diagonal) and squared correlation

Constructs	1	2	3	4	5	6	7	8
ACSQ	<b>0.82</b>							
ADSQ	0.40	<b>0.79</b>						
FSQ	0.33	0.29	<b>0.80</b>					
Satisfaction	0.31	0.40	0.33	<b>0.83</b>				
Trust	0.23	0.44	0.37	0.56	<b>0.83</b>			
UniBrand Performance	0.39	0.33	0.27	0.53	0.56	<b>0.87</b>		
UniBrand Image	0.39	0.33	0.27	0.54	0.50	0.49	<b>0.86</b>	
Behavioural Intention	0.34	0.27	0.23	0.49	0.49	0.52	0.46	<b>0.85</b>

The AVE values are in the diagonal

correlation estimates (Hair et al. 2010). Thus, the results show that discriminant validity exists for each construct.

**Results of the measurement and structural model analyses**

The results of the measurement model demonstrated an acceptable fit, as did the structural model. Due to a large sample size ( $n = 528$ ), the Chi-square statistic for the absolute fit measure was  $\chi^2 (N = 528, df = 1688) = 5190.8, p < 0.01$  (Hair et al. 2010). The Hoelter's critical  $N$  was 182 ( $p \leq 0.05$ ) and 186 ( $p \leq 0.01$ ), which implies that a sample size of 182–186 would have produced an acceptable  $\chi^2$  value at a  $p \geq 0.05$  level for this study. The other fit indices, including normed  $\chi^2$  (3.0), RMSEA (0.06) and SRMR (0.05), were within the cut-off points (Hair

et al. 2010). The incremental fit measures, including TLI (0.88), NFI (0.84) and CFI (0.89), were all close to 1.0. The parsimonious fit measures, PRATIO (0.95), PNFI (0.80) and PCFI (0.85), were also close to 1.0. The values of these fit indices were all acceptable (Hair et al. 2010; Ho 2006). Thus, these measures suggest that the model fits reasonably within the dataset.

**Hypotheses testing results**

The multicollinearity test was performed to examine how the constructs were associated, which is a concern particularly when the correlation coefficient ( $r$ ) is 0.9 or above between two variables or constructs (Pallant 2011). Our results indicated that none of the correlation coefficients was 0.9 or above between two constructs and that the



tolerance value was  $> 0.10$  with a variance inflation factor (VIF) of  $< 10$  between constructs (Hair et al. 2010; Pallant 2011). Thus, the results confirmed that neither collinearity nor multicollinearity affected the relationships between constructs.

Figure 2 shows the simplified version of the structural model. The model shows the standardised path coefficients and their significance levels for each of the hypothesised causal relationships. Figure 3 shows the full structural model, including the hypothesised path coefficients. Table 3 reports the hypotheses test results. Overall, the model supports all 11 hypotheses.

Further, the model also establishes strong predictive abilities (squared multiple correlations,  $R^2$ ) of each of dependent latent constructs, including satisfaction (0.77), trust (0.90), UniBrand performance (0.81), UniBrand image (0.81) and behavioural intentions (0.73) at the 0.01 level (please see Fig. 2).

### Mediation test results

To test hypotheses 12a–12n, an alternative model was developed with direct causal relationships between PSQ and UniBrand performance, PSQ and UniBrand image, UniBrand performance and behavioural intentions, and PSQ and behavioural intentions within the same model. The bootstrapping approach with 2000 samples in AMOS was used to examine the direct and indirect effects and their associated significance levels (2-tailed) (Anees-ur-Rehman et al. 2018; Zhao et al. 2010). The results are demonstrated in Table 4.

The results show that the standardised indirect effects are all statistically significant and that some of the standardised direct regression coefficients are also significant. Thus, eight of the fourteen mediational hypotheses are found to have partial mediation effects in the model, and

six hypotheses are found to have full mediational effects in the model. For example, PSQ–UniBrand performance ( $\beta = 0.003$ ,  $p > 0.05$ ) was weak and insignificant. However, their indirect relationships are all positive and significant. This signifies that both satisfaction and trust fully mediate the relationship of PSQ–UniBrand performance and thus confirms hypothesis 12a, 12b and 12i. Similarly, the direct effect of PSQ–behavioural intention relationship was found negative and significant ( $\beta = -0.166$ ,  $p < 0.001$ ), but the indirect effects via satisfaction and trust were positive and significant ( $\beta = 0.817$ ,  $p < 0.001$ ), suggesting that satisfaction and trust fully mediate the relationship between PSQ and behavioural intention in the model and confirm hypotheses 12e and 12f. The results also demonstrate that the trust–behavioural intention relationship is weak and insignificant ( $\beta = 0.087$ ,  $p > 0.05$ ). However, their indirect relationships via UniBrand performance and UniBrand image is relatively strong, positive and statistically significant ( $\beta = 0.269$ ,  $p < 0.001$ ), confirming (hypothesis 12m) that both UniBrand performance and UniBrand image have full mediational effect between trust and behavioural intention.

### Moderation test results

Multi-group moderation tests were performed for the variables ‘gender’ (female–male) and ‘mode-of-study’ (full-time flexible/distance/online) to examine whether the hypothesised 11 paths were significantly different across the two groups within each of the categorical variables. No significant  $z$ -score was found for gender and mode-of-study, which means that the empirical model is ‘invariant’ across gender and mode-of-study variables. Thus, H13a and H13b were rejected.

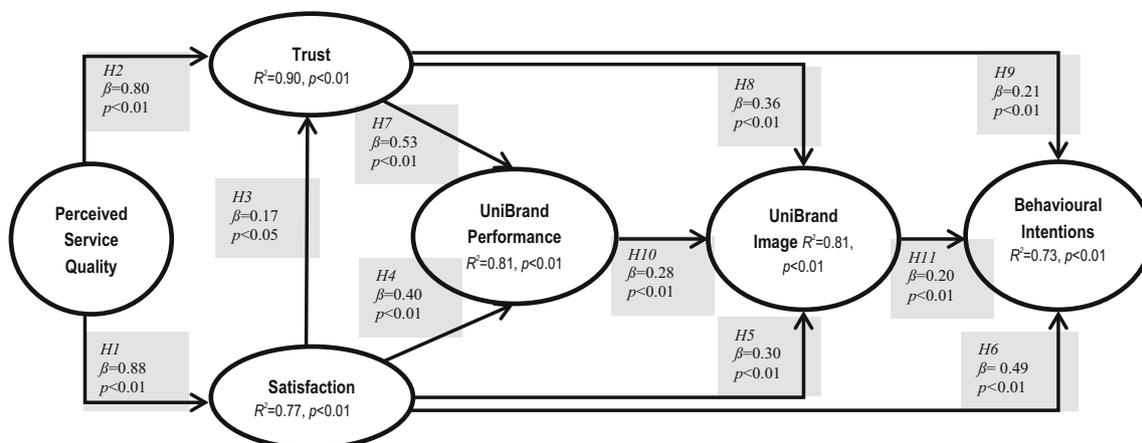


Fig. 2 Structural model (simplified version)



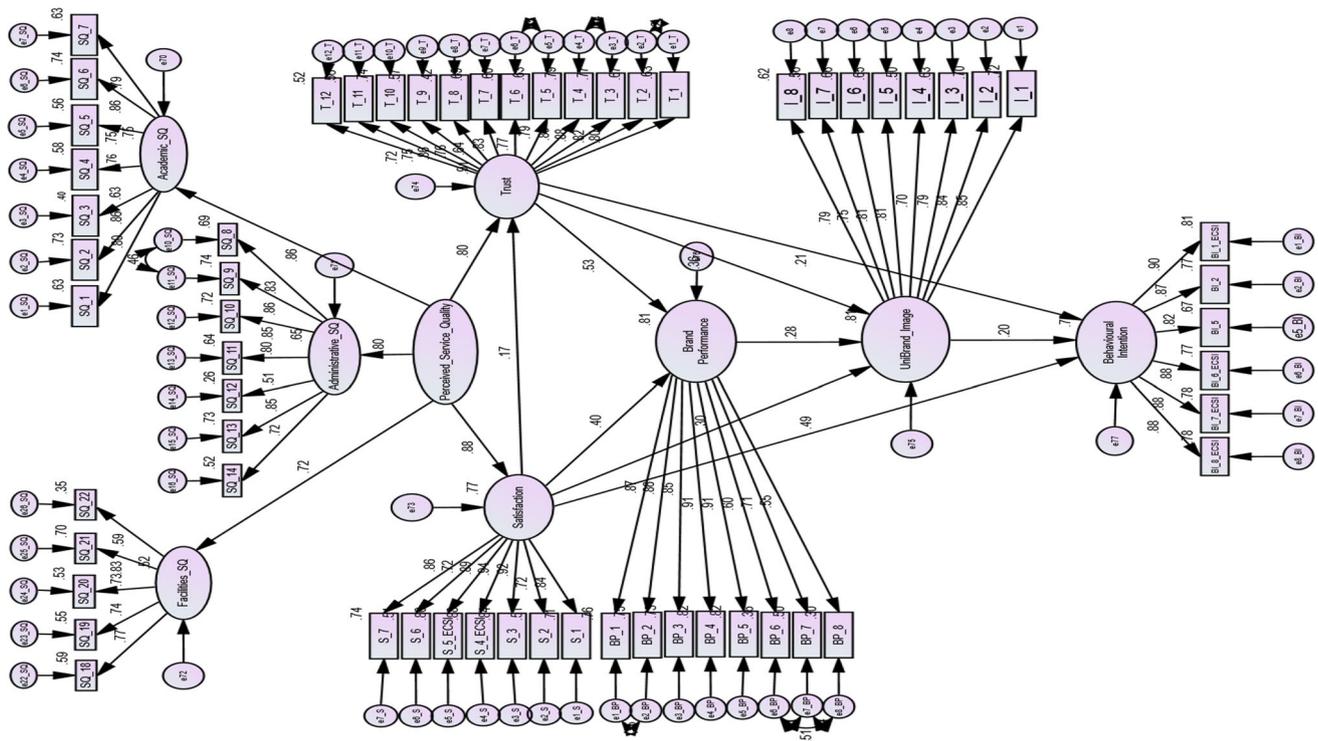


Fig. 3 Full structural model

Table 3 Hypotheses test results

Hypotheses	Standardised beta coefficient	p values	Result
H1: Perceived service quality → satisfaction	0.880	< 0.01	Accepted
H2: Perceived service quality → trust	0.801	< 0.01	Accepted
H3: Satisfaction → trust	0.170	< 0.05	Accepted
H4: Satisfaction → UniBrand performance	0.400	< 0.01	Accepted
H5: Satisfaction → UniBrand image	0.301	< 0.01	Accepted
H6: Satisfaction → behavioural intentions	0.490	< 0.01	Accepted
H7: Trust → UniBrand performance	0.531	< 0.01	Accepted
H8: Trust → UniBrand image	0.361	< 0.01	Accepted
H9: Trust → behavioural intentions	0.210	< 0.01	Accepted
H10: UniBrand performance → UniBrand image	0.280	< 0.01	Accepted
H11: UniBrand image → behavioural intentions	0.200	p < 0.01	Accepted

### Discussion and managerial implications

The study examined how perceived service quality affects university brand performance, university brand image and behavioural intention in a higher education context. This study takes an attitude-loyalty framework and considers three phases as proposed by several studies (Oliver 1999; Fishbein 1967) and empirically developed a model and validated that cognitive attitudes influence affective attitudes and affective attitudes influence conative attitudes in a higher education context.

Merrilees (2017) is one of a recent study that advocated for an experience-centric branding approach and argued that most consumers do not only buy products, they also buy products and experiences together. Contrasting to the conceptualisation of Nguyen et al. (2016), where perceived product, service quality and marketing mix constructs are considered as dimensions of brand performance, our study has advanced the conceptualisation of the brand performance construct as a relative and experience-centric measure and validated it. One of the novel findings of the present study is that it considered both UniBrand performance and UniBrand image and demonstrated their



**Table 4** Mediation test results (direct and indirect effects using bootstrapping)

Hypotheses	Direct effect	Indirect effect	Outcome	Result
H12a: Perceived service quality → satisfaction → UniBrand performance	0.003 <sup>ns</sup>	0.716***	Full mediation	Accepted
H12b: Perceived service quality → trust → UniBrand performance	0.003 <sup>ns</sup>	0.716***	Full mediation	Accepted
H12c: Perceived service quality → satisfaction → UniBrand image	0.343***	0.470***	Partial mediation	Accepted
H12d: Perceived service quality → Trust → UniBrand image	0.343***	0.470***	Partial mediation	Accepted
H12e: Perceived service quality → satisfaction → behavioural intentions	− 0.166***	0.817***	Full mediation	Accepted
H12f: Perceived service quality → trust → behavioural intentions	− 0.166***	0.817***	Full mediation	Accepted
H12g: Perceived service quality → satisfaction → trust	0.475***	0.364***	Partial mediation	Accepted
H12h: Satisfaction → Trust → UniBrand performance	0.349***	0.246***	Partial mediation	Accepted
H12i: Perceived service quality → satisfaction → trust → UniBrand performance	0.003 <sup>ns</sup>	0.716***	Full mediation	Accepted
H12j: Satisfaction → UniBrand performance → UniBrand image	0.274***	0.178***	Partial mediation	Accepted
H12k: Satisfaction → UniBrand performance → UniBrand image → behavioural intentions	0.394***	0.370***	Partial mediation	Accepted
H12l: Trust → UniBrand performance → UniBrand image	0.151***	0.095***	Partial mediation	Accepted
H12m: Trust → UniBrand performance → UniBrand image → behavioural intentions	0.087 <sup>ns</sup>	0.269***	Full mediation	Accepted
H12n: UniBrand performance → UniBrand image → behavioural intentions	0.442***	0.027***	Partial mediation	Accepted

*ns* not significant

\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$

relationship with perceived service quality and behavioural intentions.

University services are high contact driven and require long-term and intensive commitments from all relevant stakeholders for a positive outcome, and this has been reflected in the mediation tests in this study. The results demonstrate that student satisfaction, trust, UniBrand performance and UniBrand image mediate the relationships between PSQ and behavioural intentions. Although the indirect effect of UniBrand performance and behavioural intention via UniBrand image was small ( $\beta = 0.027$ ,  $p < 0.01$ ), this was statistically significant.

Relatively high and significant path coefficients for each of the hypothesised relationships confirm that the theoretical model fits the dataset, and high and significant  $R^2$  values for each of the endogenous constructs indicate that they have predictive validity. Research suggests that an index score ( $R^2$ ) between 0.65 and 0.66 at the 0.05 level can be considered acceptable (Bradley et al. 2008; ECSI 1998). The  $R^2$  in the present study for satisfaction was 0.77 or (77 per cent). Similarly, the  $R^2$  for trust, UniBrand performance, UniBrand image and behavioural intentions were 90, 81, 81 and 73%, respectively. Overall, the scores

suggest an acceptable level of measure (index) score and predictive ability of the relevant constructs.

The results reveal that perceived quality has three core aspects or dimensions in a higher education context. Based on the standardised path coefficients calculated in the present study, however, students place relatively more importance on academic service quality (ACSQ) ( $\beta = 0.86$ ,  $p < 0.05$ ) than administrative service quality (ADSQ) ( $\beta = 0.80$ ,  $p < 0.05$ ) or facilities service quality (FSQ) ( $\beta = 0.72$ ,  $p < 0.05$ ). From a student's perspective, ACSQ refers to the lecturer's ability to deliver interactive, informative and practical lectures. ADSQ refers to the abilities of support staff to answer students' queries efficiently and support students during their course of study. FSQ refers to study and campus life facilities, including libraries, information technology, workshops, seminars and conferences, career counselling, transport, games and sport, catering and entertainment facilities.

One of the novel findings of the present study is that it establishes the relationships of PSQ, UniBrand performance and UniBrand image. The results of the current study demonstrate that satisfaction and trust play a significant (partial) mediating role in PSQ, UniBrand performance and UniBrand image relationships. This further



confirms that PSQ is a separate construct and that considering perceived product and service quality in a brand performance construct is conceptually flawed.

Nguyen et al. (2016) included product and service quality features in their 'brand performance' construct. However, our study conceptualised 'perceived quality' as an independent (exogenous) construct based on an established body of the literature (Cronin and Taylor 1994; Cronin et al. 2000; Parasuraman et al. 1988; Sultan and Wong 2012, 2014) and 'brand performance' as an endogenous construct based on the recent branding literature (Wong and Merrilees 2007; O'Cass and Ngo 2007; Sultan and Wong 2014). Although the present study and Nguyen et al. (2016) considered brand performance in the context of university services, our conceptualisation of the brand performance construct explains relative performance of the UniBrand, and whether the students find the UniBrand reliable, worthy or reputable in the market (an outside-in perspective based on student perception). The results of the present study also show that UniBrand performance has a direct, positive and statistically significant effect on UniBrand image. Overall, this explains that UniBrand image is contingent on how a UniBrand performs in the market.

The current literature is limited and fails to provide consistent findings regarding the PSQ-image relationship across industries. For example, Cassel and Eklöf's (2001) ECSI model demonstrates that corporate image is a direct antecedent of PSQ in commercial services contexts. On the other hand, Šerić et al. (2014) found that PSQ is the direct antecedent of brand image in a hospitality industry context. In a higher education context, Brown and Mazzarol (2009) considered the ECSI model and found a weak path coefficient for brand image–satisfaction relationship and a low and negative path coefficient for image–service quality relationship. This relationship has been somehow remaining under-noticed in the current literature. Addressing this limitation, Sultan and Wong's (2012) study demonstrated how PSQ affects image through satisfaction and trust in a university context, without any mediating test result. The current study empirically tests the mediating effects and finds that satisfaction, trust and UniBrand performance have partial mediating effects in PSQ–UniBrand image relationship. The results also confirm that satisfaction, trust and UniBrand performance have a direct and positive effect on the UniBrand image. Thus, the results confirm that PSQ–behavioural intention relationship is partially mediated by satisfaction, trust, UniBrand performance and UniBrand image.

There are several managerial implications. The three core dimensions of PSQ (e.g. ACSQ, ADSQ and FSQ) are an index by which a university can gain further insights into the strengths and weaknesses of each of the items in

the dimensions and allocate appropriate resources to improve overall perceived quality. Managers need to invest in perceived quality attributes to achieve higher levels of satisfaction and trust in university–student relationships, which ultimately could contribute to the performance of a brand. An investment to promote the UniBrand only might result in reduced economic and social outcomes in the long term. Higher education managers should also aim to increase and gain student trust and satisfaction, as these two constructs have significant partial mediating effects on UniBrand performance, UniBrand image and behavioural intentions. Thus, a careful and rational investment plan for the service attributes as valued by the students could produce better return-on-investment for the desired level of UniBrand performance, UniBrand image and behavioural outcomes.

Brands play a significant role in influencing the perception of university's prospective and current students and develop a strong conative attitude for a continued and loyal relationship, particularly when students have many choices with cluttered information and limited differentiation. Thus, universities need to develop unique and relative measures of their brands, for example UniBrand performance and UniBrand image, and make those visible to the current and prospective students with clear economic and social indicators. For example, 'reputation', an indicator of the UniBrand performance measure, can be marketable through media presence and national and international ranking and public perception of the brand. Similarly, 'worthy' may become meaningful if the 'brand value' becomes useful to the students and stakeholders.

Perceived quality, satisfaction, trust, brand performance and brand image differ across stakeholder groups. In order to improve brand positioning and brand equity, brand marketers could productively use popular social media channels along with traditional campaigns to promote performance attributes, satisfaction and their consequences, such as trust, the current standings of the UniBrand performance and UniBrand image, to effectively engage relevant stakeholders to yield positive behavioural outcomes in the target markets (Alwi and Kitchen 2014; Foroudi et al. 2017).

Insignificant effects of gender and mode-of-study variables in the model demonstrate that the model is invariant across female–male and full-time online/distance/flexible students. According to Hofstede's cultural value dimension theory, Australia's score is 90 for individualism, which indicates that men and women in Australian society are considered equally important, highly individualistic, self-reliant, and they make their self-governing decisions (Hofstede 1980, 1991, n.d). This explains the insignificant moderating effect of gender and study mode in the model in the context of an Australian university. The managerial



implication in this context is that market segmentation, targeting and brand positioning strategies based on gender and mode-of-study may not be appropriate in the Australian higher education context.

Many universities are challenged by student numbers, job cuts and constricted budgets. Overall, this study shows an index model and demonstrates how managers can continuously monitor the indices or measures and improve outcomes of PSQ, satisfaction, trust, UniBrand performance, UniBrand image and behavioural intentions.

## Conclusions, limitations and future research

The aim of this study was to examine how PSQ affects brand performance, brand image and students' behavioural intentions in a university context. The results demonstrated that the relationship between PSQ and behavioural intentions is mediated by student satisfaction, student trust, UniBrand performance and UniBrand image. This is one of the key theoretical contributions of this study. The results did not indicate any moderating effects of gender or mode-of-study in the model.

The study has several limitations. First, the samples were drawn from a single Australian university. Second, the study obtained a low response rate, and thus potentially suffers from non-response bias, which can affect the estimation of parameters. Thus, the findings should not be readily generalised across the university sector. Future research should be cautious about extrapolating the model across the different universities, geographic or cultural contexts, owing to the potential moderating effects of gender, courses of study, study mode, study level, ethnicity/nationality and level of maturity in overall estimation of the model.

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### Compliance with ethical standards

**Conflict of interest** On behalf of all authors, the corresponding author states that there is no conflict of interest.

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