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# **An integrated-process model of service quality, institutional brand and behavioural intentions: The case of a University**

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## **Abstract**

**Purpose**– The purpose of this paper is to develop and test an integrated-process model/an index model by incorporating the antecedents and consequences of service quality in a higher education context.

**Design/methodology/approach**– This research employed both qualitative and quantitative research methods. The data from three focus groups, conducted at an Australian University, generated key themes and their interrelationships. The theoretical model was then tested using the structural equation modelling (SEM) technique on a sample of 528 University students.

**Findings**– The findings show that information (or marketing communications) and past experience are the antecedents of perceived service quality (PSQ). PSQ is a second order construct and has three dimensions: academic, administrative and facilities. The consequences of PSQ include trust, satisfaction, university-brand (UniBrand) performance and behavioural intentions. Overall, the results suggest a good validity of the model, and the nine path coefficients are found statistically significant.

**Originality/value**– The model explains how service quality is formed, and how PSQ affects UniBrand and positive behavioural intentions overtime. This paper develops and validates three new constructs including information, past experience and UniBrand performance. In addition, it improves and validates other constructs including service quality, satisfaction, trust and behavioural intention. The paper also advances service quality literature and validates five hypothesised relationships between constructs that are relatively new in the service quality literature. Finally, this study validates a comprehensive three-tiered “integrated-process” model/an index model that includes antecedents, dimensions and consequences of service quality taking a University as a case. Universities aiming for a sustainable presence in a competitive global market and intending to enhance brand performance and attract and retain students are encouraged to consider this model and its implications.

## Introduction

Branding in higher education is an area that may be controversial, and has so far received limited scrutiny among academics (Chapleo, 2011). A brand establishes marketable features or service provisions under the condition of intensive competition over resources (e.g. funding, renowned academics), and consumers (e.g. students) (Drori *et al.*, 2013). Although competition among universities is not a new phenomenon, branding is a recent marketing tool for universities to position themselves in the field of higher education (Aspara *et al.*, 2014, Drori *et al.*, 2013; Sultan and Wong, 2012, 2013a). In recent years, many universities in the UK have gone through the branding processes (Chapleo, 2010, 2011; Aspara *et al.*, 2014). However, empirical research in this area is scarce, especially, how university-brand (UniBrand) is affected by perceived service quality (PSQ), and subsequently, influences students' positive behavioural intentions in a competitive market.

In many countries, the higher education industry is facing a rapidly changing and diverse international market, changing regulations, emerging technologies and more demanding international students (Hemsley-Brown and Goonawardana, 2007). For example, Rolfe's (2002) study of higher education students in the UK reveals that students are primarily concerned at receiving what they consider as "value" for their tuition fees and that they are also aware that their academic grades will affect their employment prospects. Rolfe's study also indicated that proximity to home and employment prospects are the two most common reasons for students going into local higher education. These key factors reflect on their choice of a study programme. Thus, students are extremely critical and analytical when choosing their educational institutions and they look for evidence of service quality when making an uncertain and high risk decision of choosing a University (Angell *et al.*, 2008; Donaldson and McNicholas, 2004) in a competitive market where they are required to fund their educational expenses (Binsardi and Ekwulugo, 2003).

In order to remain competitive, many universities in the UK are being urged to develop a market orientation towards global markets (Asaad *et al.*, 2013). Marketing higher education in a student-centred/customer-led context is particularly relevant to countries such as the USA, UK and Australia as a number of universities in these countries are increasingly incorporated into the global markets and global marketing systems (Angell *et al.*, 2008; Asaad *et al.*, 2013; Binsardi and Ekwulugo, 2003; Sultan and Wong, 2012).

A number of recent studies have argued that a successful branding effort in the context of the higher education sector, operating in a competitive market, could improve University service functions, and attract and retain students (Casidy, 2013; Sultan and Wong, 2012, 2013a; Watkins and Gonzenbach, 2013). Although the current research finds that quality and brand are two important sources for achieving the competitive advantage (Sultan and Wong, 2010a, 2011, 2012, 2013a; Cubillo *et al.*, 2006), the current literature is inadequate as it does not demonstrate how perceived quality is formed over time, how it affects UniBrand, and attracts and retains students.

Most of the Australian universities, in particular, now have two primary aims/challenges: the necessity to increase the student population in line with the national targets (Sultan and Wong, 2010a) and to protect the institutions from adverse financial consequences due to poor retention rates (Douglas *et al.*, 2008; Rowley, 2003). The Australian higher education institutions are currently facing tremendous challenges from their global competitors. For example, there is a decline of 2.2 per cent (or 8,343 students) in June 2013 in

international full-fee paying students as compared to June 2012 (Austrade, 2013). Although there are many national and global forces for this declining rate, the Bradley report states that a declining quality experience as perceived by the students is one of the major reasons. As a result, one of the important recommendations of the Bradley report was to study the Australian students' experiences of higher education services (Bradley *et al.*, 2008).

The survival of a University in a competitive market often depends on external stakeholders including students' perceptions of the UniBrand. A better understanding of the primary stakeholder, the students, and their perceptions about a UniBrand can help guide a University's marketing and brand managers in developing more effective recruiting materials, investment and advertising plans, and overall branding efforts including positioning of a UniBrand in the global market. Subsequently, this could attract and retain students, particularly for those universities operating in specialist or niche and competitive markets. The current study is based on the premise that a marketing approach for a higher education institution in a competitive global market could further enhance the marketability of the programmes/courses, improve student attraction and retention status, and improve brand reputation and image over time (Mazzarol and Soutar, 2012; Sultan and Wong, 2012). Therefore, this study aims to explore and test an integrated-process model and answers: first, what affects PSQ; second, how students perceive higher education service quality; and third, how PSQ impacts on UniBrand and behavioural intentions in the Australian University context. Higher education policy makers and practitioners can make use of the findings and can examine how their UniBrand is performing in a market and across the higher education sector, can make use of it to attract and retain students through improved service provisions and perceived quality mediated through students' satisfaction surveys and brand trust built up over time.

## Literature review

The research surrounding in service quality and its dimensions can be traced back in the late 1970s, when Grönroos (1978) argued for technical, functional and image dimensions of PSQ. Over the last three decades, a growing number of studies in the services marketing domain have focused their findings on PSQ and its dimensions across many cultures and service industries including universities. These empirical studies develop service quality dimensions to gauge quality in higher education contexts and are based on either SERVQUAL (or service quality) that is conceptualised on the expectation-minus-perception (E-P) measure (Parasuraman *et al.*, 1988) or SERVPERF (or service performance) that is conceptualised on the perception-only concept (Cronin and Taylor, 1992, 1994). Both SERVQUAL and SERVPERF have five dimensions, namely, reliability, assurance, tangibles, empathy and responsiveness, and 22 items.

The SERVQUAL measure has been criticised in the current studies for a number of reasons. For example, literature argues that if expectation and performance receive the highest scores, respectively, the E-P finds perceived quality (or satisfaction) as zero despite a positive disconfirmation (Sultan, 2011; Yi, 1990; Yuksel and Yuksel, 2001). In this context, Grönroos (1993) argues that measuring expectation is not a sound way because experiences are in fact perceptions of reality and inherent in these perceptions are the prior expectations. Thus, recalling expectation while experiencing a particular service creates repetition of expectation and thus it is biased.

Empirical studies on service quality in terms of relative superiority between the SERVQUAL scale and the SERVPERF scale have been examined. Studies find that the

SERVPERF scale is a better alternative than the SERVQUAL scale as it explains much of the variance in dependent constructs (Babakus and Boller, 1992; Brady *et al.*, 2002; Brown *et al.*, 1993; Jain and Gupta, 2004; Zhou, 2004; Cronin *et al.*, 2000; Parasuraman *et al.*, 1994; Zeithaml *et al.*, 1996). Thus, Berry and Parasuraman (1991, p. 5), two of the three pioneers of E-P gap concept, states that “service quality is the foundation for services marketing because the core product being marketed is a performance. The performance is the product; the performance is what consumers buy”. In the current service quality literature both SERVQUAL and SERVPERF carry similar importance (Carrillat *et al.*, 2007); however, our study is centred upon the perception-only or performance-based constructs.

Service provision and service quality are often considered as synonymous as they both consider functional aspects of services. For example, service provision is defined as a set of customised offers that include a broad range of service functions, and is characterised as a long-term and mutual beneficial relationship between a service provider and a customer (Murphy and Poist, 1998; Wamba and Chatfield, 2011). In contrast, service quality is defined as “the totality of features and characteristics of a product or service that bears on its ability to satisfy stated or implied needs” (Johnson and Winchell, 1988, p. 48). For the purpose of this study, we define service quality as a set of market driven and dominant features of an offered service that have a long-term performance effect on sustained provider–customer relationship.

The service quality literature provides a profound understanding about the justification that the customer-centric approach or the marketing approach in the higher education domain may provide important outcomes (Drori *et al.*, 2013; Angell *et al.*, 2008; Stodnick and Rogers, 2008; Sultan and Wong, 2012, 2013a). While employing the customer-centric approach or the marketing approach in the higher education sector, a number of extant studies stated that students are, *inter alia*, customers of the higher education institutions (Douglas *et al.*, 2008; Sines and Duckworth, 1994; Rojas-Méndez *et al.*, 2009). The metaphor about consumers in marketing is that “the customer is king”. However, its analogy that “the student is king” in higher education services marketing may not be appropriate. Although students choose their University and course, and pay for their educational expenses in many universities, they are not customers. The reason for this is that the goal of education is not to delight the students but to equip them to be effective society-citizens (Franz, 1998) and motivate them to participate in the learning and knowledge development processes as a co-worker and learning participant/partner (Franz, 1998; Yorke, 1999). Thus, a service provider-customer relationship that exists in the commercial service sector is absent in the teacher-student relationship. However, a University-student relationship within the customer-centric approach or the marketing approach may encourage sustained and innovative service practices in a higher education setting.

In the context of higher education, the current literature indicates a number of service quality dimensions that vary markedly across cultures, universities, schools or departments (see for example, Kang and James, 2004; Petruzzellis *et al.*, 2006; Sultan and Tarafder, 2007; Sultan and Wong, 2010a, 2010b, 2011). One of the reasons for this is that the perception is shaped by culture, previous interaction, experience and marketing communication messages. Dimensions of higher education service quality also vary because of manipulation of research instruments (Sultan and Wong, 2013a). The antecedent approach of service quality, in contrast, provides insights into how consumers view service quality as a whole and how this view contributes in predicting their behaviour (Dabholkar *et al.*, 2000). The current literature (Sultan and Wong, 2013a), in this context, demonstrates how dimensional approach of service quality differs from antecedent approach of service quality.

Service quality models in the context of higher education have received some coverage in the current literature, where PSQ was found as the major determinants of student satisfaction, and an indirect determinant of student loyalty through satisfaction (Hennig–Thurau *et al.*, 2001; Rojas–Méndez *et al.*, 2009). The European Customer Satisfaction Index (ECSI) model (Cassel and Eklöf, 2001), a model that includes image, value, expectation, PSQ, customer satisfaction and loyalty, and measures nationwide customer satisfaction across all commercial sectors, has been empirically tested in the higher education sector by several studies (Alves and Raposo, 2007; Brown and Mazzarol, 2009) and found that the relationships between some of the constructs in the ECSI model had been negative and insignificant.

In particular, Alves and Raposo's (2007) study shows that both expectation and satisfaction have negative but significant relationships in the context of Portuguese's higher education. Brown and Mazzarol (2009) find that image, value, satisfaction and loyalty have chain effects, and other relationships in the ECSI model are insignificant, weak and indeterminate paths. The other important aspects of these studies (Alves and Raposo, 2007; Brown and Mazzarol, 2009) and in the ECSI model (Cassel and Eklöf, 2001) are that the image construct has been conceptualised as the determinant of perceived quality and expectation. These studies conceptualised corporate image as a built-in variable and assumed that it had been built only by means of marketing communications.

Grönroos (1984), in this context, states that corporate image is built mainly by technical quality and functional quality. Corporate image has been modelled as an outcome variable of perceived quality, value and satisfaction in the context of commercial service sectors (Johnson *et al.*, 2001; Nguyen and LeBlanc, 1998). Subsequently, University image was modelled as an outcome variable of PSQ mediated through student trust and satisfaction in a higher education context (Sultan and Wong, 2012). In particular, Sultan and Wong's (2012) study found that student satisfaction and trust, backed by positive perception of service performance, play an important role in building University image in a competitive market. The present study, however, demonstrates how UniBrand performance and students' behavioural intentions are influenced by PSQ mediated through student satisfaction and trust.

The current literature in higher education branding is scarce (Casidy, 2013; Sultan and Wong, 2012, 2013a; Chapleo, 2010, 2011). One of the possible reasons for this is that academics and researchers tend to consider University as a knowledge hub and hence, avoid perceiving it as a commercial brand. However, this view has been changing over the last two decades in many countries due to increased globalisation, internet delivery and student mobility, decreased government intervention and funding. Many universities are now promoting their specialist programmes to attract international students to supplement their expenses, and building partnerships with industries. These institutions are seeking funds from government and non-government sources to support their research and development activities, recruiting marketing managers and employing brand managers to ensure sustained growth.

Although a number of studies have developed brand performance measures and considered market share, price premiums, frequency of purchase/loyalty in commercial settings, this may not be applicable for the higher education sector. One of the reasons for this is that a University is perceived as a societal asset bound for human development and societal wellbeing. Chapleo's (2010) study, in this connection, states that borrowing commercial branding concept may not be wholly appropriate for the branding of a higher education institution. This implies that there is a need for a separate brand performance measure for the higher education institutions.

In summary, the current study attempts to answer: first, what factors affect PSQ? Second, how do students perceive service quality in a higher education context? third, how do PSQ affect the UniBrand performance and students' positive behavioural intentions in a University context? The current study approaches the service quality literature in the higher education context on three levels. First, this study develops and validates three new constructs such as information, past experience and UniBrand performance; and improves and validates other constructs such as service quality, satisfaction, trust and behavioural intention. Second, the study develops and examines the relationships between a number of constructs including information-service quality, past experience-service quality, trust-brand performance, satisfaction-brand performance and brand performance-behavioural intention. Third, it develops and validates a comprehensive three-tiered "integrated-process" model that includes antecedents, dimensions and consequences of service quality in a higher education context. The following section discusses research hypotheses and theoretical model. Following this the paper discusses research methodology, findings and discussion. The final section includes the conclusion, implications, limitations and suggestions for future research.

## **Research hypothesis and theoretical model**

The hypotheses development processes and the wordings of these hypotheses have followed the suggestions of the current studies (Andreassen and Streukens, 2013, O'Neill and Palmer, 2003; Parasuraman *et al.*, 1991; Sultan and Wong, 2012, 2013a).

### ***The relationship between information and PSQ***

Information relating to service quality is important as it provides a basis for evaluating service quality attributes during service encounter. Students receive information about quality aspects from a number of marketing communication sources. Rowley (1997) states that customers look for clues (before purchasing), including, for example, advertisements and word-of-mouth from the physical environment about the organisation's capabilities and quality in terms of provision of services. Formal communications from various sources, including advertisements, leaflets and related articles in magazines and newspapers, affect the way customers interpret ambiguous evidence concerning quality (Devlin *et al.*, 2002). Adequate information accelerates consumers' learning in terms of attributes of the product or service. This suggests that the role of providing adequate and reliable information to the students, prior to their enrolment, can have tremendous effects in shaping their perceptions about service quality of a University. In short, perceived quality is affected by reliable information. Therefore:

*H1.* Information has a positive effect on PSQ.

### ***The relationship between past experience and PSQ***

Information alone cannot provide a complete view of the world around us. To get a complete view about a particular phenomenon, one needs to integrate his/her imagination and experience along with information (O'Neill and Palmer, 2003). Past experience provides a brief cognitive standard and helps in evaluating the standard of service quality of present and/or future service encounters. Trials of a product may be seen as an important part of learning since it provides evidence (through experience) that affects the evaluation of product performance (Biedenbach and Marell, 2010). When customers accumulate negative experience, they evaluate perceived quality negatively (Hoch and Deighton, 1989). In other words, consumer perception of service quality is influenced by the degree of prior experience. In the context of higher education, past experience of receiving education service may provide a basis for evaluating educational

service quality of a potential University. Students' recent experience with staff of the University may also provide a basis for forming service quality perceptions of a potential University. Therefore:

*H2.* Past experience has a positive effect on perceived of service quality.

### ***The relationship between PSQ and satisfaction***

The concept of satisfaction occupies a central position in marketing thought and practice. Literature suggests that the critical determinant of perceived satisfaction is perceived quality (Cronin *et al.*, 2000; Fornell *et al.*, 1996). This is because both perceived quality and satisfaction are attitude driven. Perceived quality is a long run overall evaluation and satisfaction is the outcome of this overall evaluation. Research also found that service quality directly affects satisfaction (Alves and Raposo, 2007); and indirectly affects satisfaction through perceived value (Brown and Mazzarol, 2009) in the higher education context. Overall, this suggests that the students are satisfied if service attributes perform well. Therefore:

*H3.* PSQ has a positive effect on student satisfaction.

### ***The relationship between PSQ and student trust***

Customer trust determines the relationship strength between customer and service provider. As a result, service quality and trust have been viewed as the centre of relationship marketing (Berry, 2002). Students' trust, in the context of higher education, is identified as one of the major consequences of service quality evaluation in a study of graduated and dropout students of four German universities (Hennig-Thurau *et al.*, 2001). This is because a University's integrity and reliable service performance, and subsequent perceptions of the students build their belief and confidence about the possible outcome of future service encounters which in turn determines students' trust. Therefore:

*H4.* PSQ has a positive effect on student trust.

### ***The relationship between student satisfaction and student trust***

Satisfaction is transaction specific (Cronin and Taylor, 1992). However, trust is an emotional norm that is often influenced by consumers' trial and usage evaluation and their subsequent satisfaction (Delgado-Ballester and Munuera-Aleman, 2001). In a higher education context, students' cumulative satisfaction with the service attributes make him/her believe that the service attributes have consistent capacity to satisfy his/her needs in any future service encounter. Once such a trust is developed, it becomes more enduring than satisfaction. Thus, trust may derive from any transactional, evaluative, affective and emotional judgment. Therefore:

*H5.* Student satisfaction has a positive effect on student trust.

### ***The relationship between student satisfaction and UniBrand performance***

Brand performance is the success of a brand in a defined market. Wong and Merrilees's (2007) study conceptualised brand performance measure from managerial perspectives; however, the current study conceptualised both satisfaction and UniBrand performance measures from students' attitudinal perspectives. Research found that customer satisfaction affects brand outcome in the context of the hotel industry because satisfaction results in



achieving more sales and increased price premiums (O'Neill *et al.*, 2006). Thus, student satisfaction, in the context of higher education, would affect UniBrand performance in the market in that satisfaction results in increased market share, low switching and improved brand perception overtime. Therefore:

*H6.* Student satisfaction has a positive effect on the UniBrand performance.

#### ***The relationship between student trust and UniBrand performance***

Customer trust in a brand increases brand reputation (Jøsang *et al.*, 2007) that is a close representation of brand performance (Harris and de Chernatony, 2001). Trust backed by experience could affect brand (Delgado-Ballester and Munuera-Aleman, 2001). Thus, student trust summarises their knowledge and experience, and affects UniBrand performance.

Student trust may play a vital role in increasing the marketability of the University's programmes and the brand itself (Sultan and Wong, 2012). Student trust also contributes in a long-term approach to control marketing costs in an increasingly competitive environment (Ghosh *et al.*, 2001; Sumaedi *et al.*, 2012). As students develop the cumulative effects of trust over the years with their academic and administrative staff and with the institution, they feel proud of having an association with the UniBrand. In turn, this upholds the UniBrand's relative performance. Therefore:

*H7.* Student trust has a positive effect on the UniBrand performance.

#### ***The relationship between UniBrand performance and students' behavioural intentions:***

Behavioural intention indicates whether customers will remain with, or defect from the company (Zeithaml *et al.*, 1996). Research found a weak relationship between loyalty and brand outcomes (Chaudhuri and Holbrook, 2001) and a strong relationship between brand reputation and customer loyalty (Selnes, 1993) in commercial services settings. Because brand reputation is a close representation of brand performance (Harris and de Chernatony, 2001), brand performance can also affect students' positive behavioural intentions in a higher education context. This is because students would want to graduate with a degree from a reputable and well-known University (Casidy, 2013). Therefore:

*H8.* The UniBrand performance has a positive effect on students' positive behavioural intentions.

#### ***The relationship between satisfaction and students' behavioural intentions***

The current literature in higher education services marketing found a strong link between satisfaction and student loyalty (Helgesen and Nettet, 2007), and satisfaction and students' positive behavioural intentions (Athiyaman, 1997). A positive and significant relationship between satisfaction and behavioural intention is also evident in online commercial services settings (Gounaris *et al.*, 2010). This is because satisfied customers generate high patronage frequency (Zeng *et al.*, 2009), and are highly likely to say positive words about the company, product or brand, and may likely to repurchase the brand or product in any future occasion without much concern. Thus, it is likely that a firm would receive favourable customer behavioural intention in the long run if the primary goal of the firm is customer satisfaction (Zeithaml *et al.*, 1996). Similarly, a satisfied student would show positive behavioural intentions, such as, word-of-mouth recommendations, and may return at the same University for future study:

*H9.* satisfaction has a positive effect on their positive behavioural intentions.

Figure 1 shows the theoretical model. The model shows that information and past experience (i.e. antecedents) have direct causal and predictive relationships with PSQ prior to service experience (pre-experience, at time  $t-1$ ). During service experience (i.e. at real-time  $t$ ), students evaluate service attributes and develop attitudes towards service attributes. The post-experience of service quality (i.e. at time  $t+1$ ) results in several cognitive (or emotional) outcomes (i.e. consequences). The model also shows that satisfaction and trust are the direct consequences of PSQ, and the mediators between PSQ and UniBrand performance. Student satisfaction is found to have a direct causal relationship with student trust and their behavioural intentions, and UniBrand performance. The model proposes that PSQ has indirect causal relationships with behavioural intentions through several mediating variables including student satisfaction and their trust, and UniBrand performance. Thus, the model has seven constructs and nine hypothesised relationships.

The proposed model is an integrated-process model as it shows how perceived quality is formed, and how perceived quality affects UniBrand performance and students' behavioural intentions through students' emotional and cognitive evaluation processes, such as, students' satisfaction and trust, respectively, overtime.

## **The research methodology**

The present study adopts methodological triangulation, where both qualitative and quantitative research methods were employed. Methodological triangulation has gained growing interest in marketing research for its contribution to knowledge development (Freling and Forbes, 2005; Stavros and Westberg, 2009). The major benefit of incorporating both approaches into the research methodology is that the weakness of one approach is compensated for by the strengths of the other (Deshpande, 1983).

### ***Qualitative research method***

The approach adopted in this research was an exploratory qualitative method and thus, this research employed the focus group technique. The aim of employing the focus group technique in this research was to strengthen the research model. In particular, the major reasons for employing the focus group technique were to study the interrelationships between the constructs, and to develop, determine and strengthen the items to measure the constructs. Focus groups are convenient because this technique provides flexibility, direct interaction, large amount of data, and is user friendly, easy to understand and time and cost saving (Stewart *et al.*, 2007).

Although there is no rule of thumb about the number of members in a focus group, one study suggested that "a group consisting of 5-10 respondents is appropriate" (Krueger and Casey, 2000, p.10). Literature suggests that several (three to four) groups are convened depending on distinct population segments (Stewart *et al.*, 2007). In this research, three focus group discussions were held with nineteen students who had at least six months of studying experience at the Central Queensland University (CQU), Rockhampton, Australia. For this purpose, the study adopted the convenience and purposive sampling techniques following the suggestions of current literature (Brown *et al.*, 2009; Sultan and Wong, 2012, 2013a). Table AI shows the demographic profiles of these students.

The focus group participants were asked some broad and guiding questions such as what affects their perceptions of service quality in a University context, what are some major aspects of service provisions in a University context, and what are the consequences of PSQ in a University context. The study used the content analysis procedures for analysing focus group data, where the researchers identified a number of quotes that adequately reflect the textual data and support the research hypotheses (Howitt and Cramer, 2008; Krippendorff, 2004; Sultan and Wong, 2012, 2013a).

### ***Quantitative research method***

The scale development process followed the suggestions of Churchill (1979), and included 65 items in the final survey; of which 31 items are adapted from the current literature and 34 items are developed from the focus group findings.

The online questionnaire is methodologically and financially appealing to those who study and work with student populations. An online survey increases the likelihood of participation and its processing fees are usually lower than those for paper surveys (Sax *et al.*, 2003). Thus, an online click-through survey link was sent to all enrolled students of the University. The layout design of the online survey questionnaire followed the suggestions of Dillman *et al.* (2009).

A total of 1,032 responses were received (7 per cent of the student population of the University). Although the web-based survey receives a low response rate (Sax *et al.*, 2003), it is consistent with the current studies (Deutskens *et al.*, 2004; Sultan and Wong, 2012). However, due to “required completion answer” constraint there was no missing data; the incomplete cases and the cases having less than six months of studying experience were deleted. This resulted to 528 usable questionnaires.

The data were analysed statistically, and this included test of non-response bias, mean, standard deviation, skewness and kurtosis in order to get an overview of the collected data set. This study adopted extrapolation method to determine the non-response bias and divided the usable responses (528 responses) into two equal groups, early responses and late responses; and employed the independent sample *t*-tests (Armstrong and Overton, 1977; Sax *et al.*, 2003; Pallant, 2007). In order to determine the sample differences with that of the student population, this study employed the non-parametric  $\chi^2$  test for gender, location of study and programme of study variables, and followed the suggestions of the current literature (Hair *et al.*, 2010; Ho, 2006).

The next step was to conduct an exploratory factor analysis (EFA) with the principal component analyses using the varimax rotation method for each of the scales for the purpose of orderly simplification of a large number of intercorrelated measures to a few representative constructs or factors (Sultan, 2011). This study used principal component with varimax rotation method as it incorporates common, specific and error variance. The principal component analysis with varimax rotation is also appropriate when the objective is to identify minimum number of factors associated with maximum explanation of variance (Hair *et al.*, 2010). In addition, the varimax rotation has proved successful as an analytic approach in order to provide clearest separation of factors (Hair *et al.*, 2010; Ho, 2006).

The following step includes a test of reliability of the factors. The reliability of a scale is the ability of the scale to measure consistently the phenomenon it is designed for to measure. It is a prerequisite for the validity of the test (Ho, 2006). The current literature argues for a

multi-item measure to better reflect the results and their predictabilities, and suggests use of the Cronbach's  $\alpha$  statistic to perform a reliability test for a construct (Churchill, 1979; Churchill and Surprenant, 1982; Nunnally, 1978). The descriptive statistics, EFA and reliability tests were performed using the Statistical Package for Social Sciences (SPSS), version 17.

The next stage was the establishment of valid and reliable scales for each of the constructs. For this reason, we use both convergent and discriminant validity tests. The convergent validity refers to the degree to which multiple methods of measuring a variable provide the same results. The assumption of convergent validity is that the items explaining a construct should show the same results when different methods are utilised (O'Leary-Kelly and Vokurka, 1998). In contrast, the discriminant validity measures the distinctiveness of a construct from other constructs. For example, high discriminant validity shows uniqueness of a construct from other constructs (Hair *et al.*, 2010). The convergent and discriminant validity tests use both EFA and the confirmatory factor analysis (CFA), and report two tests' results for each.

In order to examine the causal relationships, the study first considers the results of the measurement model and then examines the structural model (Hair *et al.*, 2010; Ho, 2006). The measurement model within CFA framework tests all the latent variables/factors/constructs and their respective measured variables/indicators/items at one time, and shows how constructs are operationalised by sets of measured variables. The structural model, however, considers all the latent variables and their respective items, and determines the causal relationships among the constructs and tests the theorised model as a whole (Hair *et al.*, 2010). For this purpose, this study used the structural equation modelling (SEM) technique within the Analysis of Moment Structures (AMOS) framework, version 17.

The analysis of the measurement model and the structural model used item parcels or the "partial disaggregation" method. The purpose of item parcelling or partial disaggregation is to distil the original set of scale items to a reduced number of indicators that are empirically balanced measures of the construct (Landis *et al.*, 2000). There are several advantages of using item parcelling technique. First, item parcels are more reliable than individual items, have more scale points, and are more likely to have linear relations with each other and with other factors (Little *et al.*, 2002). Second, it provides more normal distribution of data than individual items (Bruin, 2004). Third, it provides more stable parameter estimates, reduces idiosyncratic characteristics of items and simplifies model interpretation (Hau and Marsh, 2004). Fourth, the use of item parcelling results in the estimation of fewer model parameters, and this in turn results in a more optimal variable to sample size ratio and more stable parameter estimates (Bandalos, 2002). Literature suggests that item parcelling can be used when the ratio of sample size to estimated parameters is 5:1 or above (Bentler and Chou, 1987). This ratio for the present study is 528:65 or 8:1 (approx.). Therefore, the present study used the partial disaggregation method for the analyses of the measurement and the structural models.

### ***Operationalisation of the constructs***

Operationalisation of information, past experience and UniBrand performance constructs are based on focus group findings. The other constructs, including, PSQ, satisfaction, trust and behavioural intentions are operationalised based on literature review and focus group findings.

### ***Information***

Information is defined as explicit and implicit messages that students receive directly and indirectly from the University before enrolment. This information construct includes three items from the focus group data.

### ***Past experience***

Past experience is defined as students' previous experience of service encounter with the University staff prior to their enrolment, and subsequent care provided by the University. The past experience construct includes three items from the focus group data.

### ***PSQ***

Service quality is a set of market driven and dominant features of an offered service that have a long-term performance effect on sustained provider–receiver relationship. PSQ is a cognitive process of quality assessment, meaning that service quality assessment is a psychological result of perception, learning, reasoning and understanding of the service attributes. The PSQ construct adapted 17 items from the extant studies (Abdullah, 2006; Fornell *et al.*, 1996; Cronin and Taylor, 1992; Sultan and Wong, 2012), and includes nine items from the focus group data.

### ***Satisfaction***

Student satisfaction is a psychological state of happiness resulting from performance evaluation of the service attributes in the context of higher education. The satisfaction construct adapted two items from Cronin *et al.* (2000), and includes five items from the focus group data.

### ***Trust***

Trust is a cognitive understanding and a thorough belief that the future service performance and subsequent satisfaction will be identical, and is derived from any transactional, evaluative, affective and emotional judgment. In the context of higher education, student trust refers to their belief and confidence in the University's integrity and reliable service performance (Rojas-Méndez *et al.*, 2009). The trust construct adapted eight items from the current literature (Chaudhuri and Holbrook, 2001; Delgado-Ballester and Munuera–Aleman, 2001; Zboja and Voorkees, 2006), and includes four items from the focus group data.

### ***UniBrand performance***

Wong and Merrilees's (2007) study defined brand performance as a set of brand awareness, brand reputation, brand loyalty and brand satisfaction from managerial perspectives. The current study, however, adapts this definition and conceptualised University brand performance (or UniBrand) from students' attitudinal perspective. Thus, the UniBrand performance refers to the performance of the University as a brand (UniBrand) in terms of students' perception with regard to their association, understanding and evaluation of the UniBrand in the market. The current study measured UniBrand performance by considering the perceived successes of the graduates in terms of getting employment, perceived salary range after graduation, employers' preference of the graduates in the job market, students' pride and worthiness of the degree in the market, reputation of the University and the University's international standing in terms of its reliable performance. Thus, the UniBrand performance construct, in this study, includes eight items from the focus group data.

### ***Behavioural intention***

Behavioural intention is defined as the students' readiness to behave and may include both positive and negative attitudinal and behavioural outcomes. The current literature defines behavioural intention as the indicators that signal whether customers will remain with or defect from the company (Zeithaml *et al.*, 1996). Thus, a favourable behavioural intention is associated with positive word-of-mouth and recommendations, a commitment to repurchase and spend more with the organisation/company/institution, and a commitment to pay price premiums (Cronin *et al.*, 2000; Zeithaml *et al.*, 1996). The behavioural intention construct adapted four items from the extant studies (Cronin *et al.*, 2000; Hennig–Thurau *et al.*, 2001; Zeithaml *et al.*, 1996), and includes two items from the focus group data.

### **Qualitative findings**

The key objective of using the focus group technique in this study was to explore the underlying relationships between the constructs/themes. In this connection, the study followed the suggestions of several studies in terms of reporting the qualitative findings that support the research hypotheses (Parasuraman *et al.*, 1991; Tregear *et al.*, 2010; Sultan and Wong, 2012, 2013a).

#### ***Information and PSQ***

The focus groups were asked to discuss the factors that affect the perceptions of the quality of services in terms of their University prior to enrolment. Respondents stated that information affects the level of quality judgment. They also underlined that the information provided by the institution has to be true, satisfy wants and be reliable. One of the focus group participants stated that:

*[...] if the product is new and there is no set standard, in that case, the level of quality in terms of my needs would be very much influenced by whatever product-related promotional materials are being discharged by the supplier (Respondent No. 17).*

This particular quote implies that assessment of quality depends on information available in promotional materials, and thus it supports *H1*.

#### ***Past experience and PSQ***

Students' past experience also affects service quality. The following two quotes are extracted from two participants:

*[...] before coming to this university, I had only high school experience. From that point, it is hard to say, but at least it tells[...] that we would learn some advanced stuff at the university (Respondent No. 5).*

*[...] considering [...] recent experience with staff, I am keep going with this University (Respondent No. 13).*

These quotes state that students' past experience with the University and staff has an impact on perceived quality, and this supports *H2*.

#### ***PSQ and satisfaction***

The focus groups were asked to discuss the major consequences of PSQ; and the findings reveal that satisfaction is one of the important consequences of PSQ. One participant stated that:

*[...] if someone is not satisfied with the performance of the university, he has to finish his degree. He can't just be in the middle of no way and do nothing (Respondent No. 7).*

Another participant stated that:

*[...] everyone says [...] and [...] are big and better universities in [...] comparative to this University [...] but to me this university fulfils my need. I have never found anything lacking. I have access to the resources that I need (Respondent No. 5).*

This suggests that the students are satisfied if service attributes perform well, and this supports *H3*.

### ***PSQ and trust***

Student trust was found as another major and direct consequence of PSQ. Students' positive attitudes towards a University could lead him/her to believe that the University is capable of providing services in future, which in turn, refers to student trust. PSQ often provides a deep credence about the outcome of any future service encounter. In this context, one focus group participant stated that:

*[...] if the university provides quality services the obvious outcome is our satisfaction and the next is our understanding that the University can satisfy us in future (Respondent No. 3).*

This suggests that student trust is contingent upon service performance, and this supports *H4*.

### ***Satisfaction and trust***

The focus group findings also reveal that student satisfaction affects student trust. One participant stated that:

*[...] the students have trust in a university if it provides satisfaction in terms of value for money, security and integrity in fulfilling promises (Respondent No. 10).*

Another participant stated that:

*[...] the trust is to provide me something for which I pay the money (Respondent No. 7).*

Unless one experiences a service and is satisfied with its performance, it is unlikely that one would develop trust in it. As a result, trust is often stable relative to satisfaction. The above findings suggest that student trust is an outcome of student satisfaction, and this supports *H5*.

### ***Satisfaction and UniBrand performance***

The UniBrand is found as another important consequence of student satisfaction that plays a pivotal role in the market. In particular, two participants stated that:

*[...] I think student satisfaction plays a vital role in building a brand in the market. I am more concerned about how successful the Uni is in terms of providing job opportunities and whether employers prefer the graduates of this Uni (Respondent No. 3).*

*[...] Whether students are proud to be a student of the university and the salary range of the graduates also determines the performance of the university (Respondent No. 11).*

This suggests that student satisfaction affects UniBrand performance, and this supports *H6*.

### ***Trust and UniBrand performance***

Student trust was found to have an effect on UniBrand performance. In particular, one participant stated that:

*[...] the University claims that the graduates of this University receive high pay in Australia. As a student, I believe it is true (Respondent No. 5).*

This implies that students develop trust based on their transactional experience and knowledge overtime, and this affects the performance of the UniBrand. As a result, this supports *H7*.

### ***UniBrand performance and behavioural intentions***

The findings show that UniBrand performance affects behavioural intentions. In this connection, two participants stated that:

*[...] if the University is good, I'd tell others to come to this Uni and I may come to study at this Uni (Respondent No. 8).*

*[...] it's not that I have to come again and do my PhD, right. It's something like recommending others to come to take the courses [...] having said that [...] as I am paying money I may not be loyal to them. In fact, it depends on the merits of the university (Respondent No. 4).*

This implies that a positive behavioural intention is often contingent upon UniBrand's performance as perceived by the students, and this supports *H8*.

### ***Satisfaction and behavioural intentions***

The focus group data found that students would show positive behavioural intentions if they were satisfied. Some specific quotes include:

*[...] They are selling education, aren't they? We are paying money for a service. I see the ads on TV. If I am not satisfied, I go and complain. So, in a sense we are customers, or clients may be (Respondent No. 5).*

*[...] If the students have a very good experience, they will recommend others to come and they themselves can come again for higher studies as well (Respondent No. 9).*

The findings suggest that students perceived educational services in a similar way as compared to commercial services, in some instances; and would prefer to be considered as customers or clients for the fact that they pay for their tuition fees and universities promote their brands, courses and programmes through commercial advertisements. However, students' view of "customer" (or clients) of higher education services, perhaps, refers to the fact that the buying behaviours for both higher education services and commercial services are similar. Thus, a satisfied student is highly prone to demonstrate positive behavioural intentions, and this supports *H9*. Overall, the qualitative findings support the nine hypothesised relationships.



## Quantitative findings

### *An overview of the non-response bias, demographics of the respondents and sample differences*

The results of the non-response bias show that the  $p$ -values for each of the variables is  $>0.05$  in the Levene's test for equality of variances, meaning that equal variances are assumed for the two groups compared (Ho, 2006; Pallant, 2007). Thus, there is no significant difference between the two groups on any of the variables considered for this study due to non-response.

A brief overview of the sample profile is meaningful for validating the findings. The total number of usable responses was 528, of these male and female response ratio was 139:389. Research found that response rates of female to male are consistently higher both in paper-based survey and web-based survey (Sax *et al.*, 2003). The current study is also consistent with their findings and shows that 73.7 per cent of the total responses are from females, which is higher than 26.3 per cent of total responses received from males. However, the non-parametric  $\chi^2$  test of goodness-of-fit for "Gender" shows that the  $\chi^2$  value is insignificant,  $\chi^2(df=1, n=528)=0.029, p<0.86$ , meaning that there is no significant difference in the proportion of males and females identified in the current sample as compared with the student population of the University.

The average age of this sample was 20. The findings also show that there were 259 students studying full-time, 223 students studying part-time, and 46 students were identified as other category including "flexible" students. Of these respondents, 3.6 per cent were enrolled in short courses, 5.5 per cent were enrolled in diploma programmes, 75.2 per cent were enrolled in undergraduate programmes, 12.5 per cent were enrolled in masters programme and 3.2 per cent were enrolled in doctoral research programme. In terms of course/programme of study, the findings state that 22 per cent students were from business studies programme, 6.6 per cent students were from information technology, 11 per cent students were from engineering and applied sciences, 22.3 per cent students were from health sciences, 2.3 per cent students were from pure sciences, 16.5 per cent students were from arts and social sciences, and 19.3 per cent students were from other programmes including education, learning management, public administration, environment and design, hospitality and tourism, accounting, social works, property, and music and communication. The non-parametric  $\chi^2$  test of goodness-of-fit for "Program of Study" shows that the  $\chi^2$  value is insignificant,  $\chi^2(df=6, n=528)=0.004, p<1.0$ , meaning that there is no significant difference in the proportion of courses/programmes identified in the current sample as compared with the student population of the University. Similarly, the  $\chi^2$  test for "Location of Study" shows that the  $\chi^2$  value is insignificant,  $\chi^2(df=10, n=528)=1.321, p<0.99$ , and thus, there is no significant difference in the proportion of locations identified in the current sample as compared with the student population of the University.

The mean statistics for each of the items were between 4.07 and 7, meaning that respondents had a tendency towards "agree" zone (i.e. between 5 and 7) for each of the items. The standard deviation varies between 1.003 and 1.324. This is because the data for each of the measured variables were collected on a seven-point Likert type scale and students rated their attitude between 1 (strongly disagree) and 7 (strongly agree). Another reason for such dispersion is that the students were from various nationalities, various modes of study (i.e. full-time, part-time, flexible), levels of study (i.e. short course, diploma, undergraduate, masters, doctoral), and levels of maturity (aged between 17 and 70). However, none of the values of the items with regard to skewness and kurtosis are extreme (i.e.  $>\pm 1$ ).

### ***EFA and reliability test results***

Table I shows the results of the EFA, reliability test, Kaiser-Mayer-Olkin (KMO) measure of sampling adequacy and other relevant test results. The KMO test result and the  $p$ -value of the Bartlett's test of sphericity suggest that these constructs were suitable for factor analysis (De Vaus, 2001). The EFA results for each of the constructs revealed a single factor solution except service quality. The EFA results for service quality showed a three factor solution, namely, academic service quality (ACSQ), administrative service quality (ADSQ) and facilities service quality (FSQ). The Cronbach's  $\alpha$  coefficient for each of the constructs were  $>0.70$ , suggesting a good reliability (Hair *et al.*, 2010).

### ***Convergent validity test results***

This study reports two approaches to ensure convergent validity. First, the critical ratio values were greater than 1.96 and these were significant at the 0.05 level in CFA results. This suggested a strong convergent validity (Wong and Merrilees, 2007). Second, the average variance extracted (AVE) within EFA framework was computed for each of the latent constructs using the square root of total variance explained. The results showed that in every case the AVE was  $>50$  per cent (or 0.5); and this also suggested a good convergent validity for each of the constructs (Hair *et al.*, 2010).

### ***Discriminant validity test results***

This study reports two approaches to ensure discriminant validity. First, there were nine constructs (including three dimensions of PSQ) that formed 36 pairs. A pairwise  $\chi^2$  difference test at a time was performed for discriminant validity checks using AMOS. The results showed that the  $\chi^2$  difference for each of the pairs was significant ( $p$ -value $<0.01$ ); and this suggested the existence of discriminant validity. Second, the AVE estimate and the squared correlation estimate were compared. The discriminant validity exists when AVE estimate is greater than the squared correlation estimate between pairs of factors (Hair *et al.*, 2010). The upper diagonal of Table II shows the AVE and the lower diagonal represents the squared correlation estimate. In every respect, the results show that the estimated AVE for each pair of construct is greater than the squared correlation estimate for that pair. Thus, the discriminant validity for each of these constructs is established.

### ***Results of the measurement model analyses***

The results show that the  $\chi^2$  statistic is significant,  $\chi^2$  ( $n=528$ ,  $df=99$ ) is 156.8,  $p<0.01$ , though not desirable. This was, perhaps, due to the size of the samples considered for this study ( $n=528$ ), which was  $>200$ . Studies suggest that a significant  $\chi^2$  can occur due to a large sample size (Anderson and Gerbing, 1988; Gerbing and Anderson, 1988; Hair *et al.*, 2010; Ho, 2006). However, the alternative measures to the  $\chi^2$  value show satisfactory results. For example, the results of Hoelter's critical  $N$  of the present study is 414 at the 0.05 level and 453 at the 0.01 level. In both of these cases, Hoelter values exceeds 200 (Hoelter, 1983), meaning that the model achieves its acceptance at the 0.05 and 0.01 level if the largest samples are 414 and 453, respectively. Second, the Normed  $\chi^2$  is a ratio between  $\chi^2$  and degrees of freedom. The accepted norm of  $\chi^2/df$  is 3.0 or less (Hair *et al.*, 2010). The normed  $\chi^2$  of the measurement model is 1.58 that indicates a reasonable model fit when considering the sample size effect. The standardised root mean square (SRMR) value of the measurement model is 0.0183. As a rule of thumb, a SRMR value over 0.1 suggests a problem with fit (Hair *et al.*, 2010). These three measures justify that the model is within the acceptable range of the fit, and that the estimated  $\chi^2$  value ( $p<0.01$ ) may be due to the sample size of this study. The other fit indices

including the root mean square error of approximation (RMSEA) and the root mean square residual (RMR) are 0.033 and 0.021, respectively. These results, considering the large sample size, show that the model fits the sample data set. The incremental fit measures including Tucker-Lewis index (TLI), normed fit index (NFI), and comparative fit index (CFI) are 0.99, 0.98, and 0.99, respectively. The parsimonious fit measures including Adjusted Goodness of Fit Index (AGFI), Parsimonious Normed Fit Index (PNFI) and Parsimonious Comparative Fit Index (PCFI) are 0.95, 0.64 and 0.64, respectively. Overall, these values are all within the cut-off points as suggested by the literature.

### ***Results of the structural model analyses***

Figure 2 shows the structural model with standardised estimates. The results of the absolute fit measures of the full SEM show that the  $\chi^2$  statistic,  $\chi^2$  ( $n=528$ ,  $df=122$ ) is 202.30 and the associated  $p$ -value is  $<0.01$ . As significant  $p$ -value is not desirable, the results of alternative measures show that the Normed  $\chi^2$  is 1.65 (i.e.

3.0), the SRM

Hoelter's critical  $N$  is 388 and 421 at the 0.05 and 0.01 level, respectively. These alternative measures against  $\chi^2$  are suggested as the associated  $p$ -value of the  $\chi^2$  is less meaningful when the sample size and number of observed variables are large. In addition, the other fit indices including the RMSEA and the RMR are 0.035 and 0.031, respectively. These results, considering the large sample size, show that the model fits the sample data set. The incremental fit measures including TLI, NFI, CFI are 0.99, 0.98, 0.99, respectively. The parsimonious fit measures including AGFI, PNFI, PCFI are 0.94, 0.78, 0.80, respectively. These values are all within the cut-off points as suggested by the literature (Hair *et al.*, 2010; Ho, 2006).

### ***Hypotheses testing results***

Table III shows the hypotheses testing results. Overall, the results demonstrate that the path coefficients for each of the hypotheses are positive and significant. The results also found a strong predictive ability of the latent constructs, for example, the squared multiple correlations ( $R^2$ ) of service quality, satisfaction, trust, UniBrand performance and behavioural intentions are 0.59, 0.78, 0.92, 0.77, and 0.79, respectively, and these are significant at the 0.01 level.

## **Discussion and managerial implications**

The concept of relationship marketing is of high importance in services marketing, especially, the services that require high-contact and long-term contact to get an outcome. Maintaining relationships with the tertiary students in a higher education environment can produce long-term benefit to the University, and this is reflected in the empirical evidences of this study. The following paragraphs briefly discuss each of our research questions based on our empirical findings.

### ***What factors affect PSQ?***

The study finds that information received from marketing communications has a direct and positive impact on PSQ, in particular, the results show that one unit increase in “information structure” would result in 0.71 unit increase in PSQ. James *et al.*'s (1999) report suggested that University applicants should be encouraged to have adequate information about the selection of a field of study and/or institution. Our findings support this view. In addition, our study suggests that the “information structure” designed for the students should be adequate and trustworthy. However, exaggerated information with gimmicks or ambitious promises may adversely affect quality perception during service encounters. Marketing practitioners in higher

education should educate and enhance knowledge of the potential students through appropriate communication channels. Information is a basis of forming quality standards as it often provides evidence of past performance. Together, with past evidence, information may play a vital role to forming quality perception.

Students' past experience including interaction with the institution is also found to have a direct and positive impact on PSQ. Our study finds that one unit increase in past experience, such as, pre-enrolment staff-prospective student consultation and interaction would enhance 0.13 unit increase in PSQ. This implies the importance of open day, high school visits, University visits, careers fair, electronic communication and similar interactive activities that a University could maintain in order to improve students' cognitive judgment prior to enrolment. A University should develop and maintain long-term relationships with the students, and local and regional high schools, and may arrange regular symposiums and visits of school teachers, parents and students, and publicise their word-of-mouth and certification using various communication media. With the growing importance of online education, many of the Australian Universities including the sample University are moving from a traditional face-to-face teaching mode to an online/flexible mode. This may have caused a positive and significant but a low path coefficient between past experience and PSQ in this study. Although higher education is a pure-service and requires person-to-person interaction (Oldfield and Baron, 2000), the nature and scope between students' past experience and PSQ would develop a new relationship in the coming years as many universities are increasingly investing on virtual/online/flexible mode of study.

#### ***How do students perceive service quality in a higher education context?***

This study finds three core aspects/dimensions of PSQ in a University context, namely, academic, administrative and facilities. Students prefer the lecture to be interactive, understandable, practical and entertaining. The consultations provided by the lecturers are also important to the students. As a result, after lecture availability, responding through e-mail or phone indicates a caring and engaged attitude on the part of the lecturer. The design of each lecture should be such that it advances the knowledge of the student. The research expertise and supervision capacity, and a record of research publications of the lecturer were judged to be vital for an effective postgraduate research programme. One of the strategies could include setting different goals each for research active and teaching active academics.

In addition, the administrative staff should be skilled and be able to answer student queries effectively, otherwise, this may result unfavourable overall assessment of service quality of a University. The third dimension, the facilities service quality, includes library facilities, IT workshops and seminars, careers counselling, transport facilities, catering facilities and entertainment facilities.

There are several implications of PSQ dimensions. First, the University can assess their service performance levels for each of the dimensions and their indicators, and allocate their efforts and resources appropriately. Second, students' cultural backgrounds have a significant effect on the perceptions of service quality; especially the administrative and facilities service quality dimensions (Sultan and Wong, 2013b). As a result, cross-cultural understanding and tolerance/acceptance can further improve perceived quality, and subsequently, this could improve brand performance and positive behavioural intentions.

### ***How do PSQ affect the UniBrand performance and students' positive behavioural intentions in a University context?***

The findings show that PSQ has statistically significant impact on both student satisfaction and student trust, for example, the results explain that one unit increase in PSQ would result in 0.88 unit and 0.82 unit increases in student satisfaction and student trust, respectively. Dedic and Pavlovic's (2011) study in the context of higher education found that perceived value moderates the relationship between perceived quality and satisfaction. However, our study finds that perceived quality affects satisfaction without a moderating variable, such as, perceived value. In many studies, satisfaction and trust are found as strong mediating variables and this is consistent across many sectors (see e.g. Sultan and Wong, 2012; Delgado-Ballester and Munuera-Aleman, 2001; Zboja and Voorkees, 2006; Kassim and Abdullah, 2010; Ribbink *et al.*, 2004). The current study finds that student satisfaction and trust are strong predictors and mediators between PSQ and UniBrand and students' behavioural intentions. For example, the results explain that one unit increase in satisfaction, backed up by positive service performance, would result to 0.15, 0.35, and 0.28 units increase in trust, UniBrand performance and behavioural intentions, respectively. Similarly, one unit increase in student trust, backed up by positive service performance and student satisfaction, would result to 0.56 unit increase in UniBrand performance. While satisfaction is transaction specific (Cronin *et al.*, 2000) and a short-term measure, student trust is the cumulative effects of positive impressions about the service provisions and subsequent satisfaction over the years (Sultan and Wong, 2012) and it is relatively enduring. Therefore, practitioners in a higher education context should continuously monitor the PSQ, satisfaction and trust pulses as they both have positive and significant effects on UniBrand performance and students' behavioural intentions.

The Bradley report states that "satisfaction levels should be at least 66 per cent for one to be confident that the majority of students felt positively about their experience of higher education" (Bradley *et al.*, 2008, p. 74). The ECSI technical committee suggested that customer satisfaction index score should be at least 0.65 ( $R^2$ ) with a 95 per cent confidence interval and should not be wider than  $\pm 2$  points (ECSI, 1998). In the context of the present study, the  $R^2$  for PSQ, satisfaction, trust, brand performance and behavioural intention are 0.59, 0.78, 0.92, 0.77 and 0.79, respectively. This has an overall implication of a "University health checks" in a competitive market.

Overall, the study suggests a three-tiered integrated – process model that comprises pre-experience, current experience, and post-experience aspects; and establishes the important role service quality has in a higher education services marketing context. The model provides us with both theoretical and practical insights into the way PSQ, satisfaction and trust can play in order to improve UniBrand performance and the current status of positive behavioural intentions.

### **Conclusion, limitations and future research**

The present study develops and validates a comprehensive three-tiered "integrated-process" model (or an index model), and advances the service quality literature in the higher education context. The current study developed and validated three new constructs: information, past experience and UniBrand performance, and established their relationships in this model by examining several hypothesised relationships. Some of these hypothesised relationships are relatively new when compared with other established relationships, such as, PSQ-satisfaction, in the current literature. The current study validated these newly developed hypotheses, such

as, information-PSQ, past experience-PSQ, trust-brand performance, satisfaction-brand performance and brand performance-behavioural intention, in a higher education context. Overall, the model provides a good explanation of systematic development of PSQ and its core dimensions, and how PSQ contributes in developing UniBrand performance and achieving positive behavioural intentions in the long run. Universities aiming for a sustainable presence in a competitive global market and intending to enhance brand performance and attract and retain students are encouraged to consider this model and its implications.

This study is an exploratory study intended to build a foundation for future studies. There are a number of limitations of this study. First, this study used samples from a single University, as a result, the study does not afford to generalise its findings across all the universities. However, taking a sample from a University to study students' attitudes generates valuable insights, which can be used as an empirical basis for more representative follow-up studies (Gatfield *et al.*, 1999; Stodnick and Rogers, 2008). Second, the study did not capture a real-time "prior to enrolment" experience. As a result, recalling "prior to enrolment" experience may have been influenced with a real-time present experience (i.e. during data collection period). Third, universities are social higher education institutions, where building "good citizenship" is one of the final outcomes. In this context, the "UniBrand performance" construct does not include, "good citizenship", and "community engagement" items; similarly, the "behavioural intentions" construct does not include "willingness to give" item.

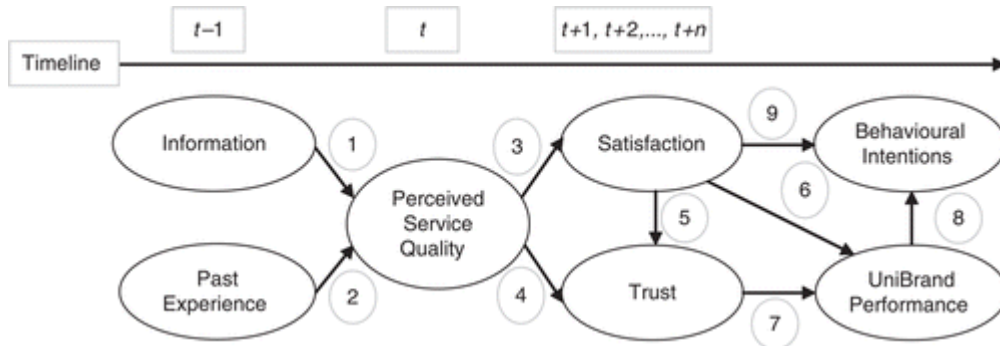
Future research should examine the generalisability of the measures and the model in the wider context of higher education sector by considering nationwide University students, programmes, schools and campuses, and determine and monitor each of the universities' "health checks". A longitudinal study could further estimate the validity of the model in terms of practical changes over time, changes in the model prediction and the time requirement to progress to each tier/phase of this model. Improving UniBrand performance and behavioural intentions constructs in the context of higher education sector and determining their overall validity remain another scope of future study. Although research in the context of commercial cosmetics brands did not find that "facility service quality" has any impact on service quality-satisfaction-trust-loyalty model (Chiou and Droge, 2006), future research could examine the effects that PSQ dimensions, such as, academic, administrative and facilities dimensions have on satisfaction, trust, UniBrand and behavioural intentions in the context of higher education sector.

Future research should be cautious in terms of using the model as students' backgrounds, especially, in terms of their programme of study, mode of attendance, level of study, nationality, maturity and gender may have an impact on the overall model estimation. Future research should also be cautious in employing the web-based survey method as the findings from a web-based survey often influence the overall model estimation through self-selection bias, where a respondent self-selects a survey to answer (or not to answer). Future research should also examine the moderating effects of the demographic variables in the model estimation. A qualitative research aiming to develop themes through pattern matching and determining relationships between themes across institutions could further contribute to the current literature. Understanding and comparing students' buying behaviours of higher education services as compared to commercial services would be contributing to the current literature. Future research could also contribute by studying the appropriate marketing mix strategies, communication channels and messages that build prospective students' cognitive, affective and behavioural judgments. A research on how cross-cultural understanding and level of acceptance/tolerance improve PSQ, brand performance and positive behavioural intentions

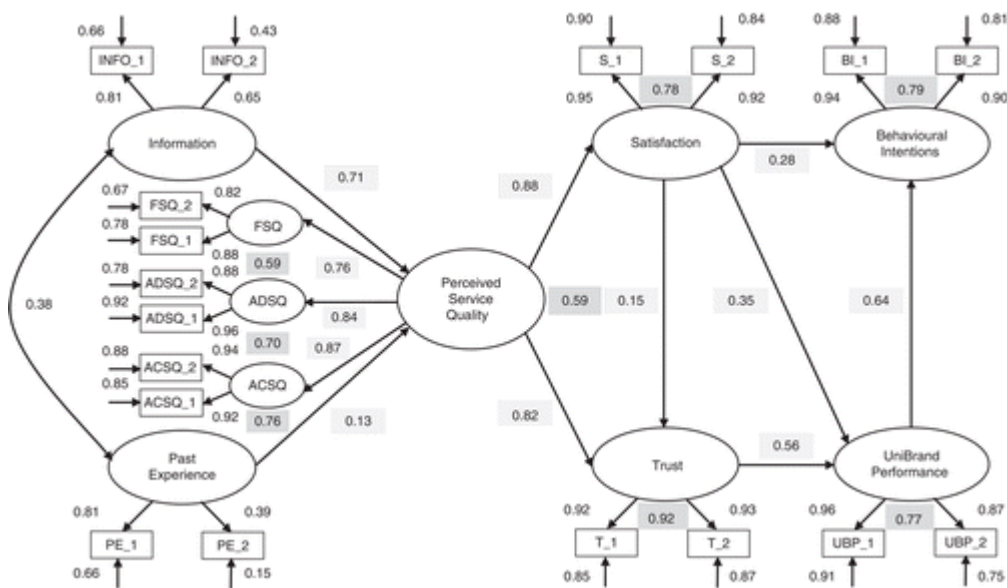
could further add value to the current literature. Future study should examine how political and legal issues, such as, immigration and international student visa rules; and social issues, such as, cultural intolerance, ethnocentrism and stereotyped behaviour, affect perceived quality and international student enrolment. A cross-country study and comparison of results may also provide interesting findings. Finally, the usability of this model in the higher education domain and its subsequent applicability in commercial settings may be of interest to some scholars.

# Appendices

**Figure 1** The theoretical model



**Figure 2** The structural model







**Table III** Hypotheses testing results

Hypotheses	Standardised regression weights	Significance	Supported (yes/no)
<i>H1</i>	0.71	$p < 0.01$	Yes
<i>H2</i>	0.13	$p < 0.05$	Yes
<i>H3</i>	0.88	$p < 0.01$	Yes
<i>H4</i>	0.82	$p < 0.01$	Yes
<i>H5</i>	0.15	$p < 0.05$	Yes
<i>H6</i>	0.35	$p < 0.01$	Yes
<i>H7</i>	0.56	$p < 0.01$	Yes
<i>H8</i>	0.64	$p < 0.01$	Yes
<i>H9</i>	0.28	$p < 0.01$	Yes

**Table AI** Demographics of the focus group participants

Respondent No.	Age	Gender	Nationality	Level of study	Program of study	Duration of study at this University
1.	19	Female	Japan	Undergraduate	Arts	07 months
2.	20	Male	Australia	Undergraduate	Information Tech	10 months
3.	20	Male	Australia	Undergraduate	Business Studies	09 months
4.	21	Male	Australia	Undergraduate	Business Studies	09 months
5.	21	Male	Australia	Undergraduate	Information Tech	10 months
6.	26	Male	Australia	Master's	Business Studies	07 months
7.	26	Male	China	Master's	Business Studies	07 months
8.	26	Male	China	Master's	Business Studies	07 months
9.	27	Male	India	Master's	Business Studies	07 months
10.	27	Male	India	Master's	Business Studies	07 months
11.	27	Male	India	Master's	Business Studies	07 months
12.	33	Female	Singapore	Master's	Business Studies	07 months
13.	34	Female	Australia	Master's	Business Studies	07 months
14.	33	Female	Bangladesh	Doctoral	Education	06 months
15.	34	Male	Bangladesh	Doctoral	Accounting	07 months
16.	34	Male	Pakistan	Doctoral	Law	07 months
17.	38	Male	Botswana	Doctoral	Accounting	> 03 years
18.	37	Female	China	Doctoral	Information Tech	> 01 year
19.	38	Male	Pakistan	Doctoral	Information Tech	> 03 years

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