THE IMPACT OF QUALITY OF SERVICE AND EXPERIENCE ON STUDENTS' LEARNING OUTCOMES IN HIGHER EDUCATION INSTITUTIONS

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Abstract

Central to this research is the concept of student perceptions of service in higher education and its impact on higher education learning outcomes. The core concepts of service dealt with in this research are quality of service, quality of student experience, and student satisfaction. These concepts are portrayed in literature predominantly from a services marketing and quality assurance perspective.

The aim of this study is to address how quality of service influences higher education learning outcomes and the role that student satisfaction and quality of student experience play in this relationship. This is in view of the need for higher education institutions (HEIs) to address and explore the balance between the marketing intentions of providing a quality service and the core mission of higher education. The focus is to develop a conceptual model to assess six hypothesised relationships and to explore the differences in perspectives among three major stakeholders, namely, students, staff members of HEIs, and industry. This study is motivated by the marketisation of higher education as a global phenomenon, the common adoption of quality of service as a business growth strategy by HEIs, and the increasing international focus on higher education learning outcomes among HEIs.

In order to achieve the aim of this research, a quantitative methodological approach was adopted. A questionnaire was developed through a thorough review of the literature to operationalise each construct of the conceptual model and was deployed as an online survey for each stakeholder group. A total of 484 responses were received through the use of a convenience sampling approach, of which 348 complete responses were analysed. Values of both Cronbach's alpha and average variance extracted (AVE) for all constructs verified construct reliability and validity. Fit indices for both the measurement and structural model also showed the adequacy of both measurement and structural theory used in this research. An

analysis of the path estimates of the structural model resulted in the non-falsification of significant relationships between quality of student experience and student satisfaction, as well as between quality of student experience and learning outcomes. There were also significant interrelationships between the quality of service dimensions comprising reliability, assurance, tangibles, empathy and responsiveness. However, there was falsification of significant relationships between quality of service and both student satisfaction and quality of student experience, as well as between student satisfaction and learning outcomes. Through the use of a multi-method approach comprising multivariate analysis of variance (MANOVA), discriminant analysis and structural equation modelling (SEM), both differences and similarities in the hypothesised relationships were also identifiable among students, staff members of HEIs, and industry.

The findings of this research contribute to theory and methodology. Theoretically, the study has proven the insignificance of market-oriented quality of service strategies in influencing student satisfaction and quality of student experience, and the insignificance of student satisfaction in influencing student learning outcomes, which implies there are problems surrounding the use of market-oriented strategies in the management of higher education. There is also strong indication that, while the role that student satisfaction and quality of student experience play in influencing learning outcomes is stakeholder dependent, the fundamental mission and purpose of HEIs is in providing quality learning experiences that befit quality student learning to positively impact student learning outcomes, which reflects the value that stakeholders of higher education demand. Maximum possibilities to identify differences in stakeholder perspectives were provided through the subsequent use of a discriminant analysis and SEM as follow-up tests following the use of MANOVA. The use of this multi-method approach has allowed for the triangulation of analysis concerning the differences.

Finally, in view of similarities and differences in stakeholder perspectives, this research highlights the importance for the administration of HEIs to be attentive to the perspectives of various stakeholders in the management and improvement of quality and student learning. It is also important for HEIs to balance the need for service orientation with the core mission of higher education. That this research was conducted in the context of Singapore is also a contribution to policy and practice since Singapore, with its hybrid higher education system, provides a useful starting point for comparison with other higher education systems, including the study of globalisation effects on higher education learning outcomes.

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months after the birth of my son, and have had to balance family, work and research. The completion of this thesis reflects how much I have grown with my family.

Table of Contents

List of Figures

List of Tables

List of Abbreviations

AHELO   Assessment of Higher Education Learning Outcomes

ACSI   American Customer Satisfaction Index

ANOVA   analysis of variance

AVE   average variance extracted

CFA   confirmatory factor analysis

CFI   comparative fit index

CMIN/DF   chi-square mean/degree of freedom (or normed chi-square)

CR   critical ratio

CSISG   Customer Satisfaction Index of Singapore

ECSI   European Customer Satisfaction Index

IFI   incremental fit index

HEdPERF   Higher Education Performance

HEI   higher education institution

HREC   Human Research Ethics Committee

MANOVA   multivariate analysis of variance

OECD   Organisation for Economic Co-operation and Development

QoE   quality of experience

QoS   quality of service

RMSEA   root mean square error of approximation

SEM   structural equation modelling

SERFPERF   Service Performance

SERVQUAL   service quality or quality of service (Model)

SPSS   Statistical Package for Social Sciences

SWICS   Swiss Index of Customer Satisfaction

TLI	Tucker-Lewis index
TQM	total quality management
UNESCO	United Nations Educational, Scientific and Cultural Organization

Key Words

Higher education

Higher education institution

Learning outcomes

Quality of service

Services marketing

Student experience

Student satisfaction

Chapter 1: Introduction

1.1 Introduction

Higher education is implicated in the globalisation phenomenon, which is predominantly economic and transactional in nature (Croucher & Woelert, 2016; Hudson, 2016; Kwiek, 2001; Marginson & Van Der Wende, 2007a; Mok, 2000; Scott, 2000; Spring, 2008; Tan et al., 2016; Yang, 2003). In tandem with the evolution of the knowledge-based economy, globalisation has resulted in dramatic changes to the form and function of higher education institutions (HEIs) around the world, with many adopting corporate, business and service-oriented ideas in their operation and management (Altbach, 2004; Akonkwa, 2009; Croucher & Woelert, 2016; Deem, 2001; Marginson & Van der Wende, 2007a; Mok, 2007; Vidovich, 2002; Yang, 2003). The adoption of these corporate, business and service-oriented ideas quintessential to the neo-liberal movement; proponents of this movement argue that HEIs must adopt these methods in order to survive and remain competitive in a rapidly changing world (Deem, 2001; Olssen & Peters, 2005; Yang, 2003). Globalisation is understood to be the driving force behind the marketisation phenomenon, a prominent consequence of neo-liberalism on the way HEIs function and operate (Altbach & Teichler, 2001; Giroux, 2010; UNESCO, 2004; Van der Wende, 2007). The marketisation of higher education is well established as a global phenomenon as HEIs recognise the need to market themselves in the face of international competition for both domestic and international students (Akonkwa, 2009; Altbach et al., 2009; Gibbs, 2001; Hemsley-Brown & Oplatka, 2006; Jongbloed, 2003; Marginson, 2006; Sharabi, 2013).

However, there is criticism that the adoption of simplistic business or marketing strategies, a characteristic of neo-liberalism in higher education, may drive HEIs to be more driven by competition around their reputation than by competition around stakeholder and learner-

centred needs (Deem, 2001; Gibbs, 2001; Giroux, 2010; Van der Wende, 2007; Van der Wende, 2008). The adoption of marketing theories, concepts and strategies deemed as effective in the business world has raised political, ethical, educational and pedagogical concerns surrounding this major paradigm shift towards a more consumer-oriented, hence service-oriented and commoditised, higher education market (Gibbs, 2001; Gopinathan, 2007; Hemsley-Brown & Oplatka, 2006; Naidoo et al., 2011). It is not surprising that questions have been raised concerning the treatment of higher education as a business, where in the global phenomenon of marketisation higher education is perceived as a commodity (Gibbs, 2001; Yang, 2003).

One common marketing strategy that HEIs have adopted, which has been cited in academic literature, is the idea of quality of service. Research (Helgesen, 2008; Hemsley-Brown & Oplatka, 2006; Mok, 2003a; Ng & Forbes, 2009; Ramachandran, 2010; Sharabi, 2013; Sultan & Wong, 2010; Woodall et al., 2014) strongly indicates that marketing approaches based on quality of service can provide robust outcomes for HEIs. This idea of quality of service in higher education has its basis in the study of service sciences and service systems, with the understanding that value is a co-creation between the provider and the receiver for the benefit of the receiver, which in the higher education context refers to students (Maglio & Spohrer, 2008; Ng & Forbes, 2009; Schneider & Bowen, 2010; Vargo & Lusch, 2008b). Since higher education is viewed as a service that HEIs provide, HEIs are naturally inclined to be service-oriented and consequently operate as business entities with market and service performance management orientations (Ng & Forbes, 2009; Quinn et al., 2009; Yeo, 2009). It is becoming increasingly important and common for HEIs to measure and improve their service performance—that is, their quality of service—to maintain sustainable business models that grow their tuition-based revenues by attracting and retaining students (Angell et al., 2008; Sharabi, 2013). The need for HEIs to measure and improve their quality of service—which is

commonly understood as the provision of a level of service with consumer retention as the objective (Zeithaml et al., 1996)—can be attributed to rising student demands and expectations, as a result of the growing trend of public–private tuition cost-sharing among HEIs worldwide (OECD, 2014).

Also rising to the top of the policy agenda of many countries as a result of globalisation is the pursuit of quality assurance in higher education. This relates to the need to emphasise student engagement with learning, the quality of student learning and the outcomes that students will be able to demonstrate as a result of their higher education experience (Altbach et al., 2009; Coates, 2005; Deem, 2001; Ewell, 2010; Mok, 2000; Shore & Wright, 1999). The pursuit and institutionalisation of quality assurance in HEIs stems from the need for regulation, accountability and performativity in the administration of HEIs, resulting from the adoption of neo-liberal thinking in higher education (Olssen & Peters, 2005; Shore & Wright, 1999). HEIs are expected to develop as learning communities where young people can develop holistic competencies for a global knowledge society (Van der Wende, 2007; Rajah, 2014). However, while quality assurance measures exist to rate and rank HEIs for the quality of the education they provide, these tend not to measure the degree to which HEIs actually develop the competencies of their students—they neglect student learning outcomes (Harvey & Knight, 1996; Nusche, 2008; OECD, 2013b). Due to the importance of assessing the quality of higher education in terms of learning outcomes, the Organisation for Economic Co-operation and Development (OECD) and the United Nations Educational, Scientific and Cultural Organisation (UNESCO) continue to cooperate to address these issues at an international level (Van der Wende, 2007). The OECD's Assessment of Higher Education Learning Outcomes (AHELO) initiative (OECD, 2013a) and UNESCO's position on the role of higher education in developing holistic competencies in individuals (UNESCO, 2010) are significant examples of initiatives that pursue quality learning in higher education.

This study is motivated by the marketisation of higher education as a global phenomenon, the common adoption of quality of service as a business growth strategy in HEIs, and the increasing attention given to higher education learning outcomes among the global higher education community. The aims of this chapter are to:

x   explain the context of the research in terms of the background leading to this research (Section 1.2);

x   discuss the research problem in relation to the background of the research, and specify the accompanying research question and objective (Section 1.3);

x   specify the research question and objective in relations to the research background and problem (Section 1.4);

x   specify the scope of this research by discussing the context of research (Section 1.5);

x   provide the justifications for the study by specifying the significance of this research (Section 1.6);

x   introduce the research design used for this study (Section 1.7);

x   provide a brief outline of this thesis (Section 1.8).

Section 1.9 provides a summary of this chapter.

1.2 Background to the Research

The idea to embark on this research, culminating in this thesis, came from the author's experience as an educator in a HEI in Singapore. The author observed that the HEI was engaged in both market-oriented and service-oriented management practices, in addition to the educational role that HEIs are expected to perform in relation to student learning and

development (Astin, 1999; Noddings, 2015; Smith, 2013). A dichotomy was observed between a market and service orientation, and the role of educating students.

Discussions on the concept of quality of service in higher education surfaced in the mid-1980s in services marketing literature (Abdullah, 2006b; Sultan & Wong, 2010; Teas, 1993), quality assurance literature (Ho & Wearn, 1996; Quinn et al., 2009; Yeo, 2008; Yeo & Li, 2012) and higher education management literature (Soutar & McNeil, 1996; Duarte et al., 2012; Li & Kaye, 1998; Woodall et al., 2014). Since the conceptualisation of the quality of service model (SERVQUAL) by Parasumaran et al. (1985, 1988), the extant literature on quality of service has been replete with discussions on the dimensions and measurement of quality of service (O'Neill & Palmar, 2004; Sultan & Wong, 2011) for service performance improvement, stemming from a neo-liberal perspective. From the mid-1980s, several researchers (Abdullah, 2006a; Abdullah, 2006b; Bojanic, 1991; Cronin & Taylor, 1992; Min et al., 2012; O'Neill & Palmar, 2004; Reynoso & Moores, 1995; Shank et al., 1995; Soutar et al., 1996; Smith et al., 2007; Stodnick & Rogers, 2008; Sumaedi et al., 2012; Yeo & Li, 2012) used work done by Parasumaran et al. (1985, 1988) as the basis of studies on quality of service in higher education. However, most of the research on quality of service is still related to consumer services, focusing on issues of service delivery, while research on quality of service related to professional services, particularly in higher education, remains scant (Shank et al., 1995; Schneider & White, 2004; Sultan & Wong, 2011). Research on quality of service in HEIs in the Singaporean context (Tan & Kek, 2004; Yeo, 2008; Yeo, 2009), although limited, has also explored the service delivery and performance perspective.

The literature on quality of service in higher education contends that quality of service serves as a competitive advantage for HEIs to attract and retain students (Dado et al., 2011; Joseph et al., 2005; Naidoo et al., 2011; Njie et al., 2012; O'Neill & Palmar, 2004; Petruzzellis et al., 2006; Smith et al., 2007; Tsindou et al., 2010; Yeo, 2008; Yeo & Li, 2012). HEIs are aggressive in

promoting their offers and brands through quality of service (Sultan & Wong, 2010), and need to be actively involved in understanding the perceptions and expectations of students (Nadiri et al., 2009). Many HEIs adopt models either locally or nationally to measure student satisfaction as a gauge of quality of service (Zhang et al., 2008). The Customer Satisfaction Index of Singapore (Institute of Service Excellence, 2015) is an example of the reality concerning the measurement of quality of service in HEIs by conducting student satisfaction surveys. Other existing customer satisfaction models are the European Customer Satisfaction Index (ECSI), the American Customer Satisfaction Index (ACSI) and the Swiss Index of Customer Satisfaction (SWICS). These customer satisfaction models provide information on student satisfaction that HEIs need to know to improve the quality of service to students (Bruhn & Grund, 2000; Serenko, 2011; Zhang et al., 2008).

Although a number of studies in quality of service have enriched the services marketing domain (Sultan & Wong, 2011), the conceptualisation of quality of service in higher education from a purely marketing perspective is contentious. While HEIs, in their quest to attract and retain students, are constantly under pressure to demonstrate the quality of their education services and to deliver satisfying services (Jones & Lee, 2011), their fundamental focus is to provide quality learning experiences to students (Yeo & Li, 2012). Also, the extent, context and purpose of delivering quality of service in order to maintain market competitiveness have their demerits (Brennan & Shah, 2000). The challenge is for HEIs to strike a balance between remaining true to the traditional values of higher education, and meeting emerging societal needs (Michael, 1997; OECD, 2014). The next section provides further discussion of the research problem.

1.3 Research Problem

HEIs increasingly face a common challenge to balance, on the one hand, the neo-liberal governance models they operate with and, on the other hand, their traditional academic values and missions (OECD, 2014). This is the result of changes in recent years which have seen the rise of consumerism in the higher education sector, whereby governments and their agencies increasingly regard students as consumers of higher education services (Lomas, 2007, Woodall et al., 2014). Education researchers (Koh, 2004; Gopinathan, 2007) are concerned with the effects of pro-market policies on the nature and purpose of higher education, in particular teaching and learning. In earlier discussions in Sections 1.1 and 1.2, the rise of consumerism and marketisation in higher education was identified. In view of these concerns, research has been conducted that questions the purpose of education (Biesta, 2009; Biesta, 2015; Dall'Alba & Barnacle, 2007). Clearly, there is a disparity between the original intentions of higher education and its service and marketing perspectives. While a service and marketing orientation can assist HEIs to maintain competitiveness in the higher education market, it is essential that "the right principles are well applied" (Ng & Forbes, 2009, p. 39). Hence, the balance between the marketing intentions of quality of service and the fundamental intentions of higher education needs to be addressed and warrants further exploration.

As literature continues to portray the effectiveness of quality of service as an effective neo-liberal strategy in maintaining the market competitiveness of HEIs (Husain et al., 2009; Nadiri et al., 2009; Pereda et al., 2007; Sultan & Wong, 2012; Tan & Kek, 2004; Yeo, 2008; Yeo, 2009), it is essential to understand its impact on the traditional purpose of higher education, and from the perspectives of various stakeholders. The review of academic literature for this study reveals that there is a need for discussion on the impact of quality of service on higher education outcomes, and more specifically on learning outcomes—the

traditional purpose of higher education. Studies are also required on service marketing ideas through quality of service in higher education, beyond research of an institution-specific and student-centric nature. The next section addresses the research question and objectives for this study.

1.4 Research Question and Objectives

The above discussion on the research background and problem shows that there is a need and opportunity to explore and understand the impact of the neo-liberal market competitive strategy that uses quality of service, together with the after-effects of student satisfaction and quality of student experience, on higher education students' learning outcomes. The central research question addressed in this study is:

How does quality of service influence higher education learning outcomes, and what role does student satisfaction and the quality of student experience play in this relationship?

To answer this research question, the study has two objectives. The first objective is to assess the relationship between the elements of quality of service and higher education learning outcomes, through the development of a conceptual model that will be based on relevant theories and literature. This objective is conceptualised in Chapter 4 with a discussion on the conceptual model including the hypotheses that will be tested in Chapter 5. The second objective is to explore the differences among stakeholders of higher education in terms of their perceptions of the relationships described in the central research question. As will be highlighted in Section 3.7 of the literature review, the stakeholders considered in this study include students, HEI staff members, and industry.

1.5 Scope of the Study

This study is conducted within the scope of Singapore's hybrid higher education system, in order to contribute to knowledge and literature concerning the quality of service and quality of experience provided by HEIs in Singapore. Singapore represents a higher education system that is "an organic hybrid of old and new, and East and West: a distinctive Confucian form of modernisation in the knowledge economy" (Marginson, 2011, p. 607). Rivalling Hong Kong, Singapore strives to be a regional hub of higher education in the Asia-Pacific region (Mok, 2007; Chan & Ng, 2008; Yeo, 2009). Singapore is not sheltered from globalisation and the growing spread of neo-liberal economic policies, and their effects on higher education (Mok, 2003a; Mok & Lee, 2003; Gopinathan, 2007). The Singaporean context may be a good representation of Asia-Pacific higher education systems that follow the Confucian model (Marginson, 2011).

As specified in Section 1.4, this study also explores major stakeholders' perceptions of higher education. These major stakeholder groups are identified from the literature review, and include students, industry and staff working with HEIs.

The study focuses specifically on learning outcomes within the research domain of higher education outcomes. Student learning outcomes provide a better gauge of the institutions' products and programs for students (Frye, 1999), than does purely quality of service. This is highlighted in Sections 3.6 and 3.8.

1.6 Significance of the Study

This research is both theoretically and practically significant in a number of ways. Both areas of significance are discussed below.

1.6.1 Theoretical Significance

1.6.1.1 Rethink Models of Quality of Service in Literature

The study is significant from a theoretical perspective as it allows researchers to rethink the models of quality of service in higher education that are widely discussed in literature. These models are predominantly adapted from the SERVQUAL model, based on the consumer service perspective; they are also widely portrayed in literature as being effective in measuring and enhancing quality of service in higher education. However, there is limited consideration of the implications for higher education learning outcomes. This study is conducted empirically at the interface of the services marketing perspective and higher education. It provides knowledge on the implications of the services marketing perspective on higher education, from the perspectives of major stakeholder groups comprising students, industry and staff of HEIs. The findings from the study might also provide the motivation for researchers to revisit existing theories on service and quality of service from a purely marketing perspective, which is what currently exists in the literature.

1.6.1.2 Directions for Research on Higher Education as a Service from the Educational and Pedagogical Perspective

The findings and discussions provide potential directions to conduct more extensive research to investigate (1) the educational and pedagogical perspectives of higher education as a service,

and (2) the effects of service in higher education on pedagogy. From a theoretical perspective, such research will make a crucial contribution to education and learning theories. Students do not learn in isolation, but instead learn in relation to their learning environment, and ultimately their social environment (Baranova et al., 2011; McInnis, 2004; Ng & Forbes, 2009; Tam, 2007). The research output of this thesis provides a starting point to understand student learning from a systems perspective, as it is conducted at the interface of the services marketing perspective and higher education.

1.6.2 Practical Significance

1.6.2.1 Allow Higher Education Administrators to Get Involved With Expectations of Stakeholders of Higher Education

Higher education administrators will gain fresh insights from the study of the impact that concepts of service—that is, quality of service, quality of student experience and student satisfaction—have on higher education learning outcomes. As the study also explores the perspectives of students, staff members of HEIs and industry as major stakeholders of higher education, it identifies the expectations of these stakeholders and allows HEIs to formulate institution-specific policies to manage expectations. Investigating the consequences of quality of service, quality of student experience and student satisfaction on higher education outcomes also allows HEIs to formulate plans which enable students to appreciate their obligations as they enter into the education service experience. As education is a social institution (Giddens & Sutton, 2014), this study is also significant for society at large; society is interested in knowing what HEIs are doing, and could do, in order to effectively prepare its graduates for the increasingly competitive knowledge-based global economy.

1.6.2.2 Manage Pro-market and Education Mission of Higher Education

Findings from the research will provide insights for HEIs in managing their two roles, that of market and service orientation, and that of education. As discussed previously in Sections 1.1 to 1.3, HEIs face a common challenge in balancing these two roles, as a result of a rise in consumeristic behaviour among stakeholders of higher education. This is because higher education is "unique as a service experience in that most customers must meet stringent academic and sometimes personal criteria before being admitted to enter on the experience" (Rowley, 1997, p. 10). Hence, this research provides a reconciliation of pro-market policies with the core mission of higher education.

1.6.2.3 Contribution to Understanding of Concepts of Service in HEIs in Singapore

The study directly produces knowledge on the extent of the influence of quality of service, quality of student experience and student satisfaction on higher education learning outcomes. As highlighted later in Chapter 3, the research in these areas in the context of Singapore is limited. This thesis adds to the literature in relation to the Singapore context, and it allows educators and administrators of HEIs in Singapore to better understand the expectations and perceptions of students, and what they can provide to the students, to enhance higher education quality and student learning experiences in Singapore.

1.6.2.4 Refinement of Higher Education Policies in Response to

Globalisation and Neo-liberalism

The findings from the study allow stakeholders involved in higher education governance and administration to further debate the effects of globalisation and neo-liberalism on higher education learning outcomes. This will enable the refinement of higher education policies in response to such phenomena. While there are benefits for HEIs that embrace globalisation and neo-liberalism to remain competitive in a rapidly evolving higher education market, both globalisation and neo-liberalism remain contentious concepts in academic discussions (Deem, 2011; Shore & Wright, 1999; Yang, 2003).

1.7 Research Design

The decision on a research design is influenced by philosophical assumptions, methodological approach, and methods for data collection, analysis and interpretation (Creswell, 2009). For this study, the researcher adopted a positivistic research philosophy, based upon the understanding that cause-and-effect relationships applicable to both natural and social objects have the status of truth (Creswell, 2009; Crossan, 2003; Tranfield et al., 2003). Since this thesis involved the exploration of definitive cause-and-effect relationships between constructs substantiated by literature, it is relevant that the research adopted a positivistic world view. Based on the positivistic world view, which is in alignment with the research question and objectives described in Section 1.4, this study adopted a quantitative methodological approach in four broad steps, illustrated in Figure 3 in Section 5.2.

First, a questionnaire was developed for each stakeholder group—namely, students, industry and staff working in HEIs—to measure the constructs of the conceptual model discussed in Section 4.2. As the conceptual model was determined based on existing theories in academic

literature, each construct was operationalised into measurement variables primarily through the conduct of a literature review for each construct. Literature was reviewed on each of the SERVQUAL dimensions, quality of experience, student satisfaction, cognitive learning outcomes and affective learning outcomes. The constructs were operationalised commonly but worded differently for each stakeholder group. The developed questionnaires were subjected to expert validation and pilot testing.

Second, the questionnaires were used in an online survey of the stakeholder groups. Respondents were contacted via email and social media. A cross-section of 484 responses was received, of which 348 fully completed responses were used for analysis.

Third, data gathered from the survey was analysed for reliability and construct validity using the Statistical Package for Social Sciences (SPSS). Measurement and structural theory were validated through confirmatory factor analysis (CFA) and structural equation modelling (SEM) using IBM AMOS software. Differences in perspectives among higher education stakeholder groups were measured using multivariate analysis of variance (MANOVA), discriminant analysis and SEM. Both MANOVA and discriminant analysis were conducted using SPSS.

Fourth, the findings from the study were analysed. The proposed model in Section 3.2 was reviewed and revised both from the generalised perspective and from the perspective of each stakeholder group.

1.8 Thesis Outline

As the research for this thesis follows a quantitative methodological approach supported by a positivistic world view, the presentation of this thesis follows the structured approach suggested by Perry (1998a; 1998b) and supported by Uncles (1998). Perry (1998a; 1998b)

and Uncles (1998) suggest starting with the end in mind and writing around the key findings of the study. A review of theses (Saleh, 2006; Sultan, 2011) based on research using the quantitative methodological approach further justifies the structure of this thesis. This thesis consists of nine chapters, as follows.

Chapter 1, Introduction presents an overview of the research context and explains the research problem derived from research context. It addresses the paradoxical challenge between the neo-liberal aim of quality of service in higher education and the need to deliver high-quality higher education learning outcomes as the context of the problem. From here, the research question and objectives are derived and discussed, followed by a brief overview of the research design and scope. The justifications for the study are also presented.

Chapter 2, Student Learning: A Philosophical and Theoretical Discussion—building on the research background and research problem explained in Chapter 1, and recognising that this thesis contributes to student learning and pedagogical theory as the overarching basis for this research—provides an examination of the notion of student learning, followed by a review of the underlying theories of student learning in relation to the interaction between the student and educator in the learning process. The need to examine student learning and pedagogical theories concerning the relationship between the student and educator during a learning experience arises from the recognition that a particular logic of student learning contributes to the quality of student learning experiences and outcomes in higher education. Hence, the chapter identifies this recognition through philosophical and theoretical discussions which eventually serve to provide a further basis for discussion of the research findings in Chapters 6 and 7.

Chapter 3, Literature Review provides a systematic review of the existing literature in the fields of quality of service and higher education. Specifically, it discusses literature related to research streams fundamental to this research. These fundamental streams of research which

provide the theoretical basis for this research comprise services marketing theory, higher education theory and global concepts of higher education. In addition, it addresses research interests related to the definition of quality of service, dimensions of quality of service, measurement of quality of service, outcomes of higher education and stakeholders of higher education. The chapter culminates with the identification of research gaps.

Chapter 4, Conceptual Model introduces the development of the conceptual model and the hypothesised relationships it illustrates. The hypothesised relationships are derived from the academic literature which is reviewed and discussed. To provide an understanding of the definition of each construct in the hypothesised model, the chapter also explains all the constructs, through a literature review. The development of scale items for each construct is also covered.

Chapter 5, Research Methodology covers the quantitative methodological approach of conducting the research for this study and provides an explanation of the philosophical rationale behind the research design. Discussions on the methodological approach include development of the questionnaire, conduct of the online survey, and data analysis and interpretation through the use of reliability analysis, CFA, SEM, MANOVA and discriminant analysis.

Chapter 6, Research Findings presents the results and analysis of the data collected from the survey. It begins with a discussion of the sample demographics, descriptive statistics and data accuracy to provide an understanding of the data set. Results of the tests for construct validity are also given. Measurement and structural model analysis, through the use of fit indices, are also reported. Finally, the results of tests of hypotheses, MANOVA and discriminant analysis are discussed.

Chapter 7, Discussion and Implications presents the original contributions of this study by systematically synthesising and evaluating the findings from the study to address the research question and objectives. The major findings uncovered in Chapter 6 are discussed in relation to the findings of the review of literature of research themes in Chapter 3, the review of literature of conceptual model constructs in Chapter 4, and the identification of research gaps from the thematic literature review in Chapter 3. The theoretical and practical implications of the findings, along with limitations of the study and directions for future research, are also discussed.

Chapter 8, Further Implications – A Discourse from the Education and Pedagogical Perspective, in order to further strengthen the contributions of this research, provides a reflective discourse from the education and pedagogical perspective to further clarify the implications of the research findings and discussions in Chapters 6 and 7 respectively. The discourse in this chapter is synthesised holistically to leverage the philosophical discussions of student learning and its underlying theories in Chapter 2, to underscore the basis of this thesis in pedagogical theory. The purpose of education, pedagogical perspectives and challenges for the future of higher education are addressed in this chapter.

Chapter 9, Conclusion provides a summary and conclusion by providing a synthesis of the findings of this research, the overall contributions of this research, outlooks for future research, and future challenges for higher education.

1.9 Chapter Summary

In summary, this chapter has provided an overview, background, structure and direction for this thesis. The importance of this research is presented by the research context, research problem, research question, objectives and significance of the study. Discussions on the

research design and scope provide the approach to the study. The next chapter delves into the philosophical and theoretical underpinnings of student learning to further foreground the basis for this research. Thereafter, in Chapter 3, the literature related to the key concepts for this study is reviewed and discussed.

Chapter 2: Student Learning – A Philosophical and Theoretical Discussion

2.1 Introduction

Chapter 1 introduced the contentious effects that globalisation has on higher education. Globalisation has resulted in HEIs adopting neo-liberal movements of governance, involving market-oriented and service-oriented practices, and the use of quality assurance for achieving performance management and accreditation objectives, as well as to provide accountability to stakeholders (Lee & Gopinathan, 2003; Olssen & Peters, 2005; Marginson & Van der Wende, 2007a). These initiatives, however, might not be translated into desirable learning outcomes for students during a student's higher education experience with a HEI. While HEIs can benefit from globalisation and neo-liberal modes of operations (Altbach, 2004; Lee & Gopinathan, 2003; Marginson & Van der Wende, 2007a), the negative impacts of these inevitable global phenomena on higher education development have been debated by several researchers (Deem, 2001; Gibbs, 2001; Giroux, 2002; Spring, 2008; Tilak, 2008; Torres & Schugurensky, 2002; Yang, 2003). Since the discussions concern how student learning is affected by what HEIs do from a neo-liberal stance, there is a need to delve deeper into the issue by addressing student learning from both a philosophical and a theoretical perspective.

The study of the philosophy of student learning is crucial since it provides the theoretical context upon which this thesis is grounded. In essence, this thesis situates itself within the context of student learning by virtue of the nature of the research problem discussed in Section 1.3, which stresses the need to address the concern regarding the purpose of higher education, and in particular student learning, amidst the global phenomenon of the marketisation of higher education.

Discussions with a philosophical or epistemological nature have the purpose of clarifying our beliefs and justifying what we already know by examining the origins and legitimacy of knowledge (Kirschner, 2009; Knight et al., 2014; Markova & Berrios, 2012; Smith, 1997). As in all philosophical studies, a philosophical study of student learning provides a critical understanding of ideas, practices and policies related to that field by examining its central concepts and assumptions. This will induce a better understanding of present views and problems in relation to our knowledge of student learning (Himanka, 2015; McCulloch & Crook, 2008).

The aim of this chapter is to provide an examination of the notion of student learning and its underlying theories. This provides the basis for discussion of the research findings in Chapters 7 and 8. Section 2.2 foregrounds the concept of student learning by examining the meaning of 'student learning'. Its underlying theories are explored in Section 2.3.

2.2 An Examination of Student Learning

Student learning is a vital component of any higher education system; it forms the basis of education in general. The importance and prominence of student learning in discourses and actions on education, in particular higher education, is a consequence of the meaning that society has given to the notion of education. The term 'education' comes from the Latin word *educare* and means 'upbringing' (Leach & Moon, 2008; McCulloch & Crook, 2008). 'Education' has conventionally been perceived to mean "empowering people with the skills, knowledge, attitude and aspiration to develop themselves" (Liberal Democrats Online Policy Consultation Group, 2008, p. 191). Perceptions of what education is also vary, with differences across generations (Antikainen et al., 1995; Smith, 1997; Noddings, 2015; Thomson, 2001). However, a factor underpinning the discourse on the meaning of education

is student learning, which implies the importance that society places on the ability of students to learn, and the importance that students do learn during their education. Fundamentally, the subject of student learning exists as a branch within the philosophy of education (McCulloch & Crook, 2008). There is a set of beliefs that every education institution and educator holds and uses to respond to questions about the purpose of education, the role of educators, curriculum design and pedagogical interventions for effecting student learning (Sadker et al., 2008).

Perspectives of student learning may be derived from both classical and contemporary Western philosophies, and Eastern philosophies of education. Such philosophies may be grounded in Hofstede's cultural dimension of individualism versus collectivism (Hofstede, 2011; Minkov & Hofstedt, 2011). The classical Western philosophy of education of the Socratic era—during the time of Socrates (469–399 BCE), Plato (428–348 BCE) and Aristotle (384–322 BCE)—commonly advocated a liberal style of student learning which valued private and public deep questioning and the evaluation of widely accepted knowledge and beliefs, so that students could create and express new knowledge (Tweed & Lehman, 2002; McCulloch & Crook, 2008). Socrates, Plato and Aristotle sought to discover universal truths, a philosophy that is quintessential to the Greek's humanistic belief in the power of human reason to find the meaning of existence and nature (Gutek, 1995). The implication of this philosophy is the belief that knowledge is derived from true learning through the justification of beliefs and opinions, giving rise to what is known as educational constructivism in learning and a meaning-centred education (Kovbasyuk & Blessinger, 2013a; Tweed & Lehman, 2002). This is the reason we see the union of teaching and research in today's HEIs (Himanka, 2015). Both teaching and research require student learning through inquiry or the questioning of knowledge, a mode of inductive learning that is a characteristic of the pedagogical approach that today we know as the Socratic method

(Areeda, 1996; Birnbache, 1999; McCulloch & Crook, 2008; Paraskevas & Wickens, 2003; Parkinson & Ekachai, 2002).

Contemporary Western philosophers of education, including John Dewey, Edgar Dale and Jerome Bruner, emphasise the importance of experience in the student learning process (Garrett, 1997). In this sense, the type and quality of the student experience in the learning process is critical to student learning objectives and outcomes. The student's learning experience is the result of their active involvement in the learning process, through educators using learner-centred pedagogies to engage students in active learning rather than a didactic mode of learning (Aubrey & Riley, 2016; Dewey, 1897; Garrett, 1997). The student learning experience is a result of a co-creation during the learning process: it requires student involvement and educator engagement. A contemporary philosophical understanding of 'student learning' is that it is the appropriate response of the student to the solicitations of the student's ontological environment, made possible by the appropriate response of the educator to solicitations of the same environment through the educator's teaching (Thomson, 2001). The emphasis on the learning experience or experiential learning by contemporary Western philosophers is also traceable to the Socratic method mentioned earlier; it challenges students to engage in critical thinking, analysis and reflection (McCulloch & Crook, 2008; Wegerif, 2013). Contemporary philosophers of education, particularly John Dewey and Paulo Freire, take a more reflective and active concept of student learning. They challenge didactic, and hence passive, notions of student learning which limit the growth of a student's capacity to learn (Aubrey & Riley, 2016). This advocacy for a reflective and active mode of student learning, which promotes the cultivation of human agency in a student by allowing freedom of thought, perception and action grounded in personal knowledge and ethics, along with Freire's critical pedagogy (Bai, 2006, Freire, 1985; Freire, 2000; Irwin, 2012), makes a major

contribution to the experience of the student learning process that contemporary philosophers of education advocate.

Himanka (2015) writes, "In the present globalised world, it is also important to be able to understand points of view to higher education other than Western ones" (p. 127). While globalisation has to a certain extent brought standardisation to higher education administration, there is a need to recognise that the East and West differ in their philosophical thoughts on education and student learning. Hence, it is as important to study the philosophy of Confucius as it is to study that of Aristotle (Holford et al., 2008).

The philosophical thought of Confucius (551–479 BCE) existed before the time of Socrates. A Confucian tradition and philosophy of education was adopted predominantly by East Asian societies—such as mainland China, Taiwan, Singapore, Japan and Korea—in the Confucian era at least 2,000 years ago (Zhang, 2008). In contrast to the Western philosophy of education, the Eastern or Confucian philosophy of education emphasises student learning in terms of the "effortful, respectful and pragmatic acquisition of essential knowledge as well as behavioural reform" (Tweed & Lehman, 2002, p. 89). Distinct characteristics of the Confucian learning culture are the pursuit of lifelong learning; the idea that educators possess authority over students, with educators functioning as transmitters of knowledge and students as receivers of knowledge; an emphasis on collaborative learning; and the importance of student effort to succeed in learning (Yang, 1993; Zhang, 2008). It also appears that an underlying common factor among these characteristics is the requirement for active involvement of students in learning, though predominantly through didactic modes of learning. Nevertheless, the Confucian practice of learning is also rooted in a humanistic tradition that embodies both a belief that education should provide a holistic learning experience in order for a student to experience holistic development as well as personal and

societal growth, and the understanding that learning to be human is at the core of an education philosophy (Sun, 2008; Yang, 1993; Zhang, 2008).

Clearly there are differences and similarities in theories of student learning in Western (Socratic) and Eastern (Confucian) philosophies. A distinct difference is found in the learning relationship among students. Western philosophy emphasises individual learning, while Eastern philosophy emphasises learning in groups or learning through collaboration (Zhang, 2008). This difference in emphasis on interactions between students is in part due to differences in the learning ideologies of Socrates and Confucius. While the Socratic philosophy of learning emphasises individualistic learning and achievement through critical thinking, inquiry and reflection, the Confucian philosophy of learning is additionally grounded in the collectivist idea of learning and achievement as a group, for the benefit of family, community and society (Bruell, 1999; Himanka, 2015; Sun, 2008; Tweed & Lehman, 2002; Yang, 1993; Zhang, 2008). Another distinct difference is in the style of learning for individual development and growth. The Confucian learning tradition places great importance on the need for students to be engaged in effortful learning from the 'authority', which tends to require external motivation for students to succeed. On the contrary, the Western tradition instils enjoyment in learning through the emphasis on independent inquiry and discovery of knowledge by the individual student (Tweed & Lehman, 2002; Zhang, 2008).

While there are differences between Western and Eastern philosophical traditions of learning, a false dichotomy exists (Ryan & Louie, 2007). From the preceding discussions it can be inferred that the differences between Western and Eastern philosophies of learning are essentially in terms of the approach for the achievement of a common consequential outcome: the growth and development of the individual student. The questioning approach underpinning the critical inquiry of knowledge, which provides a beneficial learning

challenge and experience to students by encouraging their involvement in learning and thereby facilitating the growth and development of the student, is not unique to the Socratic tradition of learning: it can also be traced to the work of Confucius, whose notion of learning also includes critical thinking through open-minded self-examination by an individual (Kim, 2003; Ryan & Louie, 2007). Just as Socrates did, Confucius was also said "to delight in leading his better disciples to enlightenment through a process of questions and answers" (Ryan & Louie, 2007, p. 412). The difference in encouraging critical inquiry, however, was in the mode of enabling critical thinking. With the Socratic learning tradition, teacher facilitation was the pedagogical instruction for critical learning; with the Confucian tradition, teacher mastery was the enabler for critical learning (Zhang, 2008). There are clearly overlaps between the Socratic and Confucian approaches to student learning, even though the Socratic approach is more liberal and inquiry based, and the Confucian approach more based on thought acquisition. However, educators encourage a synthesis of Socratic and Confucian ways of learning, so that students fully understand the knowledge, skills and experiences they acquire, and can evoke them in domains beyond the academic context (Tweed & Lehman, 2002; Zhang, 2008; Ryan et al., 2013).

The preceding discussions show that 'student learning' is a complex term that has numerous interpretations across cultures and philosophies (Harvey & Knight, 1996; Hardman, 2008; McCulloch & Crook, 2008; Tight et al., 2009). The traditional conceptualisation of student learning has been about educators imparting knowledge that is eventually acquired and retained by students (Dall'Alba & Barnacle, 2007; Claxton, 2007; Edwards, 2001; Engestrom, 2001; Roosevelt, 2008; McCulloch & Crook, 2008; Tweed & Lehman, 2002; Zhang, 2008). In this sense, the acquisition of intellectual knowledge and skills is perceived to be the primary objective of learning and of receiving an education (Dall'Alba & Barnacle, 2007; Edwards, 2001; Noddings, 2015; Wegerif, 2013), an idea that fits well with the

traditional purpose of a HEI as a place for the transfer of knowledge and skills through generations (Himanka, 2015; Yang, 1993). This traditional notion of student learning presupposes that "knowledge or skill to be acquired is itself stable and reasonably well-defined" (Engestrom, 2001, p. 137).

On the other hand, a broader and more holistic conceptualisation of student learning for the 21st century refers to student learning as students developing the capacity to 'learn to learn', to maintain the relevance of knowledge and skills, and eventually to develop as holistic individuals for a lifetime of change (Claxton, 2007; Harish, 2011). This idea is linked with the Socratic philosophy of critical learning for lifelong individual development; it is also similar to the Confucian belief in lifelong learning, in parallel with Freire's critical pedagogy (Freire, 2000; Giroux, 2010; Kim, 2003). This more advanced notion of student learning seems to be in antithesis to its traditional form just discussed—although there are overlaps, and the synthesis of both notions provides a more beneficial learning experience for students, as previously discussed. It is also most relevant in a rapidly evolving 21st century, since learning takes place all the time with something that is not well-defined or understood ahead of time, and things are literally learnt as they are created (Engestrom, 2001; Longworth & Davies, 1996). The idea of students developing the capacity to 'learn to learn', and that ideas are learnt as they are created, is also analogous with a systems thinking approach of conceptualising student learning. In this approach, student learning is composed of cognitive learning, action learning, and emotional learning—elements which are interrelated and interact to form a learning cycle, providing a virtuous growth in student learning (Maani & Cavana, 2007).

A common feature of notions of student learning is the interaction that exists between the student and the educator. In the contemporary understanding of student learning, learning involves not just the internal process of acquisition of knowledge and skills, but also an

external social process of interaction between people (Dewey, 1897; Engestrom, 2001; McCulloch & Crook, 2008). A well-informed understanding of student learning takes into account the socially situated dimensions associated with it (Macleod & Golby, 2003). Knowing who are the subjects of learning is equally as important as knowing the what, why and how of the learning content (Engestrom, 2001). Hence, student learning is and has always been a social interaction process involving the relationship between student and educator. In this sense, student learning comprises three dimensions: the content or knowledge dimension, the emotional dimension, and the interaction or interpersonal dimension (Edwards, 2001; McCulloch & Crook, 2008).

Therefore, equally important to the notion of student learning in higher education is theory embedded in the study of pedagogy that addresses the style of interaction between the student and the educator. Any theory of student learning ultimately addresses why and how students learn, questions which are best explained with pedagogical theories (Engestrom, 2001). The implication is that pedagogical theory and student learning theory are complementary. It is necessary for pedagogy to be used to highlight the nature of knowledge that is to be promoted so as to educate people in a way that promotes an 'ideal' society (Himanka, 2013; Himanka, 2015; Waring & Evans, 2015). Hence, pedagogy has consequences for the epistemology of student learning (Skidmore, 2000; Skidmore, 2006). Pedagogy creates "the conditions and means for successful and relevant learning" (Leach & Moon, 2008, p. 165) and can transform a student's life through the learning experiences it creates. Hence, it is necessary to understand the underlying theories of student learning associated with student–educator interaction.

2.3 Review of Underlying Theories of Student Learning

Underlying theories of student learning are embedded within the study of pedagogy. Traditionally, pedagogy has been understood to be the 'science' and 'art' of teaching (Hardman, 2008; McCulloch & Crook, 2008; Ozuah, 2005; Paraskevas & Wickens, 2003). Hence, it is posited that pedagogy influences the process of learning and teaching, and ultimately the cognitive and affective development of students (Leach & Moon, 2008; McCulloch & Crook, 2008; Skidmore, 2006; Waring & Evans, 2015). A holistic conceptualisation of pedagogy requires that educators reflect on not only the nature of the knowledge that should be promoted but also the style of interaction the student will have with the educator in the learning process, and how the learning is to be organised (Edwards, 2001; Kovbasyuk & Blessinger, 2013b; Waring & Evans, 2015). Central to pedagogical theory and the art of teaching is the role that educators play in structuring meaningful learning experiences for students in the learning process (Kovbasyuk & Blessinger, 2013a; McCulloch & Crook, 2008; Shim, 2008). As mentioned earlier, the process of student learning involves a social interaction process based on the formation of a relationship between the student and the educator. Particular styles of interaction between the student and educator have an effect on student learning and its outcomes (Asterhan & Schwarz, 2007; Higham et al., 2014; Skidmore, 2006). Hence, it is possible to argue that the style of interaction between the student and educator in the learning process and environment forms the basis for pedagogical approaches which need to be examined. Two contrasting pedagogical theories deal with the student–educator interaction: monologic theory and dialogic theory.

As previously mentioned, the traditional notion of education has been perceived as the acquisition and retention of knowledge by the student. This conception of education is historical and traceable to the beliefs of classical education philosophers. For instance, Aristotle had a view that learning is accomplished primarily through listening, hence the

importance of lectures as a dominant mode of teaching, where students listen while professors teach through the reading of texts (Himanka, 2015). Aristotle's view of learning is also reflected within Confucius's ideology involving the Sage and Jun Zi, with the understanding that Jun Zi, as a person of high morality who was eager to learn from the Sage, was deemed to be an ideal human model (Sun, 2008; Yang, 1993). The idea of knowledge acquisition and retention can also be inferred from the original meaning of pedagogy, which comes from the Greek word 'paidagogos', referring to the act of an attendant leading a child to school or supervising a child (Hardman, 2008; Ozuah, 2005). After all, pedagogy is predominantly associated with teachers tasked with determining the mechanics of student learning (Edwards, 2001; Ozuah, 2005; Paraskevas & Wickens, 2003; Rink, 2001).

The traditional notion of education associated with the transmission of knowledge to student learners is reminiscent of what we comprehend as monologic pedagogy. The origins of monologic pedagogical theory is traceable to "a version of pedagogy that remains located in a history of schooling as social control, of curricular knowledge as a commodity to be transmitted and of teachers as para-professionals" (Edwards, 2001, p. 161). In monologic theory, the pedagogical relationship of the educator and the student is characterised by the student's state of dependency and passiveness during the learning process, due to the mechanistic mindset of a still dominant empiricist view of learning and pedagogy as being instructor-focused and instructor-led, meant for the achievement of educational goals associated with preset curricular endpoints and standards (Edwards, 2001; Kovbasyuk & Blessinger, 2013b; Paraskevas & Wickens, 2003). Several researchers (Apple, 2000; Asterhan & Schwarz, 2007; Aubrey & Riley, 2016; Burbules, 2000; Edward, 2001; Freire, 1985; Freire, 2000; Giroux, 2001; Kovbasyuk & Blessinger, 2013a; Kovbasyuk & Blessinger, 2013b; Leach & Moon, 2008; Paraskevas & Wickens, 2003; Skidmore, 2006;

Wegerif, 2013) have argued against the efficacy of monologic modes of instruction in producing desirable student learning outcomes.

A monologic form of instruction, which is still prevalent today, is at best both a narrative and recitational approach to teaching, with no natural dialogue between learners and educators; it has a negative impact on learning, with insignificant learning gains for the student (Asterhan & Schwarz, 2007; Aubrey & Riley, 2016; Freire, 2000; Skidmore, 2006). Hence, it is little wonder that the monologic pedagogical approach to student learning has been termed the 'banking approach'; it is an acquisitional view of learning and represents criticism of a traditional, oppressive and passive model of learning that portrays and treats students as passive receptacles of knowledge and skills in which educators deposited their knowledge in the way that assets are deposited in banks. It is reflective of the economic neo-Darwinism of neo-liberalism (Aubrey & Riley, 2016; Freire, 2000; Giroux, 2010; Leach & Moon, 2008; Leonard & McLaren, 1993). Hence, it is unsurprising that the banking notion of student learning, typified by pre-determined curricula and standards which are prescribed and monitored to ensure compliance by educators and HEIs, is characterised by passivity in student learning and institutional and educator inflexibility (Aubrey & Riley, 2016; Leach & Moon, 2008; Paraskevas & Wickens, 2003).

Furthermore, the banking concept of education and learning signifies an oppressive form of student learning that stifles "the natural curiosity, critical thinking skills and creativity of learners" (Aubrey & Riley, 2016, p. 132). It also fails to acknowledge that the essence of the humanity of student learning is forged within learning through inquiry and praxis, and that "knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other" (Freire, 2000, p. 72).

Fortunately, pedagogical theory has further developed in the 21st century to overcome the weaknesses and scepticism surrounding the banking approach of student learning. Instead, the insurgence of dialogic theory within pedagogy increasingly rectifies the effects of authoritarianism and alienating intellectualism encountered in the monologic approach to learning (Hickling-Hudson, 2014; Higham et al., 2014; Kovbasyuk & Blessinger, 2013a; Sarid, 2012; Skidmore, 2006; Wegerif, 2013). Based on an interactionist perspective, with its roots traceable to the work of Socrates (Higham et al., 2014; Kovbasyuk & Blessinger, 2013b), dialogic theory operates on the understanding that "meaning is always internal to dialogues and so should not be thought of on the model of fixed external things like objects that we might encounter in the world" (Wegerif, 2013, p. 35). Dialogic theory is also ingrained within Dewey's pedagogic creed (Dewey, 1897), which questions passivity in learning, and instead highlights that true learning is derived from the stimulation of a student's mind by the demands of the social situation in which the student finds himself. In summation, "a range of pedagogical approaches, from constructivist scaffolding to Socratic instruction to Freirean liberatory pedagogy, all proclaim the virtues of an interactive engagement" (Burbules, 2000, p. 251) in the learning process in the shared pursuit of knowledge and understanding.

Hence, a dialogic mode of instruction liberates students to be joint subjects of the learning process, to co-create and co-own the learning experience with educators, through quality dialogue and interaction on the subject matter (Freire, 2000; Hickling-Hudson, 2014; Kovbasyuk & Blessinger, 2013b). In this way, the dialogic learning approach establishes a student–educator relationship which is active and learner-focused, such that the interaction between student and educator is at the same level in the hierarchy of the learning process, and is driven by quality interaction surrounding the learning (Skidmore, 2006; Wegerif, 2013). The role of the educator in this case is to genuinely engage students in dialogue on the subject

matter, since knowledge has meaning only in the context of students' participation in relationships and dialogues in the learning process (Hardman, 2008; Wegerif, 2013). Hence, according to Skidmore (2006):

> A dialogical pedagogy … signals the co-presence of the teacher as a concerned other, available to guide and coach the learner, as a member of a community of learners, through the emotional rollercoaster ride of self-development, from the mixture of curiosity and apprehension we often experience when approaching the not-yet known for the first time, through the solidarity of mutual encouragement which can help overcome the confusion and uncertainty involved in practising a new type of knowledge-activity for the first time, to the thrill of shared discovery and personal growth felt at the moment of breakthrough when one confidently masters a new way of doing things. (p. 513)

Based on the preceding discussion, it is unsurprising that a dialogical pedagogy enhances the quality of student learning and student learning outcomes (Asterhan & Schwarz, 2007; Higham et al., 2014; Sarid, 2012; Skidmore, 2000; Wegerif, 2006) through the genuine creation of a dialogically interactive learning experience involving the engagement of students with their educators. Moreover, the effectiveness of student learning through a dialogic mode of instruction hinges on the quality of the interaction between the student and educator (Burbules, 2000; Higham et al., 2014; Skidmore, 2006; Wegerif, 2006). Dialogic learning is viewed as a process of multiple voices and thoughts coming into contact and negotiation (Burbules, 2000; Koschmann, 1999; Wegerif, 2006). Although a dialogic process of learning is challenging in nature, it is the engagement and empowerment of students in critical dialogue with the educators to construct, deconstruct and reconstruct knowledge that liberates and develops students holistically and allows them to make a real difference in the world (Aubrey & Riley, 2016; Freire, 2000; Hickling-Hudson, 2014; Higham et al., 2014;

Matusov & Marjanovic-Shane, 2014; Wegerif, 2006; Wegerif, 2013). Hence, it is the capacity of dialogic theory in inducing an active and participatory learning experience that makes it a worthy pedagogical intervention in education (Burbules, 2000; Hickling-Hudson, 2014; Skidmore, 2006).

Unfortunately, the structural conditions of current higher education systems and policies tend to reproduce monologic patterns of learning on a social scale, and hinder the further development and propagation of a dialogical pedagogy (Edwards, 2001; Skidmore, 2006). State controls involving the governance and regulation of HEIs deal with quality assurance and accreditation, and provide for the accountability of HEIs. These include EduTrust[1], administered by the Council for Private Education (CPE) in Singapore (Council for Private Education, 2009) and the internationally renowned Association of Advance Collegiate School of Business[2] (AACSB), which deals with accreditation. These controls have the tendency to reduce learning to monologic exchanges which emphasise student acquisition of knowledge and skills, for reasons inclined towards the political, economic and performance management objectives impressed on HEIs (Edwards, 2001; Matusov & Marjanovic-Shane, 2014; Wegerif, 2013). For instance, the accreditation requirements of both EduTrust and the AACSB, which emphasise the acquisition of skills and knowledge by students, are based on a bureaucratic set of criteria which a HEI must comply with in order to achieve and maintain accreditation. While both organisations sparingly prescribe criteria for student learning that HEIs must implement and achieve, what is clearly missing is guidance on what HEIs must do to encourage dialogic modes of learning—which is clearly more effective, as previously discussed. Hence, bureaucratic and, at best, dramaturgical accreditation processes impinge on

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[1] EduTrust is a voluntary quality assurance framework for private education institutions in Singapore. However, the CPE, which administers this framework, requires such institutions that enrol international students to meet its requirements as a prerequisite

[2] The AACBS is an American-based association that grants accreditation to business schools internationally.

academic freedom and can act as restraints on innovation, running counter to pedagogic improvements for effective student learning achievements (Barrow, 1999; Harvey, 2004).

The state controls over higher education are the result of neo-liberalism, which represents a "positive conception of the state's role in creating the appropriate market by providing conditions, laws and institutions necessary for its operation" (Apple, 2000, p. 232). The need to comply with higher education management policies might discourage educators to adopt a more dialogical pedagogy in favour of monologic modes of instruction, which require less time and effort but constrain the engagement of students in their learning to unhelpfully narrow boundaries foregrounded by pre-determined curricula (Skidmore, 2000). Strongly regulatory higher education policies around quality assurance, accreditation and accountability to stakeholders, risk restricting the independent powers that students can exercise in learning, which can result in intellectual social control. This situation is in antithesis to the ideals of a critical pedagogy, the essence of dialogical theory (Edwards, 2001; Freire, 2000; Gruenewald, 2003; Skidmore, 2000). Regulation of higher education, while market-driven in the name of neo-liberalism, also has the tendency to turn HEIs into factories churning out students—similar to factors of production—with the required skills and knowledge for an economy (Matusov & Marjanovic-Shane, 2014).

In conclusion, in examining the notion of student learning and its underlying theories, this chapter has placed this thesis within pedagogical theory and provided the groundwork to support discussions of the research findings in Chapters 7 and 8. As mentioned in Section 2.1, a philosophical and theoretical discussion of student learning is important as it provides the theoretical context upon which this thesis is grounded, since its core subject matter is higher education and student learning. While discussions in Chapter 1 concerning the background of this research and the research problem introduced concepts of service in higher education as a problem for student learning, this chapter introduced pedagogical developments and ideas of

student learning as additional perspectives to the problem. The philosophical discussion of student learning in this chapter has traced the roots of education and student learning, which also explains the developmental origins of pedagogical theory in terms of the student–educator relationship via monologic and dialogic theories which are fundamental to the field of pedagogy in education. This chapter highlighted the effectiveness of dialogic learning experience in higher education, which has survived since the Socratic era. Hence, this thesis recognises this idea to position discussions of the research findings in Chapters 7 and 8. The next chapter provides a review of the literature relevant to this research, to identify the research gaps that form the basis of this thesis.

Chapter 3: Literature Review

3.1 Introduction

Guided by both the background to this research and the research problem introduced in Chapter 1, this chapter provides a systematic review of the literature within the services marketing, quality of service and higher education disciplines. It aims to provide the basis on which to address the research question and objectives so as to position the findings of the research. The selection of the disciplines of services marketing, quality of service and higher education for a systematic literature review is based upon the rationale of contributory fit of the research question and objective within these domains, as well as the rationale of complementary fit of these domains of study with discussions of the philosophical and theoretical underpinnings of student learning synthesised in Chapter 2. The systematic review of literature of these three disciplines facilitates the identification of research gaps and a future research agenda by bringing together the many existing studies relevant to the research being undertaken (Thorpe et al., 2005; Tranfield et al., 2003).

A review of the fundamental research streams covering the extant literature related to the theoretical underpinnings for services marketing theory and higher education theory is synthesised in Section 3.2. In the same section, literature related to global concepts of higher education comprising internationalisation and quality assurance is also reviewed. Section 3.3 provides a review of how quality of service in higher education is defined and theorised. Section 3.4 synthesises the literature for discussions relating to the dimensions of quality of service, while the literature concerning the measurement of quality of service is discussed in Section 3.5. The outcomes for higher education are addressed in Section 3.6, while Section 3.7 reviews discussions relating to stakeholders of higher education. Finally, the research gaps identified through the review of literature are discussed in Section 3.8.

3.2 Review of Fundamental Research Streams

The purpose of this section is to provide a review of the relevant fundamental research streams, with the aim of establishing the theoretical basis for this research. The conceptual ideas for this research, which form the theoretical foundation, are derived from services marketing theory and higher education theory. The review also identifies global concepts of relevance to higher education. Section 3.2.1 and its two sub-sections provide a review of the theories relevant to the theoretical foundation, while Section 3.2.2 and its two sub-sections provide a review of the global concepts, comprising internationalisation and quality assurance.

3.2.1 Theoretical Foundation of the Study

The perception of higher education as a service is heavily represented in services marketing literature (Angell et al., 2008; Cuthbert, 1996; Duarte et al., 2012; Husain et al., 2009; Nadiri et al., 2009; Ng & Forbes, 2009; Voss & Gruber, 2006). Due to the service nature of higher education, the theoretical foundation for this study is derived from the overarching theories of services marketing and higher education. Although distinctive from commercial services, a review of the literature has revealed the tendency for researchers (Hemsley-Brown & Oplatka, 2006; Iuliana & Mihai, 2011; Nadiri et al., 2009; Ng & Forbes, 2009; Sultan & Wong, 2010; Williams et al., 2013; Xie & Luo, 2014; Yeo, 2009) to borrow ideas from commercial settings for research and discussions on higher education service. A review of services marketing and higher education theory in the following two sub-sections provides the theoretical underpinning for this research.

3.2.1.1 Services Marketing Theory

It is possible and valid to treat services marketing and mainstream marketing theory separately because of the distinctly different characteristics between services and goods (Zeithaml et al., 1985; Vargo & Lusch, 2004b). While marketing theory was built on a foundation of a goods-centred and manufacturing-based model of economic exchange, services marketing theory is an extension of the traditional marketing model to address the transaction of non-manufactured market offerings by virtue of the differences in characteristics between goods and services (Vargo & Lusch, 2004b). A key difference is that, while goods are sold after their production, services are sold before they are provided for the recipient. This often results in a service experience or value which is co-created between the provider and the recipient (Berry & Parasumaran, 1991; Maglio & Spohrer, 2008; Vargo & Lusch, 2008b). The foundation of services marketing is in quality of service, as it provides companies an opportunity to build market competitiveness through consumer confidence and branding (Berry & Parasumaran, 1991).

In order to clarify services marketing, it is essential to conceptualise what services are in the marketing context. Service is a complicated phenomenon and has many definitions in literature (Edvardsson et al., 2005; Gronroos, 1990). Definitions of service are continually evolving due to changes in "competitive situations that affect customer value-in-use" (Edvardsson, 2005, p. 119). Hence, a better understanding of the service approach may also be derived from looking at services from a value creation perspective (Edvardsson, 2005). For a customer-centric organisation, the service it provides revolves around the customer, and value creation fundamentally requires being respectful and empathetic towards customers (Gibson-Odgers, 2008).

Table 1 presents a summary of service definitions by researchers in chronological order. Based on a meta-analysis of these definitions, it is possible to infer that, since customers are the beneficiaries of the value that services provide, a service may be defined as being essentially customer-centric and something done for the customer, with the customer in mind. In addition, what is clear in these definitions is that the notion of service as a commodity for trade is still very ingrained in our perceptions of service. Further discussions on service are provided in Section 3.3 in the context of a review of the definition of quality of service.

Table 1: Definitions of Services

Researcher(s)	Definition
Zeithaml et al. (1985)	Services are performances, rather than objects, and cannot be seen, felt, tasted or touched. They are intangible, inseparable from production and consumption, heterogeneous and perishable.
Gronroos (1990)	"A service is an activity or series of activities of more or less intangible nature that normally, but not necessarily, take place in interactions between the customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems" (p. 27).
Shaw (1990)	A service is something that effects changes to the condition or status of the recipient in a fundamental way.
Berry & Parasumaran (1991)	A service is a performance which customers purchase.
Bojanic (1991)	"Services cannot be held or stored, and it is difficult to evaluate a service until after it has been consumed" (p. 28).
Lovelock (1991)	A service is "a process or performance rather than a thing" (p. 13).
Lovelock & Wright (1999)	A service is: "An act or performance that creates benefits for customers by bringing about a desired change in or on behalf of the recipient" (p. 5).
Schneider & White (2004)	A service is something that is done for us or to us.
Vargo & Lusch (2004a; 2004b; 2008b)	A service is the application of competencies through deeds, processes and performances for the benefit of the recipient.
Edvardsson et al. (2005)	A service is "a perspective on value which is co-created with customers" (p. 118).
Zeithaml et al. (2009)	Services are deeds, processes and performances.

Researcher(s)	Definition
Walsh & Gordon (2010)	The transactional service is an encounter between customers and employees of businesses.
Gemmel et al. (2013)	A service is an experience or a process for which there is no marked point of transaction during its delivery.

Despite the tendency to commoditise services, the basis of service theory may be founded in the service-dominant logic—as opposed to the goods-dominant logic—in which intangibility, exchange processes and relationships are central (Lusch et al., 2007; Maglio & Spohrer, 2008; Vargo & Lusch, 2004a; Vargo et al., 2016). On the basis that a service is defined as the application of specialised skills and knowledge for the benefit of the receiving entity, the service-dominant logic is representative of all market offerings, including those that provide tangible goods in the process of providing the service (Vargo & Lusch, 2004a). Central to the service-dominant logic is the idea that value is co-created by the relationship between the customer and the service provider involved in the service experience (Ballantyne & Varey, 2008; Woodall et al., 2014), an idea which is embodied in definitions of "services". A service is always exchanged in a relationship between the consumer and service provider, with tangibles employed as aids to the service provision process (Vargo & Lusch, 2008b). Eventually, an emotive service experience forms as a result of the exchange of value through the relationship between the consumer and the service provider within a service system (Hui & Bateson, 1991; Maglio & Spohrer, 2008; Vargo & Lusch, 2008a).

The service experience is an important aspect of a service encounter and warrants an exploration to deepen an understanding of services marketing, since the experience of a service encounter captures the emotional and experiential bases of consumption and satisfaction (Arnould & Price, 1993; Otto & Ritchie, 1995; Vargo & Lusch, 2008b). Several researchers (Arnould & Price, 1993; Heinonen et al., 2010; Hui & Bateson, 1991; Otto & Ritchie, 1995; Otto & Ritchie, 1996; Vargo & Lusch, 2008b) have acknowledged the service

experience as an important factor of services marketing. Although the notion of service as a commodity for trade is evidently implied within the definitions of service, as previously highlighted and illustrated in Table 1, the affective and interpretive experiences that result from a transaction during a service encounter are also subtly implied within the definitions. This is because when a service is utilised it "generates a service experience and consequently an experience of value" (Heinonen et al., 2010, p. 535).

3.2.1.2 Concept of Higher Education

As higher education is regarded as a service, the application of services marketing in higher education is gaining prominence in literature (Angell et al., 2008; Binsardi & Ekwulugo, 2013; Hemsley-Brown & Oplatka, 2006; Kalenskaya et al., 2013; Nicholls et al, 1995; Sultan & Wong, 2010; Sultan & Wong, 2012; Voss & Gruber, 2006). HEIs are becoming seen as reliant on marketing their services for market positioning among their stakeholders (Gibbs & Murphy, 2009). However, while research in services marketing has grown in tandem with the accelerating growth of the service industries worldwide, studies that look directly at higher education marketing are still not extensive (Ng & Forbes, 2009; Kalenskaya et al., 2013). There is also an important need for HEIs to consider the ethical implications of their marketing efforts (Gibbs & Murphy, 2009).

The concept of higher education rests within its multidisciplinary nature, as reflected in a study by Tight (2012) which identifies eight broad themes of research in higher education in which theories are being developed. These are in the areas of teaching and learning, course design, student experience, quality, system policy, institutional management, academic work, and knowledge and research. Higher education research literature also prominently features ideas about HEIs and its and roles (Dall'Alba & Barnacle, 2007). Increasingly customer-like

behaviours of students has also brought into question the relationship of 'value' with higher education (Woodall et al, 2014).

Since the medieval era, higher education has evolved to a state where much of the demand for a higher education is for the economic purpose of both the individual and the state (Ng & Forbes, 2009). Even though higher education still retains its role as the "conscience of society", this role is increasingly being displaced by a role to support a nation's economy and promote the quality of life of its citizens (Gibbons, 1998; Kwiek, 2001). However, there is more to higher education than learning facts and skills for economic means; it also involves developing a world view which shapes behaviours and the way people learn (Dall'Alba & Barnacle, 2007; Duque & Weeks, 2010; Noddings, 2015). Through the delivery of higher education, HEIs play an important "mission to educate the minds and train the hands under conditions that may be sometimes less than comfortable or acceptable to students" (Michael, 1997, p. 127). Interestingly, the concerns of higher education today include not only what society values in the competencies of students, but also how students feel about their higher education experience (Abdullah, 2006b).

The higher education experience is a major conception in discussions of higher education (Barnett, 1994a). It is predominantly a co-creation by both students and educators—a part of the education process during which education efforts are simultaneously produced and consumed (Vargo & Lusch, 2004a; Voss & Gruber, 2006). This co-creation of the higher education experience, co-created by active participation on both sides of the higher education process, improves the quality of its outcomes (Duque & Weeks, 2010; Petruzzellis et al., 2006). The importance of the conceptualisation of the higher education experience can be reflected by the HEIs' emphasis on developing and using instruments to measure student satisfaction with their learning experiences, such as course experience questionnaires (Byrne & Flood, 2003; Grace et al., 2012; Griffin et al, 2003; Ramsden, 1991; Yin et al., 2014).

Due to the economic importance of higher education, debates exist (Altbach, 2001; East et al., 2014; Marginson & Van der Wende, 2007a; Stella, 2006; Tilak, 2008) over whether higher education should be viewed as either a public good or a private good. Public goods are freely and universally available to all consumers, whereas private goods are transacted between the producer and a consumer, whose ability to consume is dependent on their economic ability (East et al., 2014; Marginson & Van der Wende, 2007a). Although traditionally regarded as a public good due to the benefits it brings to individuals and the whole society, higher education is under threat of being increasingly viewed as a viable private good due to effects of globalisation, neo-liberal economic policies, and trade liberalisation (Abowitz, 2008; Altbach, 2001; Knight, 2002; Teichler, 2004; Tilak, 2008). Global trade reforms that attempt to steer higher education in the direction of a private good do not recognise the principle of the social contract that is fundamental to higher education, replace academic values and social concerns with commercial considerations and individual interests respectively, and may have irreversible and undesirable effects on the whole society (Tilak, 2008).

3.2.2 Global Concepts of Higher Education

A review of related literature in higher education (Altbach et al., 2009; Dacquila, 2013; Harman, 1998; Knight, 2002; Mok, 2000; OECD, 2014; Rhoades & Sporn, 2002; Stella, 2006; Teichler, 2004; Yeo, 2009) portrays internationalisation and quality assurance as global concepts and phenomena. There is international consensus around the importance of internationalisation and quality assurance in higher education due to globalisation (Altbach et al., 2009; Frazer, 1994; OECD, 2014). Globalisation has resulted in changes in the character and functions of HEIs worldwide, with many adopting business-like practices to cope with

competition in the global higher education marketplace (Mok & Lee, 2003; Yeo, 2009). The following two sub-sections review the two concepts in relation to globalisation.

3.2.2.1 Internationalisation of Higher Education

It is important to consider the internationalisation of higher education in the context of this research since internationalisation is increasingly becoming a central part of higher education, and is widely accepted as a business strategy that HEIs adopt to be responsive in a competitive global higher education market (Hemsley-Brown & Oplatka, 2006; Hudson, 2016; Van der Wende, 2007). The international dimension of higher education has gained a global profile with the inclusion of higher education in the General Agreement of Trade in Services (GATS) which is administered by the World Trade Organisation (WTO) (Knight, 2002; Altbach et al., 2009). While the internationalisation of higher education is not a new phenomenon, its pace has accelerated in tandem with globalisation which focuses on marketisation, competition and management of higher education (Mok, 2007; Teichler, 2004). These events have presented opportunities, challenges and risks for higher education worldwide (Altbach & Teichler, 2001; Altbach et al., 2009; Knight, 2002; Mok, 2007; Van der Wende, 2007), which include organisational and management aspects of HEIs. One issue is the commercialisation of higher education and its effects on long-term higher education outcomes for students (Altbach et al., 2009).

A review of the literature in the area of international education has revealed that the internationalisation of higher education is a multifaceted, complex and evolving concept (Kehm & Teichler, 2007; Mok, 2007; Van der Wende, 2007). A study by Haan (2014) shows differing interpretations by HEIs and researchers, with internationalisation being defined as a set of activities, a process, a feature, or a strategic management initiative. However, a

common underlying perception of internationalisation is that it is a steerable process by HEIs in response to globalisation (Van der Wende, 2007). Several researchers (Altbach & Teichler, 2001; Altbach & Knight, 2007; Dacquila, 2013; Haan, 2014; Mok, 2007; Teichler, 2004; Van der Wende, 2007) discuss the internationalisation of higher education in relation to globalisation. Not to be confused with internationalisation, globalisation refers to the economic, political and societal forces thrusting higher education towards greater international involvement (Altbach & Knight, 2007).

In response to growing globalisation, HEIs are adopting internationalising strategies, which very often are market oriented, to meet the challenges of an increasingly competitive global higher education market (Hemsley-Brown & Oplatka, 2006; Mok, 2007; Daquila, 2014). Internationalisation strategies that HEIs adopt include corporatisation and marketisation of their business models, participation in international benchmarking and ranking, involvement in collaborative research, internationalisation of curricula and student learning, establishment of student and faculty exchange programs and provision of transnational higher education (Altbach et al., 2009; Huang, 2007; Mok, 2007). Underpinning these strategies are services marketing elements that include quality of service and the student experience that HEIs provide.

3.2.2.2 Quality Assurance, Accreditation and Ranking in Higher Education

The effects of globalisation have placed pressure on HEIs in terms of quality. Countries need to undertake quality assurance to monitor, maintain and enhance quality to ensure their higher education systems remain competitive and responsive to changes in the external environment (OECD, 2014). According to the OECD, the quality of a country's higher education sector, together with its definition, assessment and monitoring, is important to both its social and

economic well-being, as well as the international positioning of its education system (Chong & Ho, 2009). Quality assurance in higher education is essential both locally and globally, as it ensures accountability, improvement and transparency for HEIs (Billing, 2004; OECD, 2014). It demonstrates that education provided by HEIs conforms to established requirements (OECD, 2004). It also plays an important role in regulating the delivery of higher education so as to safeguard students' interests and public investments (Browne, 2010). Increasingly, it has also become a norm for quality assurance standards to assess and provide evidence of student learning outcomes, especially with the undertaking of the AHELO initiative by the OECD (Ewell, 2010; OECD, 2013a).

In the context of higher education, 'quality assurance' refers to the systematic management and assessment procedures that HEIs adopt to achieve specified goals (Harman, 1998; Mok, 2000). Quality assurance systems in higher education typically include common features such as quality control, quality audit, accreditation, validation, and quality assessment and measurement, to maintain and enhance quality (Frazer, 1994; Stensaker, 2011). Tools, approaches and methodologies exist at the institutional, national, regional and global levels to administer the purposes of quality assurance (Billing, 2004; Finch, 1994; Gosling & D'Andrea, 2001; Ho & Wearn, 1996; Harman, 1998; Harvey & Knight, 1996; Mok, 2000; OECD, 2013a; Ray, 1996; SEAMEO RIHED, 2012). These range from institutional total quality management to quality assurance and accreditation frameworks at the national, regional and global levels. Accreditation is rapidly becoming one of the most popular methods for external quality assurance of HEIs worldwide (Altbach et al., 2009; Salmi & Saroyan, 2007; Stensaker, 2011). Institutions of higher education tend to pursue accreditation for their education services or programs as a symbol of educational excellence, and to provide a public statement of the legitimacy of the educational service they provide through the minimum standards they have met, thereby declaring the quality of the educational

services provided (Altbach et al., 2009; Francisco et al., 2008; Harvey, 2004; Shah et al., 2011; Stensaker, 2011). Examples of accreditation frameworks are the EduTrust accreditation framework for private education in Singapore and the AACSB accreditation system for business schools worldwide, both of which were introduced in Chapter 2. Other similar frameworks include the Quality Code for Higher Education[3] (QAA, 2015) in the United Kingdom, and the Quality Assurance Framework for Universities (QAFU) for quality assurance of autonomous universities (Ministry of Education Singapore, 2005) in Singapore.

Several national agencies exist for quality assurance of higher education, tasked with the responsibility to manage quality assurance at both national and institutional levels (Billing, 2004; Harman, 1998; SEAMEO RIHED, 2012; Shah et al., 2011). However, as higher education becomes increasingly transnational, these systems face the challenge of ensuring that both external and internal quality assurance systems work together productively to improve the quality outcomes of higher education (SEAMEO RIHED, 2012). National quality assurance agencies are becoming increasingly aware of the need to collaborate to allow the positive development of higher education (Stella, 2006). This awareness is translated into efforts to harmonise and improve quality assurance mechanisms across countries and regions through the formation of global and regional quality assurance networks (Billing, 2004; Ewell, 2010; Harvey & Knight, 1996). The International Network of Quality Assurance Agencies in Higher Education (INQAAHE) plays a key role in this area. While such harmonisation efforts provide quality assurance models that may not apply in all national higher education systems, it does provide a baseline for each national system to adapt to their specific conditions (Billing, 2004).

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[3] The UK Quality Code for Higher Education is administered by the Quality Assurance Agency for Higher Education (QAA) and sets out the expectations that all providers of higher education in the UK are required to meet.

Despite the genuine purpose of quality assurance and accreditation frameworks to be a means for HEIs to monitor and improve the delivery of higher education quality, several researchers in the higher education field (Barrow, 1999; Ewell, 2010; Francisco et al., 2008; Gosling & D'Andrea, 2001; Harvey, 2004; Harvey & Knight, 1996; Houston, 2010; Pounder, 1999; Shore & Wright, 1999; Stensaker, 2011) have questioned the effectiveness of quality assurance and accreditation in influencing the quality of student learning and the ability for students to learn. While quality assurance and accreditation has placed a special focus on the documentation, compliance and conscious planning of internal higher education processes for the achievement of academic goals, whether such achievements have made higher education better in the name of quality remains questionable (Ewell, 2010; Francisco et al., 2008; Stensaker, 2011). It is suggested that quality assurance systems in higher education do not lead to improved education quality, and that they are at best a surveillance system of the work of academic staff in HEIs serving to produce dramaturgical compliance to the prescribed higher education system of the institution (Barrow, 1999).

This scepticism over the achievements that quality assurance can provide also resonates with employers who believe that the "preoccupation of academia and government with such things as the nature and structure of external and internal quality monitoring merely deflects attention from the central problem: how to improve teaching and learning in higher education so that it produces graduates who can work in a modern organisation" (Harvey & Knight, 1996, p. 42). In fact, while accreditation in higher education may be widely perceived as an achievement of excellence in quality assurance, accredited HEIs may not necessarily be providing a quality higher education learning experience, due to the bureaucratic burden it brings to academic freedom for appropriate student learning (Francisco et al., 2008; Harvey, 2004; Stensaker, 2011).

The global pressure for quality assurance and accreditation of higher education has also resulted in an allied global phenomenon for higher education in the form of the emergence of global rankings and league tables for HEIs. The rapid emergence and growth of global ranking systems for HEIs is in part the consequence of an expansion in the international market for higher education, an increase in global demand for consumer information on the academic quality of HEIs, and the popularity of the use of rankings among institutional leaders and policymakers to inform policy-making in higher education (Dill & Soo, 2005; Longden, 2011; Shin & Toutkoushian, 2011). The more popular world university ranking systems are the Times Higher Education Supplement (THES) World University Rankings, the Quacquarelli Symonds (QS) World University Rankings, and the Shanghai Jiao Tong Academic Ranking of World Universities, which are published annually (Aguillo et al., 2010; Altbach et al., 2009; Huang, 2012; Taylor & Braddock, 2007; Thakur, 2008; Usher & Medow, 2009). Global rankings and league tables are increasingly being used as a popular measure of the quality and reputation of HEIs, as well as to provide a comparison of the quality of performance of HEIs for stakeholders of higher education (Altbach et al., 2009; Hazelkorn, 2007; Salmi & Saroyan, 2007; Van der Wende, 2008). HEIs also use these global ranking systems as a marketing tool to showcase excellence in education, research and business, with the aim of attracting students and research funding to increase their research performance (Aguillo et al., 2010; Altbach et al., 2009; Huang, 2012).

Despite the usefulness of global ranking systems for the assessment and promotion of the quality of HEIs, there are concerns and controversies concerning the use of such ranking systems. Several researchers (Altbach et al., 2009; Dill & Soo, 2005; Huang, 2012; Liu & Cheng, 2005; Marginson & Van der Wende, 2007b; Shin et al., 2011; Tambi et al., 2008; Van der Wende, 2008) highlight the drawback of global ranking systems for HEIs. A major debate concerns potential methodological flaws in ranking systems in terms of the choice of

parameters that are used to rank the institutions (Aguillo et al., 2010; Altbach et al., 2009; Bowden, 2000; Huang, 2012; Kehm & Stensaker, 2009; Liu & Cheng, 2005; Longden, 2011, Marginson & Van der Wende, 2007b; Tambi et al., 2008; Van der Wende, 2008). Indicators used in various ranking systems predominantly measure institutional outcomes such as research and publication productivity, institution reputational survey responses, student–faculty ratio, graduate employment outcome, and international outlook in terms of the percentages of international students and faculty, all of which appear to be commercially-driven and aimed at strengthening the market position of institutions (Aguillo et al., 2010; Altbach et al., 2009; Federkeil, 2011; Huang, 2012; Liu & Cheng, 2005; Longden, 2011; Taylor & Braddock, 2007). Even if these indicators for ranking of HEIs are necessary and justifiable for the performance management of HEIs, there are concerns among researchers (Altbach et al., 2009; Longden, 2011; Tambi et al., 2008) in relation to the methods and assumptions of data collection, statistical accuracy of performance measures, reliability of reputation surveys, and the selection of indicators being only indirect measures of the achievement of educational objectives.

What is clear from the preceding discussions about ranking systems of HEIs is that current ranking systems do not utilise measures that well represent academic quality, and they fail to provide information and guidance on the quality of teaching and learning that HEIs provide (Dill & Soo, 2005; Marginson & Van der Wende, 2007b; Van der Wende, 2008). Interestingly, the failure of existential ranking systems to do otherwise is in antithesis to the principles of quality assurance, which requires the provision of quality teaching and learning experiences to students. Current league tables risk influencing HEIs to produce the wrong kind of higher education, which might be misinterpreted as a commodity to be consumed rather than an opportunity to be experienced (Longden, 2011). Hence, ranking systems most need the "development of objective, reliable, and generally acceptable measures to assess the

quality of teaching" (Van der Wende, 2008, p. 68) to provide guidance and information on student learning experiences.

3.3 Definition of Quality of Service in Higher Education

It is of limited value to discuss quality of service without defining what it is and how it is perceived by the customer (Gronroos, 1990). Researchers have been developing a universal definition for quality of service since Parasumaran et al.'s (1985, 1988) initial program to conceptualise its meaning. In trying to define quality of service, it is equally important to clarify both the 'service' and the 'quality' constructs.

Schneider and White's (2004) definition of services comprises two components: the *what* of service delivery and the *how* of service delivery. Higher education is a service which comprises these two components (Dado et al., 2011). Equally important to the understanding of services are its characteristics. Parasumaran et al. (1985) cite three well-documented characteristics of services that must be acknowledged for quality of service to be fully understood: intangibility, heterogeneity and inseparability. This means a service has no physical form, as it is a performed activity, is different for various customer encounters, and is produced and consumed at the same time (Parasumaran, et al., 1985; Schneider & White, 2004). Higher education possesses all these characteristics of a service, in which the student also participates in the service delivery process (Shank et al., 1995). Unique to higher education as a service is its primary focus to provide quality learning experiences to students as its customers (Yeo and Li, 2012) through effective learning processes.

Central to the understanding of quality of service is an understanding of quality as the root construct. Several contemporary quality philosophers (Crosby, 1979; Deming, 1986; Feigenbaum, 1986; Juran, 1988; Garvin, 1987) have provided their ideas on the definition of

quality. These ideas, however, are fundamentally derived from a manufacturing perspective, with a customer focus that posits that quality is quantifiable, has a set of standards which can be conformed to, and can be continuously improved for the customer (Beckford, 2010). Table 2 shows the definitions of quality provided by these philosophers from a purely manufacturing perspective. A commonality among these manufacturing-centric definitions is the emphasis on conformity to customer needs, which assumes tangibility and homogeneity of products served, and separability between production and consumption. While the normative value of these definitions is in the delivery of customer focus, what is clearly missing is the acknowledgement that services, unlike manufactured goods, are intangible and heterogeneous, and that the production and consumption of services is inseparable, as previously highlighted.

Table 2: Definitions of Quality

x   Quality is the ability to conform to customer requirements (Crosby, 1979).
x   Quality is about continuous improvement to meet the needs of the consumer (Deming, 1986).
x   Quality is defined as best for the customer use and selling price (Feigenbaum, 1986).
x   Quality is about fitness for use or purpose (Juran, 1988).
x   Quality means pleasing consumers (Garvin, 1987).

Therefore, because the nature of services is different from that of manufactured products, the manufacturing focus of thinking about quality cannot be universally applied to services, and it is less effective in the education service sector (Beckford, 2010). The normative assumptions of quality for manufactured goods, concerning standardisation and conformance do not match the characteristics of services highlighted earlier. In the case of services, it is difficult to articulate quality which is relative to the receiver and circumstance (Harvey & Green, 1993; Tan, 1986). Quality, as conceptualised in the services literature, centres on perceived quality (Rowley, 1997). This is distinctly different from the manufacturing model of quality, which emphasises an objective measure against a standard (Beckford, 2010). Beckford (2010)

emphasised that quality for services "depends not on what actually happened but on how the parties to the transaction feel about what happened" (p. 14), hence the importance of emotions and perceptions in the determination of the quality of services. Quality is a philosophical concept which reflects different perspectives of the individual and society (Harvey & Green, 1993). In the context of higher education, quality cannot be universally agreed upon, due to inconsistencies in the perception of quality resulting from the diversity of people and institutions in the higher education environment (Tan, 1986). For example, the idea of teaching quality is many-sided yet ultimately elusive (Ramsden, 1991). In view of the relativity in the understanding of quality, quality of service remains a controversial concept for further research.

The concept of quality of service is complex and not consistently defined (Li & Kaye, 1999; Smith et al., 2007; Schneider & White, 2004). In the context of higher education, it is difficult to achieve consensus on its definition (Smith et al., 2007), because differences exist in the understanding of quality (Harvey & Green, 1993). Depending on particular needs, every stakeholder in higher education has a specific view of quality (Harvey & Green, 1993; Voss et al., 2007). Hence, quality of service is a relative concept since it tends to vary according to needs. It is also difficult to define quality of service, because the quality of service of each higher education experience is unique, since it is mostly determined by the expectations of individual students (Yeo, 2008). Students mostly gauge quality of service based on their experiences of services (Njie et al., 2012).

Quality of service has often been defined from the perspective of the customer since "what counts is quality as it is perceived by the customers" (Gronroos, 1990, p. 37). A more commonly used definition for quality of service is based on findings by Parasumaran et al. (1985), who define quality of service as the gap between expectations and perceptions of the service receiver (Parasumaran et al., 1985; Hill 1995), a model which originates from the expectancy disconfirmation paradigm (Cardozo, 1965; Oliver, 1980; Schneider & White,

2004). Quality of service is also defined as a judgement about a service's overall excellence (Schneider & White, 2004). More specifically in the context of higher education, quality of service is the "difference between what a student expects to receive and his/her perceptions of actual delivery" (O'Neill and Palmer, 2004, p. 42). It also refers to the holistic delivery of student-centred services that enables the development of students (Yeo, 2009). In view of the discussions above, it appears that a possible definition for quality of service in higher education needs to be inclusive of the stakeholders of higher education. A possible working definition for quality of service as the basis for this research is the ability of HEIs to deliver a higher education experience that meets the expectations of its stakeholders

3.4 Research on Dimensions of Quality of Service

In order to achieve quality gains and to meet the expectations of customers, it is desirable to break the notion of quality into manageable dimensions from the vantage point of the customer (Garvin, 1987). While various definitions of quality and quality of service exist in literature, as previously discussed in Section 3.3, a better understanding of the notion of quality may be achieved through the identification and understanding of the dimensions of quality which consumers may use to judge the quality of a service (Harvey & Green, 1993). For instance, the dimensions of quality of service in general were first conceived by Parasuraman et al. (1985), through an exploratory study which identified 10 key categories. These were later refined into the five dimensions of the SERVQUAL scale of contemporary quality of service, comprising the RATER dimensions of reliability, assurance, tangibles, empathy and responsiveness, for the measurement of quality of service (Parasumaran et al., 1988). Since then, several researchers (Abdullah, 2006a; Abdullah, 2006b ; Ardi, et al., 2012; Bojanic, 1991; Buttle, 1996; Cook, 1997; Dado et al., 2011; Gronroos, 1990; Jain et al., 2010; Joseph & Joseph, 1997; Kang &

James, 2004; Owlia & Aspinwall, 1996; Reynoso & Moores, 1995; Shank et al., 1995; Sultan, 2011; Sultan & Wong, 2011; Sumaidi et al., 2012) have pursued the identification of dimensions for quality of service, including those specific to higher education.

For the case of higher education, empirical studies (Chonko et al., 2002; Cook, 1997; Darlaston-Jones et al., 2003; Husain et al., 2009; Voss et al., 2007; Yeo, 2008) have been conducted to elicit information on the quality of teaching and learning that students expect educators to deliver as a service requirement in higher education. To improve the service delivery of teaching and learning in higher education, it is important to be able to decode students' expectations, which can be accomplished by knowing "the characteristics of the course participants, college environment, lecture support and many other factors" (Husain et al., 2009, p. 65). An analysis of research (Chonko et al., 2002; Darlaston-Jones et al., 2003; Voss et al., 2007) indicates a lack of consistency in students' expectations, which may be unique to the education institution and its country of origin. According to Darlaston-Jones et al. (2003), students expect personalised attention. Chonko et al. (2002) conclude that few students expect educators to be challenging and knowledgeable, and to want them to learn, even though these are characteristics of the passionate educator whose focus is on what the students learn. Instead, most students regard characteristics equated with "doing my homework for me" and "giving me a break" as more essential. On the contrary, Voss et al. (2007) find that students prefer educators to be knowledgeable and engaging, and want to encounter valuable teaching experience so as to be able to pass summative assessments and be prepared for their profession.

Since quality of service is a contextual issue, as explained in Section 3.3, its dimensions vary widely (Sultan & Wong, 2011). Further, it is not possible to generalise quality of service dimensions among all service types (Chowdhary & Prakash, 2007). Even though common dimensions may exist across various contexts, the existence of characteristics specific to any service industry necessitates finding its unique dimensions (Owlia & Aspinwall, 1996). In the

context of higher education, there is generally no consensus on the dimensions of quality of service (Li & Kaye, 2006), which are significantly informed through the availability of information and past experiences (Sultan & Wong, 2011). Table 3 shows the variety of quality of service dimensions for higher education that are found in the literature, presented in chronological order. Despite variations in terminologies used to express these dimensions, it can be observed that the dimensions presented in Table 3 are a natural match with the RATER dimensions of SERVQUAL (Parasumaran et al., 1988; Buttle, 1996).

Table 3: Variety of Quality of Service Dimensions for Higher Education in Chronological Order

Author(s)	Country of Origin	Quality of Service Dimensions
Gronroos (1990)	Finland	1. Professionalism and skills 2. Attitudes and behaviour 3. Accessibility and flexibility 4. Reliability and trustworthiness 5. Perceived control and recovery 6. Reputation and credibility
Shank et al. (1995)	USA	1. Respect for students 2. Faculty knowledge 3. Physical environment
Owlia & Aspinwall (1996)	UK	1. Tangibles 2. Competence 3. Attitude 4. Content 5. Delivery 6. Reliability
Cook (1997)	UK	1. Academic staff support 2. Study related factors 3. Student welfare 4. Internship opportunities 5. Course administration 6. Physical environment

Author(s)	Country of Origin	Quality of Service Dimensions
Joseph & Joseph (1997)	New Zealand	1. Academic reputation 2. Career opportunities 3. Program issues 4. Cost and duration 5. Physical conditions 6. Location 7. Influence of family and peers
Kang & James (2004)	USA	1. Technical 2. Functional 3. Image
Abdullah (2006a, 2006b)	Malaysia	1. Non-academic aspects 2. Academic aspects 3. Reputation 4. Access 5. Program issues
Angell et al. (2008)	UK	1. Academic service 2. Leisure service 3. Industry links 4. Cost and value
Jain et al. (2010)	India	1. Visual appeal 2. Outcome quality 3. Campus 4. Reputation 5. Quality of students 6. Industry interaction 7. Faculty quality 8. Interpersonal relationship 9. Curriculum 10. Academic facilities 11. Support facilities 12. Non-academic processes
Sultan & Wong (2011)	Australia	1. Academic service quality 2. Administrative service quality 3. Facilities service quality

Author(s)	Country of Origin	Quality of Service Dimensions
Dado et al. (2011)	Slovakia and Serbia	1. Career 2. Care 3. Tangibles 4. Understanding 5. Assurance 6. Timeliness
Ardi et al. (2012)	Indonesia	1. Commitment 2. Course delivery 3. Campus facilities 4. Courtesy 5. Customer feedback and improvement
Sumaidi et al. (2012)	Indonesia	1. Curriculum 2. Facilities 3. Contact personnel 4. Social activities 5. Education counsellors 6. Assessment 7. Medium of instruction

3.5 Measurement of Quality of Service

The measurement of quality of service relates to the identification of quality of service dimensions, which are the criteria used to assess quality of service (Abdullah, 2006a; Parasumaran et al., 1998). When measuring quality of service, it is important to measure both customer perceptions of the dimensions of quality of service and their overall perceived quality of service (Schneider & White, 2004). Just as various sets of quality of service dimensions exist, various measurement models (Abdullah, 2006a; Abdullah, 2006b; Cronin & Taylor, 1992; Parasumaran et al., 1988) have been developed to better understand customer perceptions and expectations of quality of service (Zeithaml et al., 1990).

Models measuring quality of service in higher education include SERVQUAL (Parasumaran et al., 1988), SERVPERF (Cronin and Taylor, 1992; Nadiri et al., 2009) and HEdPERF (Abdullah, 2006a; Abdullah, 2006b). Depending on whether or not to include expectations as a determinant of quality of service, these models fit distinctly into two quality of service measurement paradigms: the disconfirmation paradigm and the perception paradigm (Brochado, 2009). SERVQUAL fits into the disconfirmation paradigm, while both SERVPERF and HEdPERF fit into the perception paradigm (Abdullah, 2006b; Cronin & Taylor, 1994; Parasumaran et al., 1991a; Parasumaran et al., 1994).

The disconfirmation-based SERVQUAL (Parasumaran et al., 1988) is the most common method for measuring quality of service (Angell et al., 2008). The gap between expectations and perceptions, which shows how well an organisation is delivering a service to its stakeholders, is used as the basis for the measurement of quality of service (Parasumaran, et al., 1988; Rowley, 1997). Soutar et al. (1996), Stodnick and Rogers (2008) and Smith et al. (2007) have described the usefulness of SERVQUAL in helping HEIs to improve their services. However, the use of SERVQUAL in higher education remains controversial, as it was developed for measuring customer perceptions of quality of service in service and retail settings (Parasumaran et al., 1988; Parasumaran et al., 1991a). While SERVQUAL focuses on "customers' important areas of quality of service, it has not been tested in a sufficient number of different types of service companies to be generally applicable" (Cook, 1997, p. 120).

The debate on the measurement of quality of service in higher education has been at the centre of interest of many studies, and models which are in fact adaptations of SERVQUAL have been proposed (Seth et al., 2005; Tan & Kek, 2004; Tsinidou et al., 2010). These alternative models attempt to address the difficulties associated with the value and meaning of the 'expectations-minus-perception' gap approach intrinsic to the disconfirmation-based SERVQUAL model as the basis for the measurement of quality of service (Abdullah, 2006a;

Buttle, 1996). For example, the evaluated performance (EP) model (Teas, 1993) questions the meaningfulness of SERVQUAL's 'expectations-minus-performance' approach, and instead proposes the use of a 'performance-minus-ideal' gap approach for the measurement of quality of service.

SERVPERF is a common alternative to SERVQUAL (Angell et al., 2008; Bayraktaroglu & Atrek, 2010; Ng & Forbes, 2009; Seth et al., 2005). SERVPERF considers the need to measure expectations as unnecessary, and utilises a perceptions-only scale, which is deemed a more accurate and efficient approach to measuring quality of service (Abdullah, 2006a; Angell et al., 2008; Cronin & Taylor, 1992).

Noting the deficiencies of SERVQUAL and SERVPERF as models for the measurement of quality of service in higher education, HEdPERF was developed. It builds on both SERVQUAL and SERVPERF, and contains elements of academics and the total service environment experienced by the student (Abdullah, 2006a; Abdullah, 2006b; Purgailis & Zaksa, 2012). The HEdPERF model measures major dimensions of quality of service, including academic aspects, non-academic aspects, reliability and the empathy that a higher education service is expected to provide (Abdullah, 2006a; Sultan & Wong, 2010). Although the HEdPERF is a more dedicated quality of service measurement model developed for higher education, studies (Abdullah, 2005; Abdullah, 2006b; Brochado, 2009; Ravichandran et al., 2012; Tsinidou et al., 2010) have yet to confidently prove that it presents the best measurement capability for quality of service in higher education.

Noting the discussions in the preceding paragraphs on various models developed for the measurement of quality of service, it is now worth while noting that no precise model currently exists for the measurement of quality of service in higher education. A desirable method for measuring quality of service in higher education remains to be found. Although SERVQUAL, SERVPERF and HEdPERF are generally accepted as suitable generic frameworks for

measuring quality of service, there is little consensus on their efficacy (Angell et al., 2008; Brocado, 2009; Buttle, 1996; Cronin & Taylor, 1994; Parasumaran et al., 1994; Sultan & Wong, 2010; Tan & Kek, 2004; Tsinidou et al., 2010). A more specific model is needed for the measurement of quality of service in the higher education sector, since the suitability of these generic frameworks for application in this industry is still unclear (Abdullah, 2006a; Abdullah, 2006b; Cuthbert, 1996; Owlia & Aspinwall, 1996). However, the model should not abandon the SERVQUAL approach solely in favour of alternative approaches; it should instead be customised to include established quality of service dimensions in higher education (Abdullah, 2006a; Parasumaran et al., 1994; Tan & Kek, 2004). It is also important to consider how quality of service can be measured to effectively improve the quality of students' experiences in higher education by incorporating educational development and quality assurance into a holistic measurement model for quality of service in higher education (Gosling & D'Andrea, 2001; Ng & Forbes, 2009; Yeo and Li, 2012). Also, in acknowledging the importance of appreciating the complexities when designing instruments for the measurement of quality of service in higher education, it is proposed that service contracts are a suitable approach to managing expectations and perceptions to generate more positive quality judgements on quality of service (Rowley, 1997).

3.6 Outcomes of Higher Education Service

The design of the higher education service experience is increasingly becoming outcome-led, although there is confusion regarding what constitutes the outcome of a higher education experience (Allan, 1996). This is because in a higher education service the provider is doing something *to* the receiver, unlike in many other services in which the provider is doing something *for* the receiver (Harvey & Green, 1993; Purgailis & Zaksa, 2012). As emphasised

in Chapter 1, Chapter 2 and previous sections of this chapter, education is a participative process in which students are subject to a process of ongoing transformation and are involved in the co-creation of the higher education learning experience (Harvey & Knight, 1996; Ng & Forbes, 2009; Petruzzellis et al., 2006). Students participate as learners in the higher education and learning experience, which transforms their knowledge, characteristics and behaviour, and eventually helps them to develop as valuable individuals for the economy and society (Barnett, 2000; Kovbasyuk & Blessinger, 2013b; Tsinidou et al., 2010). Hence, it is the ongoing and eventual transformation of the student that reflects the outcome of the student's higher education experience, culminating in their graduation (Allan, 1996; Harvey & Green, 1993). Also, as HEIs are increasingly being measured by how well they develop student talent and abilities for economic and societal reasons, it is important to distinguish student learning outcomes from student outcomes. Student learning outcomes encompass a wide range of student attributes and abilities which measure the development of students as a result of their higher education experience, while student outcomes encompass merely institutional outcomes (Frye, 1999). However, the proliferation of neo-liberal thinking in managing higher education has resulted in an under-emphasis on learning outcomes in favour of more market-centred institutional management outcomes, a phenomenon which needs re-thinking (Ewell, 2010; Hemsley-Brown & Oplatka, 2006; OECD, 2013b).

In order to determine the constitution of higher education outcomes, the purpose of higher education needs clarification. As higher education is an important element in the economy and culture of a country, it should deliver significant returns to society by positively transforming the lives of individuals as well as providing skills and knowledge required for innovation and economic transformation (Harvey & Knight, 1996; Browne, 2010; Rajah, 2014). Beyond technical skills, students should also develop holistically as a result of their higher education experience (Rajah, 2014). In society, higher education also plays a dual role, needing to remain

true to the traditional values of higher education to meet the emerging needs of society, while at the same time maintaining a student-centred, consumer-oriented philosophy (Michael, 1997). The traditional value of higher education remains as enhancing and empowering students through the learning process (Harvey & Knight, 1996). An aspiration of government policy for higher education is for students to become empowered consumers of learning, who gain influence over the education process and enjoy lifelong learning (Naidoo et al., 2011; Nusche, 2008; Purgailis & Zaksa, 2012; Tan, 2015).

Several combinations of outcomes of a higher education experience have been identified in the literature. These are summarised in Table 4, which clarifies the multipurpose nature of higher education. Outcomes of higher education predominantly comprise cognitive and affective elements meant to develop individual students, the economy and society.

Table 4: Combinations of Outcomes of Higher Education

Author(s)	Outcomes of Higher Education
Allan (1996)	x Subject-based outcomes x Personal transferable x Generic academic
Bae (2007)	x Student achievement on state-mandated tests x School attendance rates
Endo & Harpel (1982); Harvey & Knight (1996); Frye (1999); Duque & Weeks (2010); NTU (2013)	x Cognitive (academic) x Affective (non-academic)
Nusche (2008)	x Cognitive (knowledge and skills) x Non-cognitive (development of values and beliefs) x Competencies (ability to carry out a task)
Min et al. (2012)	x Academic x Career x Experiential
OECD (2010)	x Transferable skills which enable occupational mobility and lifelong learning

Author(s)	Outcomes of Higher Education
	x Career and cognitive competencies
Rajah (2014)	x Job-related skills and expertise
	x Academic and career progression
	x Affective outcomes such as socio-emotional competencies, leadership, character and resilience
Tymon (2013)	x Development of employability skills
	x Employment

From the preceding discussions on the outcomes of higher education, it is clear that HEIs do not exist in isolation and that they need to collaborate with industry, labour markets and society to ensure their curricula are relevant and effective, to deliver effective student learning outcomes (OECD, 2010). Students also need to be involved and motivated in order to achieve those outcomes required by higher education stakeholders other than themselves (Duque & Weeks, 2010; Finney & Finney, 2010). Hence, student outcomes from the higher education experience involve the collaborative effort of various stakeholders of higher education (OECD, 2010). Effectively, several stakeholders are involved in the development and achievement of desirable outcomes of higher education. This chapter's next section deals with higher education stakeholders.

3.7 Stakeholders of Higher Education

As higher education has several customers, it is essential to consider their perspectives as stakeholders of higher education, in order to achieve effective and quality delivery of higher education as a service (Conway et al., 1994; Ray, 1996; Reavill, 1998; Willis & Taylor, 1999). The total quality management of HEIs also requires that the needs of all stakeholders of higher education be addressed and satisfied (Geall, 2000; Gift & Bell-Hutchinson, 2007; Ho & Wearn,

1996; Reavill, 1998). Various studies (Abdullah, 2006a; Cuthbert, 1996; Dado et al., 2011; Frazer, 1994; Harvey & Green, 1993; Harvey & Knight, 1996; Ho & Wearn, 1996; Reavill, 1998; OECD, 2010; Owlia & Aspinwall, 1996; Shanahan & Gerber, 2004; Weaver, 1976) have identified different stakeholders who contribute to, or benefit from, higher education. Based on the analysis of the literature, the stakeholders may be categorised into distinct categories or stakeholder groups. These groups of stakeholders are presented in Table 5.

Table 5: Stakeholders of Higher Education

Stakeholders of Higher Education	References
Direct receivers of higher education service: x Students	Abdullah (2006a); Chahal & Devi (2013); Cuthbert (1996); Dado et al. (2011); Finney & Finney (2010); Frazer (1994); Geall (2000); Harvey & Green (1993); Harvey & Knight (1996); Ho & Wearn (1996); Ng & Forbes (2009); OECD (2010); Owlia & Aspinwall (1996); Rajah (2014); Reavill (1998); Rowley (1997); Shanahan & Gerber (2004); Stukalina (2012); Sumaedi et al. (2012); Voss (2009); Weaver (1976)
Direct providers of higher education service: x Academics and educators working in HEIs x Administrators of HEIs x Administrative support staff working in HEIs	Abdullah (2006a); Chahal & Devi (2013); Cuthbert (1996); Dado et al. (2011); Frazer (1994); Harvey & Green (1993); Harvey & Knight (1996); Ho & Wearn (1996); Ng & Forbes (2009); OECD (2010); Owlia & Aspinwall (1996); Rajah (2014); Reavill (1998); Rowley (1997); Shanahan & Gerber (2004); Sumaedi et al. (2012); Voss (2009); Weaver (1976); Webb (1992)
Societal beneficiaries of higher education service: x Parents of students x Families of students x Taxpayers x Society x The nation	Dado et al., (2011); Frazer (1994); OECD (2010); Owlia & Aspinwall (1996); Rajah (2014); Reavill (1998); Rowley (1997); Shanahan & Gerber (2004); Voss (2009); Weaver (1976)
Industry partners of higher education service: x Career advisors x Employers	Abdullah (2006); Cuthbert (1996); Dado et al. (2011); Frazer (1994); Geall (2000); Harvey & Green (1993); Harvey & Knight (1996); Ho & Wearn (1996); OECD (2010); Owlia & Aspinwall (1996); Rajah (2014); Reavill (1998); Rowley (1997);

Stakeholders of Higher Education	**References**
x Industry and commerce x Professional bodies x Trade unions	Weaver (1976); Webb (1992)
Academic partners of higher education service: x Domestic and offshore partners of HEIs x Other education institutions x Secondary education system	Ho & Wearn (1996); Reavill (1998); Shanahan & Gerber (2004)
Governmental and funding partners of higher education service: x Governments x Government agencies x Funding agencies	Abdullah (2006a); Dado et al. (2011); Frazer (1994); Harvey & Green (1993); Ho & Wearn (1996); Reavill (1998); OECD (2010); Owlia & Aspinwall (1996); Rajah (2014); Rowley (1997); Weaver (1976)
Business and operational partners of higher education service: x Suppliers of goods and services to HEIs x Accreditors x Auditors and assessors	Harvey & Green (1993); Reavill (1998)

The stakeholders identified in Table 5 may have relationships that either complement or contradict one another since they have diverse requirements (Abdullah, 2006a; Conway et al., 1994). For instance, different stakeholders have interests in different dimensions of quality for higher education (Owlia & Aspinwall, 1996). Significant differences have also been found in the perceptions of HEI staff and students, and gaps can arise from inconsistent perceptions of expectations and experiences between students and the HEI (Yooyen et al., 2011). Students may also be considered as customers of higher education or as products for employers who are their customers (Conway et al., 1994). Indeed, there has long been a problem in identifying the customer in higher education (Cuthbert, 1996). Several studies (Conway et al., 1994; Green,

1994; Hayes & Wynyard, 2002; Hemsley-Brown & Oplatka, 2006; Pereira & Da Silva, 2003) discuss and debate who the customer is in higher education.

Analysis of Table 5 shows that the groups of stakeholders that are predominantly mentioned or analysed in literature are students as the receivers of higher education, HEIs as direct providers, and industry partners of HEIs as the employers of students. A possible reason for these three groups of stakeholders being most often cited in higher education literature may be that there is a strong perception of HEIs as service providers for the labour market (Duarte et al., 2012; OECD, 2010; Rajah, 2014; Teichler, 2004; Webb, 1992). However, there is still limited literature on the varieties of specific stakeholders of higher education. Several researchers (Duarte et al., 2012; Gift & Bell-Hutchinson, 2007; Marginson & Van der Wende, 2007b; Mok, 2003b; Nair et al., 2011; Nusche, 2008; Stella, 2006; Stodnick & Rogers, 2008; Stukalina, 2012) either make only general references to stakeholders or concentrate their research on students as the main stakeholders of higher education. Nevertheless, Table 5 shows that the three major perspectives of higher education are those of the student, the organisation and industry (Harvey & Knight, 1996; Schneider & White, 2004).

3.7.1 The Student Perspective in Higher Education

Students are commonly regarded as the customers of HEIs (Armstrong, 2003; Bailey, 2000; Ferris, 2002; Franz, 1998; George, 2007; Gillespie & Parry, 2009; Lomas, 2007; Pitman, 2016; Yeo, 2009). The use of SERVQUAL to measure quality of service in the classroom highlights that students may be treated as customers (Stodnick and Rogers, 2008). However, while the student-as-customer perspective does serve to focus the attention of HEIs on students' needs, and the desirability of doing so (Ferris, 2002), it is not without shortcomings (Bailey, 2000; Ferris, 2002; George, 2007; Lomas, 2007).

A student's role in higher education is complex and remains a contentious (Conway et al., 1994; Pitman, 2016) and frequent topic of research. Students who believe they are customers are likely to hold attitudes and engage in behaviours that are not conducive to the achievement of education success (Chonko et al., 2002; Finney & Finney, 2010). Many educators believe that their work is "to help educate students at the request of and for the benefit of society as a whole" (Ray, 1996, p. 277), and "reject the universal view of the student as a customer on the grounds that higher education is not like other forms of service provision" (Lomas, 2007, p. 42). It is difficult to regard students as customers since the effects of higher education on the student cannot be fully evaluated until some time after it has been provided (Lomas, 2007). It is also difficult to assume that students are always right and that serving their expectations is in the best interest of HEIs (Yeo, 2009). The debate on the student-as-customer perspective continues as it seems to operate in a paradigm that views education as a commodity, which contradicts traditional values of education (Michael, 1997; Lomas, 2007).

In view of the contradictions in the student-as-customer perspective, many researchers have proposed alternative models for the relationship between students and educators; these models also imply that students and educators are major stakeholders of higher education. Students should be referred to as clients of a professional service, according the service provider, where students have more decision-making power than if they were regarded as customers (Armstrong, 2003; Bailey, 2000). Ferris (2002) proposed that it would make more sense to consider students as junior partners of a partnership firm, in what he terms a "student as junior partner" model. Yet another view is that students should be treated as employees and that "the tenets of performance management in work organisations can be applied to the classroom" (Gillespie and Parry, 2009, p. 553). Interestingly, Ray (1996) proposes a different model that regards the student as the producer of learning, while educators function as instructors who "act as both an input and a proxy for the customers (society, employers, graduate schools)" (p. 276).

Clearly, many alternative models attempt to explain the desired role of students and their relationship with educators in higher education.

3.7.2 The Organisational Perspective in Higher Education

It is important to consider the delivery of higher education from the organisational perspective. A service production system is important to the delivery of quality of service, and organisational dynamics are relevant for effective service delivery (Reynoso & Moores, 1995; Shanahan & Gerber, 2004; Schneider & White, 2004). Based on discussions earlier in this section, the organisational perspective in relation to the functioning of HEIs is collectively owned by the administrators, academics and administrative support staff members working for HEIs. Studies (Douglas et al., 2008; Ray, 1996; Reavill, 1998; Yeo, 2009) have shown that organisational processes have an influence on the total quality of service which HEIs provide. A high-quality, useful higher education administration contributes to a positive experience for stakeholders of higher education (Shanahan & Gerber, 2004). Many HEIs adopt a total quality management (TQM) framework to enhance the effectiveness, efficiency, cohesiveness, flexibility and competitiveness of their business operations, with the aim of meeting the needs of their stakeholders through continuous improvements (Ho & Wearn, 1996; Ray, 1996). The TQM of HEIs requires stakeholders involved in the HEI's functioning to be synergised in their efforts to deliver a high-quality higher education service to external stakeholders (Gift & Bell-Hutchinson, 2007; Ho & Wearn, 1996; O'Mahony & Garavan, 2012).

The perceived quality of service of higher education is influenced by the service climate in the organisation. This is because "the internal functioning of an organisation with respect to the service has often been found to be reflected in customers' perceptions of the quality of service they receive" (Schneider & White, 2004, p. 107). From the operations management

perspective, quality of service is influenced by student contact comprising communication time and intimacy; from the employee perspective, student orientation, managerial practices and student feedback, which make up the service climate, influence perceived quality of service (Schneider & White, 2004). Hence, organisational processes that are supportive of student learning are key contributing factors to the total experience of students (Yeo, 2009).

3.7.3 The Industry Perspective in Higher Education

As an end-user of higher education, industry is one of the most important stakeholders of HEIs (Harvey & Knight, 1996; Willis & Taylor, 1999) due to its consumerist role in employing students. While it is clear that industry does not want to infringe on the academic freedom of HEIs, it also clearly articulates the needs and expectations it has of HEIs. Industry serves as an important reference point to assess the quality of the higher education that HEIs deliver (Harvey & Knight, 1996). Industry expects HEIs to play an effective and efficient role in providing the skilled manpower that businesses require to navigate a constantly evolving business environment (Webb, 1992), and to actively review and enhance the student learning experience (Harvey & Knight, 1996).

Increasingly, governments perceive industry to be a valuable partner for HEIs, so that they produce the graduates required by industry (OECD, 2010; OECD, 2013b; Rajah, 2014; Tan, 2015). This is because of the belief that cognitive skills, which include professional expertise and general academic skills, are best developed through formal higher education, while affective and non-technical skills are best developed outside higher education (OECD, 2013b). Industry also provides vital workplace learning opportunities for students to develop and improve their professional expertise (OECD, 2010; OECD, 2013b; Rajah, 2014; Tan, 2015).

3.8 Research Gap

The preceding review of the extant literature within the disciplines of services marketing, quality of service and higher education has revealed gaps in the literature that are worthy of being addressed. The research gaps justify the purpose and position of this study.

Firstly, the concept of higher education as a service and its effects on higher education learning outcomes has not been well addressed. As discussed in Section 3.2.2.1, HEIs are responding to global competition through internationalisation. HEIs also play an increasingly complex role in balancing, on the one hand, service marketisation activities in the face of globalisation and, on the other hand, its original educating role (Gibbons, 1998; Michael, 1997). Hence, it is important to know how higher education learning outcomes are impacted by internationalisation, quality assurance and market-driven initiatives such as quality of service and quality of student experience. More importantly, there is an absence of literature that addresses how quality of service and quality of student experience affect higher education learning outcomes.

Studies in this area have been found to be segregated within a dyad consisting of the consequence of quality of service, and influences on higher education outcomes. On the consequence side of the dyad, studies on the consequence of quality of service in the higher education context (Ardi et al., 2012; Purgailis & Zaksa, 2012; Sultan, 2011; Sultan & Wong, 2012) are limited, while on the other side of the dyad, relating to the influence on higher education outcomes, the closest area of research concerns the relationship between the application of ISO 9000[4] quality management system in schools on education outcomes (Bae, 2007). In relation to the quality of student experience in higher education, studies have

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[4] ISO9000 is an international standard for quality management systems. It contains a set of criteria that organisations have to meet before their quality systems can be certified to the standards by the International Organization of Standardization (ISO) or its accredited bodies.

concentrated on exploring it as a construct (Chahal & Devy, 2013; Chapman & Pyvis, 2006; Geall, 2000; Kim, 2007; Ng & Forbes, 2009), with limited studies on its impact on student satisfaction (Douglas et al., 2008; Duarte et al., 2012; Grace et al., 2012; Voss, 2009; Wilkins & Balakrishnan, 2013; Yeo, 2009). As "students are increasingly demonstrating customer-like behaviours and are now demanding even more value from institutions" (Woodall et al., 2014, p. 48), addressing this research gap allows the value of higher education to be explored and clarified.

Secondly, the extant literature on quality of service is replete with studies from the marketing perspective. This is evident in Sections 3.3, 3.4, 3.5 and 3.7 of the literature review. The heavy presence of a neo-liberal marketing perspective in the body of knowledge has resulted in the formation of a substantive body of research on the outcome of the service, with limited emphasis on the structure and process elements of quality of service (Reynoso & Moores, 1995). Research on quality of service in higher education, particularly its measurement, has also been taken predominantly from the student perspective, treating them as customers of higher education (Darlaston-Jones, 2003). However, there is a need to also consider the organisational and educational perspectives (Michael, 1997; Naidoo et al., 2011; Reynoso & Moores, 1995; Schneider & White, 2004). Since quality of service is an output of the service delivery process (Schneider & White, 2004), including the process elements of quality of service through consideration of student experiences, and both the organisational and educational perspectives in this research will contribute to a more holistic understanding of the conceptualisation of higher education as a service and its effects on higher education student learning outcomes.

Thirdly, research on quality of service of HEIs in Singapore (Min et al., 2012; Yeo, 2008; Yeo & Li, 2012) is limited. The origin of the extant literature on quality of service in higher education has predominantly been from the United States of America, the United Kingdom and

Western culture, as made evident in Section 3.4 of the literature review. Also, the existential studies have been conducted predominantly within the university context, and none have been conducted within the polytechnic or vocational education context, which is also a form of higher education (OECD, 2010; Rajah, 2014). These studies were also institution-specific; therefore, there is the need for studies of a more generalised nature among HEIs. Addressing this research gap by conducting the study in the Singapore context, which includes both universities and polytechnics in the sample space, will contribute to a more generalised understanding of the state of quality of service in higher education in relation to learning outcomes in Singapore. As mentioned in Section 1.5, since it is a good representation of a higher education system that is based on a modernised Confucian model comprising a mix of Eastern and Western values, conducting the research in the context of Singapore provides the foundation for comparisons with higher education systems in other regions which follow a similar model, such as those in the Asia-Pacific region, or regions aspiring to adopt a similar model. The philosophical foundations of Eastern (Confucian) and Western (Socratic) values of higher education were discussed in Chapter 2. Conducting the research in the context of Singapore also provides an opportunity to discuss the research findings in a way that explores the possible synergies between the two culturally divergent educational philosophies.

Finally, this research will address the need to explore the nature of interrelationships between quality of service dimensions, also known as the five dimensions of SERVQUAL (Buttle, 1996; Parasumaran et al., 1991a; Parasumaran et al., 1994). As will be further discussed in Section 4.2.4, which justifies the interrelationships between the five dimensions of SERVQUAL, these dimensions of quality of service are not only distinct but also interrelated and mutually reinforcing, and they have a high degree of intercorrelation (Buttle, 1996; Garvin, 1987; Parasumaran et al., 1991a). There is also a need for continued study of research models that integrate quality of service and satisfaction (Cronin & Taylor, 1994). With limited studies

in literature that attempt to address the nature of interrelationships between dimensions of quality of service, addressing this research gap will contribute to knowledge in terms of understanding of this issue, particularly in the higher education context, due to the contextual nature of quality of service dimensions (Buttle, 1996).

The focus of this research in relation to the literature review and the research gaps discussed in this chapter is presented (Perry, 1998a) in Figure 1. With reference to the research question and objective discussed in Section 1.4, the graphical framework illustrates that the focus of this research is at the confluence of both services marketing theory and higher education theory as parent theories. Both parent theories provide the theoretical underpinnings to explore the dyadic relationships between quality of service, student satisfaction, student experience and higher education learning outcomes. Holistically, this research is grounded within the philosophy of higher education, as explained in Chapter 2.

Figure 1: Graphical Illustration of Research Focus
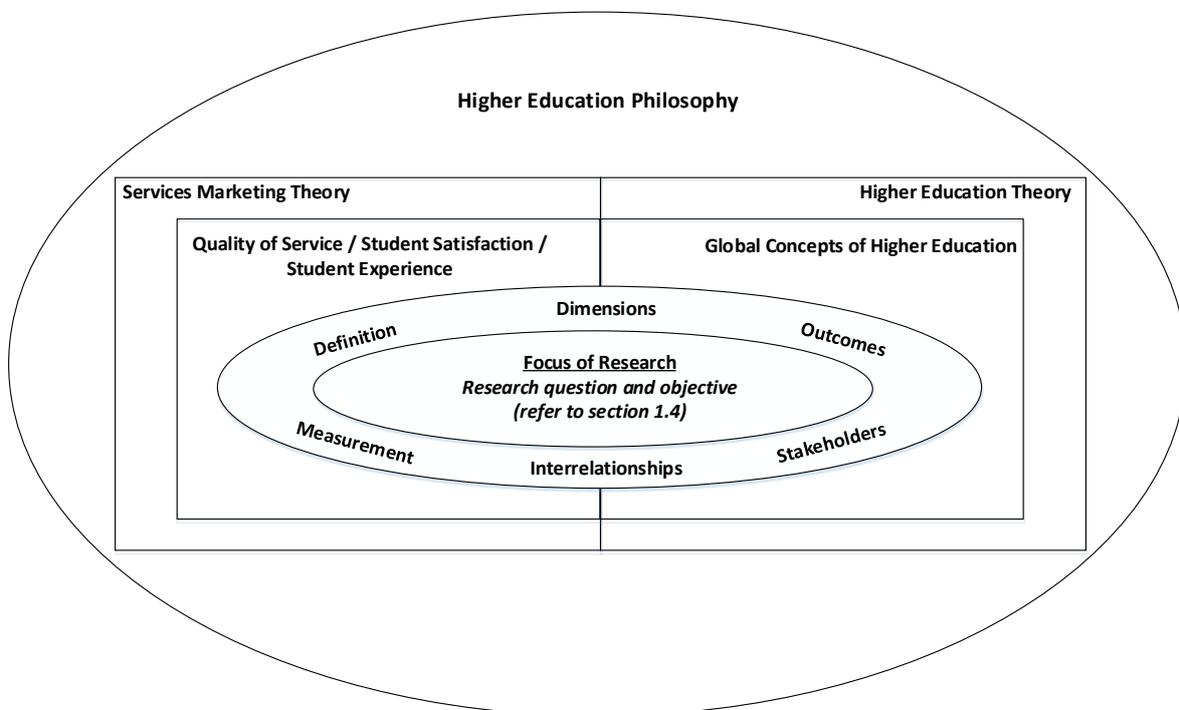
3.9 Chapter Summary

In summary, this chapter has provided a review of the pertinent literature for this study, and serves as the basis to form and address the research objective and questions for the study. As mentioned in Section 1.4, the aim of this research is to address how quality of service influences higher education learning outcomes, and the role that student satisfaction and quality of student experience play in this relationship. The importance of this aim is highlighted by the research gaps identified through the review of literature related to the theoretical foundations of services marketing and higher education, global concepts of internationalisation and quality assurance, definitions of quality of service in higher education, dimensions and measurement of quality of service, outcomes of higher education, and stakeholders of higher education. The contributions made through this research by means of addressing each of the identified research gaps are further articulated in Chapter 7. In the next chapter, a conceptual model in line with the objectives of this research is introduced and discussed, along with the hypothesised relationships that are subsequently tested and analysed in Chapter 6.

Chapter 4: Development of Conceptual Model

4.1 Introduction

Guided by discussions presented in Section 1.3 (on the research problem) and Section 3.8 (on research gaps), this chapter presents the development of the conceptual model which contains the constructs of quality of service, quality of student experience, student satisfaction, and higher education learning outcomes to test the hypothesised relationships which address the research question and objectives highlighted in Section 1.4. The conceptual model plays an essential role in this study to investigate how quality of service elements influence the learning outcomes of higher education students, including the role that student satisfaction and quality of student experience play in the mentioned relationship. This single model is used in Chapter 6 as the basis for exploring differences in perceptions among students, members working within HEIs, and industry.

The aims of this chapter are to:

x   propose a conceptual model which illustrates the relationship among SERVQUAL dimensions, student satisfaction, quality of student experience and higher education learning outcomes, to initiate tests of the hypothesised relationships in Chapter 6 (Section 4.2);

x   provide a review of theories found in literature to discuss and justify the hypothesised relationships illustrated in the conceptual model (Section 4.2);

x   provide a literature review of constructs in the conceptual model to derive the operational definition and measurement variables for each construct in this study (Section 4.3).

4.2 Proposed Conceptual Model and Hypothesised Relationships

Based on the relevant theories and literature discussed in the following sections of this chapter, and supported by the literature review in Chapter 3, this section presents the proposed conceptual model which illustrates the relationship between elements of quality of service and higher education learning outcomes. The proposed model provides a visual representation of the theories which reflect the hypothesised relationships among the SERVQUAL dimensions of quality of service, the after-effects comprising student satisfaction and quality of student experience, and higher education learning outcomes comprising cognitive and affective outcomes. Theories provide a logical framework of systematically related thoughts that could be empirically testable (Lee & Ling, 2008). A strong theoretical base must also be available to support structural relationships between variables in a conceptual model (Hair et al., 2010). The hypothesised relationships in this research are reflective in the proposed conceptual model shown in Figure 2. In the model, the SERVQUAL dimensions are presented as fully independent (exogenous) variables, while the two elements of higher education learning outcomes, namely, cognitive and affective, are fully dependent (endogenous) variables. Both student satisfaction and quality of student experience are presented as mediating (endogenous) variables between the SERVQUAL dimensions and variables of higher education learning outcomes. These variables are latent or non-observable constructs that will be measured by manifest variables (Nunnally & Bernstein, 1994; Hair et al., 2010) and will be discussed in Sections 4.3 and 5.3.1.

For the purpose of this research, it is important to highlight the distinction between *learning outcomes* and *outcomes* of higher education. Higher education learning outcomes as defined in this research encompass a wide range of student attributes and abilities which are measures of the development of the student as a result of the higher education experience; outcomes of higher education commonly refers to institutional outcomes and performances which do not

measure the development of the student as a result of the higher education experience (Frye, 1999). Based on the literature review in Section 3.6, higher education learning outcomes may be classified as consisting of both cognitive and affective outcomes.

The proposed conceptual model shows an amalgamation of six hypothesised relationships. The use of SERVQUAL dimensions in the proposed conceptual model is viable since SERVQUAL was developed through research across service industry sectors; hence, it may be used to examine quality of service at both the organisation and industry level (Parasumaran et al., 1985; Parasumaran et al., 1988; Parasumaran et al., 1994). The six hypothesised relationships are discussed and justified in the sections that follow.

Figure 2: Proposed Conceptual Model
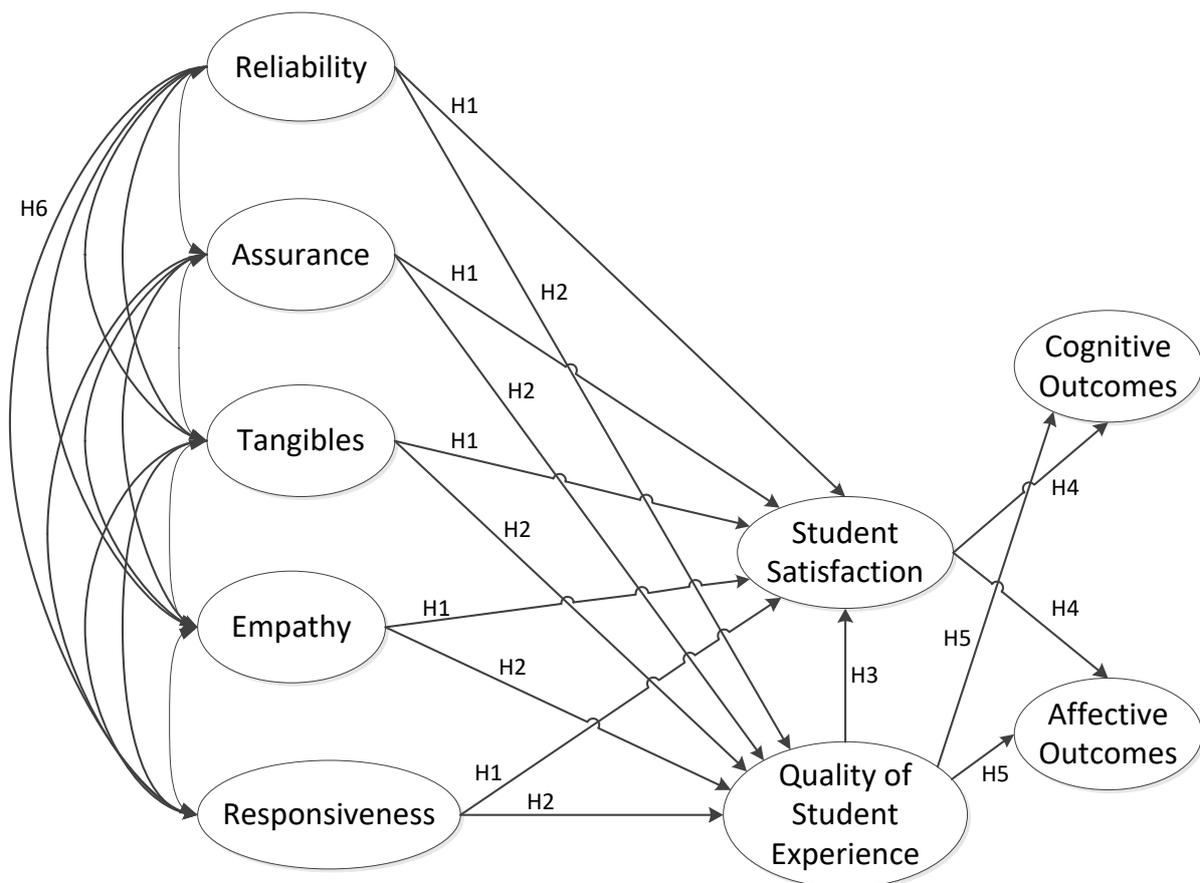
4.2.1 Relationships Concerning Student Satisfaction and Quality of Student Experience as Effects of SERVQUAL Dimensions

The consequence of quality of service has been widely investigated across service organisations and industries, including within the hospitality industry (Oh & Parks, 1997; Oh, 1999; Ladhari, 2009), retail industry (Fullerton, 2005; Martinelli & Balboni, 2012; Yu & Ramanathan, 2012), financial services industry (Caruana, 2002; Shanka, 2012; Yang & Fang, 2004) and professional services industry (Cameran et al., 2010; Sharma & Patterson, 1999). Many similar studies also exist in the higher education context. For example, Sultan and Wong (2012) investigated the positive relationship between quality of service and its consequences, comprising student satisfaction, trust and image. Another study, by Purgailis and Zaksa (2012), investigated and revealed the positive consequence of perceived quality of service on student satisfaction, image and loyalty of students to the HEI. Alves and Raposo (2007) developed and tested a conceptual model relating to student satisfaction as a consequence of the perceived quality of higher education service. Regardless of industry context, a common trend among these studies has been to involve the concept of satisfaction, and how it is related to its consequence of perceived quality of service.

Perceived quality of service is distinguished from student satisfaction as its precursor (Ardi et al., 2012; Cronin & Taylor, 1992; Hoffman, 2006; Purgailis & Zaksa, 2012; Schneider & White, 2004; Sum et al., 2002), and also is a second-order construct (Schneider & White, 2004; Sultan & Wong, 2011; Sultan & Wong, 2012). While perceived quality of service is an important aspect of studying quality of service, the dimensional perspective of quality of service is also equally important (Pereda et al., 2007; Sultan & Wong, 2011) as has been explained in Section 3.4. In the context of higher education, quality of service is typically determined by the quality of tangible resources provided for students, as well as students' experiences of factors comprising responsiveness, reliability, empathy and assurance

(Parasumaran et al., 1988; Pereda et al., 2007). These factors of quality of service are derived from the SERVQUAL model, which is a good benchmark for quality of service models due to its inclusiveness of quality of service dimensions (Buttle, 1996; Carman, 1990; Otto & Ritchie, 1995; Owlia et al., 1996). Definitions of quality of service were discussed in Section 3.3. On the basis that quality of service is defined as the judgement of the overall quality of a service, and that this judgement has an effect on satisfaction (Schneider & White, 2004), it is possible that judgements of SERVQUAL dimensions have a causal effect on satisfaction. Hence, it is hypothesised that:

H1: SERVQUAL dimensions have a positive influence on student satisfaction.

Oliver (2010) defines customer satisfaction as "a judgement that a product or service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfilment" (p. 8). It is possible to infer from this definition that the consumption or experience of the product or service generates emotive responses. As will be further discussed in Section 4.3.6, satisfaction is a function of affect and emotions. The emotive responses to consumption can be represented by distinctive categories of emotional experience and expression, which collectively form facets of consumer behaviour (Westbrook & Oliver, 1991) and contribute to the quality of a consumption experience.

The quality of a consumption experience can be described as the quality of the subjective mental state felt by participants of the consumption experience, also termed as the service experience in the service context (Otto & Ritchie, 1996). Otto and Ritchie (1995) differentiate the quality of service experience from the quality of service. During the consumption of services, a series of interpersonal and human–environment interactions occur which determine the quality of the service encounter (Hui & Bateson, 1991). High-quality experiences are determined by perceived quality, which creates emotions and pleasures derived from a service encounter (de Rojas & Camarero, 2008; Kao et al., 2008). The quality of service is a cognitive

judgement of the service itself (Schneider & White, 2004). This cognitive post-consumption response produces affective responses which determine the quality of the consumption experience (Oliver, 1994). A study by Kao et al. (2008) reveals that elements of quality of service relate positively with the quality of experience. Hence, it can be hypothesised that:

H2: SERVQUAL dimensions have a positive influence on quality of student experience.

4.2.2 Relationship Concerning Student Satisfaction as an Effect of Quality of Student Experience

The quality of a service experience has been found to be "an important part of consumer evaluation of and satisfaction with services" (Otto & Ritchie, 1996, p. 165). This service experience refers to the personal reactions and feelings experienced during the consumption or usage of a service (Chen & Chen, 2010; Otto & Ritchie, 1996), which are subjective, interpretive and affective (Arnould & Price, 1993). The affective responses to consumption or usage of a service are due to emotional outcomes which are associated with the service experience (Richins, 1997) and embedded in the relationship between the consumer and service provider (Arnould & Price, 1993). Emotions are an important factor of consumer response within the consumption experience, and have an influence on consumption satisfaction (Machleit & Eroglu, 2000; Mano & Oliver, 1993; Richins, 1997). Affective experiences coexist with satisfaction, with the latter being positively correlated with the former (Oliver, 1993; Oliver, 1994; Westbrook & Oliver, 1991).

Due to the service nature of higher education, the student experience is possibly analogous with the service experience (Baird & Gordon, 2009; Arambewela & Maringe, 2012; Tan et al., 2016). As previously discussed in Section 3.2.1.2, students are involved in the co-creation of their higher education experience. The student experience is defined by the affective

experiences that students encounter during their engagement with higher education (Baird & Gordon, 2009). It is a "broad term that refers to all aspects of the engagement of students with higher education" (Arambewela & Maringe, 2012, p. 65).

Several studies (Arambewela et al., 2005; Douglas et al., 2008; Mano & Oliver, 1993; Oliver, 1993; Oliver, 1994; Westbrook & Oliver, 1991) attempt to conceptualise the relationship between emotions, quality of experience and satisfaction. According to Mano and Oliver (1993), "satisfaction is shown to be a function of the affects and utilitarian outcomes" (p. 464). The service experience has an influence on consumer satisfaction with a service encounter (Chen & Chen, 2010). Since emotions form a substantial portion of satisfaction, an underlying assumption exists that quality of student experience is positively related to student satisfaction (Arambewela & Maringe, 2012; de Rojas & Camarero, 2008; Kao et al., 2008; Otto & Ritchie, 1996). It is the intangible aspects of education service provision that have a significant impact on student satisfaction (Douglas et al., 2008). In the assessment of quality in higher education, it is the student experience that provides the key measure of student satisfaction (Green, 1994; Harvey & Knight, 1996). Hence, in this study, it is hypothesised that:

H3: Quality of student experience positively influences student satisfaction.

4.2.3 Relationships Concerning Higher Education Cognitive and Affective Outcomes as Effects of Student Satisfaction and Quality of Student Experience

The higher education and student development literature contains investigations of the influencers of higher education learning outcomes, although the discussions are not extensive (Bae, 2007). Discussions on the value of higher education in the literature review in Section 3.2.1.2 provide support for these investigations. Table 6 provides examples of research concerning investigations on aspects of higher education which influence student learning. Based on a meta-analysis of the examples provided in Table 6, it is possible to infer that discussions have centred around how teaching and learning, and student engagement aspects of higher education influence outcomes of student learning.

Table 6: Examples of Research Investigating the Influence of Aspects of Higher Education on Student Learning

Author(s)	Aspects of Higher Education Investigated for Influence on Student Learning	Aspect of Higher Education
Baker et al. (1995)	Inclusion and effective educational methods	Teaching and learning
Carini et al. (2006)	Student engagement	Student engagement
Fried (2008)	In-class laptop use	Teaching and learning
Hattie et al. (1996)	Learning skills intervention	Teaching and learning
Kramer (1986)	Exposure of students to practising faculty	Student engagement
Laird (2008)	Deep approaches to learning	Teaching and learning, student engagement
OECD (2010)	Career guidance	Student engagement
Robinson et al. (2008)	Differential leadership types	Student engagement
Trigwell & Prosser (1991)	Learning context and student approaches to learning	Teaching and learning

Through a deeper meta-analysis of the emphasis in the higher education and student development literature on the influence of teaching, learning and student engagement aspects of higher education on student learning outcomes, it is possible to infer the reasons for the existence of these research areas. One reason is the need to characterise the student experience and student satisfaction through aspects of higher education, since these factors are key for judging the quality of a higher education (Douglas et al., 2006; Harvey & Knight, 1996). Student opinions are essential in deriving an understanding of student experience and satisfaction (Douglas et al., 2006). Several researchers (Astin, 1999; Elliott & Healy, 2001; Lo, 2010; Petruzellis et al., 2006; Sum et al., 2002) discuss the practical positive implications of student satisfaction and the student experience. As higher education is a service which students receive to effect a change in them, the quality of a higher education is better judged through student learning outcomes, that is, the talents and abilities that students develop through their higher education experience (Frye, 1999; OECD, 2013a; OECD, 2013b). Hence, measures of student satisfaction and student experience provide a means to assess the impact of quality in higher education on student learning outcomes (Harvey & Knight, 1996). Just as customer satisfaction provides for positive economic outcomes for organisations (Sum et al., 2002), it is possible to similarly propose that:

H4: Student satisfaction has a positive influence on cognitive and affective outcomes of higher education.

The second inferred reason for research with a focus on the influence of the teaching, learning and student engagement aspects of higher education on student learning outcomes relates to the idea that students play key roles in creating outcomes from their higher education experience, a core service that is provided by HEIs and co-created with students (Ng & Forbes, 2009). The learning outcomes of students that result from a higher education experience are influenced by learning approaches and experiences (Trigwell & Prosser, 1991). Research on the teaching,

learning and student engagement aspects of higher education provide for an understanding of the higher education experience and which factors contribute to student satisfaction (Harvey & Knight, 1996). Outcomes of a higher education experience are also strongly influenced by student satisfaction (Cronin & Taylor, 1992; Lo, 2010; Sum et al., 2002). Studies have also shown that an enhancement in the quality of the student learning experience benefits students both cognitively and affectively (Campbell & Li, 2007; Ellis et al., 2004; Kim, 2007; Ning & Downing, 2011; Peteson & Miller, 2004). Providing for a quality education experience positively impacts learning outcomes (Rajah, 2014). Hence, it is hypothesised that:

H5: Quality of student experience positively influences cognitive and affective outcomes of higher education.

4.2.4 Interrelationship of SERVQUAL Dimensions in their Effect on Higher Education Outcomes

The five dimensions of SERVQUAL may be antecedents of one another (Buttle, 1996; Parasumaran et al., 1991a; Parasumaran et al., 1994). As highlighted in Section 3.4 of the literature review, the five dimensions of SERVQUAL are reliability, assurance, tangibles, empathy and responsiveness, which together are referred to as the RATER dimensions. The RATER dimensions of SERVQUAL are not non-universals; the validity of the dimensions is contextual, and they also have high intercorrelation (Buttle, 1996). Significant correlations have been found between the SERVQUAL dimensions through replication studies, even though it is unclear how each affects one another (Parasumaran et al., 1994).

While it is unclear how the RATER dimensions of SERVQUAL are related, it may be interesting to develop a framework to establish the possible linkages between them (Seth et al., 2005). Systems thinking (Azad et al., 2010; Strauss & Borenstein, 2015) may be used to justify

the possible relationships between the RATER dimensions. In systems thinking, a system comprises a set of variables which are interrelated or interdependent, to function as a complex and unified whole (Maani & Cavana, 2007; Sterman, 2000). Since quality is perceived to be the overall judgement concerning the excellence of a service, it is possible to regard the concept of quality as a system comprising dimensions which are interrelated or interdependent (Bigne et al., 2001).

Based on the justification that quality of service both is dependent on and affects a number of variables, it is possible that there are linkages between the RATER dimensions (Seth et al., 2005). Hence, it is proposed that:

H6: Quality of service dimensions comprising reliability, assurance, tangibles, empathy and responsiveness are strongly interrelated in their effect on higher education outcomes.

4.3 Construct Development

Following discussions on the hypothesised relationships between constructs for the proposed conceptual model presented in Figure 2, this section provides a discussion of the theoretical and operational definitions for each of the constructs. The development of measurement variables used for the measurement and operationalisation of each construct is also discussed.

4.3.1 Reliability

The conceptualisation of the reliability construct has its roots in the science of measurement, testing and quality, and bears different meanings in various fields of knowledge (Cronbach, 1947; Moss, 2004; Drost, 2011). A dichotomy in definition exists between the physical sciences and the psychological and social sciences with regard to the science of measurement

and testing. In the physical sciences, reliability refers to the precision of repeated measurements or the extent of variation among repeated observations of the same event by the same process (Cronbach, 1947; Ambrus, 2004). In the psychological and social sciences, reliability refers to a condition where results, observations or actions of a test or event are similar or repeatable (Thissen, 2000; Moss, 2004). Within the field of quality sciences, reliability is concerned with the ability of products and services to withstand extraneous factors that may affect their performance while in use (Kuo, 2006; Murthy, 2006). Within the quality of service literature, reliability is defined as the ability of a service provider to perform a promised service dependably and accurately (Buttle, 1996; Parasumaran et al., 1985; Parasumaran et al., 1988; Soutar & McNeil, 1996). More specifically in the context of higher education, reliability refers to the appropriateness and relevance of student-related interventions (Cuthbert, 1996). As revealed in Section 3.4, reliability is one possible dimension of quality of service.

Based on a meta-analysis of the definitions in the preceding paragraph, it is inferable that accuracy, dependability and relevance are common themes in the definitions of reliability. In the context of higher education, accuracy is provided when staff members are consistent in the way they teach, and students are provided with the right services the first time (Douglas et al., 2006; Min et al., 2012). Dependability exists when student services are readily available and staff members are dependable to render assistance to students (Min et al., 2012; Parasumaran et al., 1998). Finally, there is relevance when up-to-date communications is provided for students (Min et al., 2012). The measurement items for the operationalisation of the reliability construct are listed in Table 7.

Table 7: Measurement Variables for Reliability Construct

Measurement Variables	References
Student services are readily available and delivered on time	Min et al. (2012); Parasumaran et al. (1988)
Staff members are dependable for assistance	Min et al. (2012); Parasumaran et al. (1988)
Staff members render assistance to students to solve their problems	Min et al. (2012)
Teaching staff are consistent in the way they teach	Douglas et al. (2006)
Up-to-date communications are provided to students promptly	Min et al. (2012)
Services to students are provided right at the first time	Min et al. (2012)

4.3.2 Assurance

Mentioned in a diverse range of literature which includes business ethics, finance and accounting, healthcare, education, information systems and security, the concept of assurance is most commonly associated with the idea of sustainability and quality management within the domain of business and management research (Barnabe & Riccabonni, 2007; Barnes & Oloruntoba, 2005; Dando & Swift, 2003; Donabedian, 2003; Roebuck et al., 2000; Wright & Wright, 2002). With the aim of ensuring corporate quality and sustainability, assurance is concerned with the operations and procedures which are undertaken to regulate and ensure that performances and quality comply with a defined standard (Barnabe & Riccabonni, 2007; Campbell, 2002; Taylor, 1985).

Assurance is also linked with the concepts of trust, confidence and credibility. According to Dando and Swift (2003), assurance loses its credibility if there is no trust and confidence. In the quality of service literature, assurance is commonly defined as the knowledge and courtesy of service personnel and their ability to induce trust and confidence in customers (Buttle, 1996; Parasumaran et al., 1988; Soutar & McNeil, 1996). In higher education, trust

and confidence are built when staff members are honest in their interactions with students, which allows students to feel safe in their interactions with staff members (Parasumaran et al., 1988). Giving sympathy and reassurance to students facing problems also provides for trust and confidence (Douglas et al., 2006; Parasumaran et al., 1988). Assurance in higher education is also defined by the skilfulness and competence of teaching staff in what they teach to students (Douglas et al., 2006; Duque & Weeks, 2010). As revealed in Section 3.4, assurance is one possible dimension of quality of service.

Following the preceding discussions, the assurance construct may be operationalised using the measurement items listed in Table 8.

Table 8: Measurement Variables for Assurance Construct

Measurement Variables	References
Teaching staff are skilful and competent in what they teach	Douglas et al. (2006); Duque & Weeks (2010)
Staff members are honest in their interaction with students	Parasumaran et al. (1988)
A student feels safe in their interaction with staff members	Parasumaran et al. (1988)
The institution inspires confidence in the student	Parasumaran et al. (1988)
Staff members are sympathetic and reassuring with students who face problems	Douglas et al. (2006); Parsumaran et al. (1988)

4.3.3 Tangibles

In the services literature, tangibles are defined as the physical evidence of the service, which comprise the physical facilities; the appearance of personnel, tools or equipment needed to provide the service; physical representations of the service; and communication materials (Buttle, 1996; Jain et al., 2010; Parasumaran et al., 1985; Parasumaran et al., 1988; Soutar & McNeil, 1996). Tangibles are visible aspects of a service which are felt, and they are employed by businesses to improve customer satisfaction (Panda & Das, 2014). Tangibles are commonly emphasised in the strategies of service industries where there is customer presence

in the service establishment, so as to present a good image and signal quality to customers (Zeithaml et al., 2009). As revealed in Section 3.4, tangibles are one possible dimension of quality of service.

While different industries employ the use of different types of tangibles to improve customer satisfaction, common features used are physical facilities, equipment and physical appearances (Panda & Das, 2014). In the higher education industry, learning spaces which are conducive to student learning are an important physical facility (Ardi et al., 2012; Douglas et al., 2006; Parasumaran et al., 1988). Equipment in the form of learning resources should also be up-to-date and visually appealing (Ardi et al., 2012; Douglas et al., 2006; Min et al., 2012; Parasumaran et al., 1988). In keeping with physical appearances, the learning environment should also be congruent with the type of services provided to students, and convey a sense of competence, confidence and professionalism (Ardi et al., 2012; Douglas et al., 2006; Parasumaran et al., 1988). Hence, the tangibles construct may be operationalised using the measurement items listed in Table 9.

Table 9: Measurement Variables for Tangibles Construct

Measurement Variables	References
Learning resources provided for student learning are up-to-date	Ardi et al. (2012); Douglas et al. (2006); Min et al. (2012); Parasumaran et al. (1988)
Learning resources are visually appealing	Ardi et al. (2012); Douglas et al. (2006); Min et al. (2012); Parasumaran et al. (1988)
The appearance of the physical facilities is in keeping with the type of services provided to students	Ardi et al. (2012); Douglas et al. (2006); Parasumaran et al. (1988)
Learning spaces are conducive for student learning	Ardi et al. (2012); Duque & Weeks (2010)
The learning environment conveys a sense of competence, confidence and professionalism	Douglas et al. (2006)

4.3.4 Empathy

Empathy is generally defined as a multidimensional construct which comprises the ability to experience and share the emotions of others, as well as the ability to understand the emotions of others (Ang & Goh, 2010). It is an essential behavioural and emotional attribute that service providers portray to their customers, particularly in service industries that are characterised by substantial customer interactions and formation of relationships as part of the service delivery process (Parasumaran et al., 1991b; Wieseke et al., 2012). In the services literature, empathy is defined as the care and individualised attention provided to customers (Buttle, 1996; Parasumaran et al., 1988; Soutar & McNeil, 1996). As customers want to feel understood and important, the aim of providing empathy is to convey the understanding to customers that they are unique and their needs are understood (Zeithaml et al., 2009). In order to do so, portraying empathy involves sharing the perceived emotion of the customer in a way that the emotional conditions are congruent between the service provider and the customer (Eisenberg & Strayer, 1990). As revealed in Section 3.4, empathy is one possible dimension of quality of service.

In the higher education context, empathy stems from the premise that students are delicate and valuable individuals who should be sensitively dealt with (Yeo, 2008). It is an essential element in the measure of teaching quality in higher education (Ramsden, 1991). There are many different modes of providing, and hence operationalising, empathy in the higher education context. A sense of empathy is conveyed when staff members show care and concern, know what the needs of students are, and have the students' best interests at heart (Douglas et al., 2006; Parasumaran et al., 1988). In an empathetic learning environment, staff members show respect for the feelings, concerns and opinions of students (Douglas et al., 2006). It is also important that operating hours of student services are convenient for students (Parasumaran et al., 1988). Of greater importance to students, who are the major beneficiaries

of higher education service, is the individualised attention they receive from the faculty in the learning process (Min et al., 2012; Parasumaran et al., 1988). Hence, the empathy construct may be operationalised using the measurement items listed in Table 10.

Table 10: Measurement Variables for Empathy Construct

Measurement Variables	References
Staff members show respect for the feelings, concerns and opinions of students	Douglas et al. (2006)
Staff members have the students' best interests at heart	Douglas et al. (2006); Parasumaran et al. (1988)
Staff members know what the needs of students are	Parasumaran et al. (1988)
Operating hours of student resources are convenient for students	Parasumaran et al. (1988)
Staff members are friendly and caring	Douglas et al. (2006); Parasumaran et al. (1988)
Students are provided individualised attention in their learning process	Min et al. (2012); Parasumaran et al. (1988)

4.3.5 Responsiveness

Within the customer relationship literature, responsiveness is defined as the ability to respond to the customer both quickly and correctly, in terms of decisions, ideas and initiatives (Meehan & Dawson, 2002). More commonly in the services context, the concept of responsiveness refers to the willingness and timeliness of service providers in rendering assistance to customers (Buttle, 1996; Parasumaran et al., 1985; Parasumaran et al., 1988; Soutar & McNeil, 1996). The emphasis of responsiveness is in being attentive and prompt in dealing with customer requests, queries and complaints (Zeithaml et al., 2009). A further analysis shows that the concept of responsiveness is multidimensional. Variety and lead time are two major dimensions since customers expect a variety of their needs to be met in the shortest possible time and in an effective manner (Williamson, 1991). By being responsive, service providers are able to maintain 'closeness' with customers to increase market

competitiveness and sensitivity with customer satisfaction (Gay & Salaman, 1992). As revealed in Section 3.4, responsiveness is one possible dimension of quality of service.

In the context of higher education, responsiveness is an essential attribute that students expect of HEI staff members. Responsiveness manifests in the form of enthusiasm and style of delivery of the teaching staff (Cuthbert, 1996). Students expect staff members to be able to provide prompt feedback on student performance, as well as prompt responses to students' requests (Douglas et al., 2006; Min et al., 2012; Parasumaran et al., 1988). Staff members should also show willingness to provide assistance to students (Min et al., 2012; Parasumaran et al., 1988). While it is not always feasible to provide complete attention to every student, due to resource constraints (Yeo, 2008), there is an expectation that staff members are always available and never too busy to promptly respond to students' requests (Ardi et al., 2012; Douglas et al., 2006; Parasumaran et al., 1988). Based on these discussions, the responsiveness construct may be operationalised using the measurement items listed in Table 11.

Table 11: Measurement Variables for Responsiveness Construct

Measurement Variables	References
Prompt feedback on student performance is provided	Douglas et al. (2006)
Staff members provide prompt responses to students' requests	Min et al. (2012); Parasumaran et al. (1988)
Staff members are always willing to assist students	Min et al. (2012); Parasumaran et al. (1988)
Staff members are never busy to respond to students' requests promptly	Parasumaran et al. (1988)
Teaching staff are always available to respond to students' requests	Ardi et al. (2012); Douglas et al. (2006); Parasumaran et al. (1988)

4.3.6 Student Satisfaction

Student satisfaction, in a similar fashion to customer satisfaction, is a concept which is closely related with perceived quality of service, and yet it is conceptually distinct. A conundrum with regard to the relationship between student satisfaction and quality of service also exists. However, there is strong agreement that student satisfaction is a function of quality of service (Cardozo, 1965; Oliver, 1980; Schneider & White, 2004; Stukalina, 2012). Based on a meta-understanding of the disconfirmation paradigm mentioned in Section 3.5, student satisfaction is derived when student expectations are met. The concept of student satisfaction stems from the idea of treating students as customers. While quality of service is a student's judgement of the education experience, student satisfaction is a judgement of how the education experience emotionally affects the student (Schneider & White, 2004) and relates to the state of happiness that students feel during the course of evaluating service attributes (Sultan, 2011).

The ability to influence education outcomes through the creation of a learner-centred education environment is dependent on the diagnosis of the way students feel about the education service, through the conduct of regular student feedback (Jalali et al., 2011; Stukalina, 2012). The identification of factors that affect student satisfaction is important to the management of satisfaction. Academic related activities have been identified as more important than non-academic related activities (Jalali et al., 2011). Course structure, content, feedback and assessment, and administration have been found to be significant factors that influence student satisfaction (Husain et al., 2009).

The management of student satisfaction requires that student satisfaction results be understood and evaluated for relevance and implications. Research also suggests that student satisfaction results should not be taken at face value, and that they require deeper reflection. The service gap, and hence poor satisfaction, could be a result of students having unrealistic views of the

higher education experience (Darlaston-Jones et al., 2003). Significant differences have been found between the perception of students and educators for quality of delivery of education service, with educators rating quality of service more favourably compared with the rating given by students (Jones & Lee, 2011). While most studies (Jalali et al., 2011; Jones & Lee, 2011; Petruzzellis, 2006) on student satisfaction offer only a static snapshot within the continuum of educational experience of the student, the longitudinal nature of student satisfaction is also an avenue for investigation, since the educational process is not a brief exchange (Li & Kaye, 2006; Rowley, 1997).

Student satisfaction is generally derived through gathering student opinions about all aspects of academic life (Douglas et al., 2006). The measurement of satisfaction essentially deals with measuring "this is what I feel" about a service that is received and consumed (Schneider & White, 2004). Feelings can be expressed about the ability of a HEI to meet a student's expectations of a higher education (Churchill & Surprenant, 1982; de Rojas & Camerero, 2008; Duque & Weeks, 2010; Garbarino & Johnson, 1999; Mano & Oliver, 1993). Feelings can also be expressed about the higher education experience as a whole (de Rojas & Camarero, 2008; Mano & Oliver, 1993). The satisfaction construct is also often operationalised and measured as overall satisfaction (de Rojas & Camarero, 2008; Duque & Weeks, 2010; Mano & Oliver, 1993). Garbarino and Johnson (1999) provide a further extension for the measurement of overall satisfaction through comparisons between service providers. Measurement items for the operationalisation of the student satisfaction construct are listed in Table 12.

Table 12: Measurement Variables for Student Satisfaction Construct

Measurement Variables	References
How do you feel about your higher education institutions meeting your expectations of a higher education?	Churchill & Surprenant (1982); de Rojas & Camarero (2008); Duque & Weeks (2010);

Measurement Variables	References
	Garbarino & Johnson (1999); Mano & Oliver (1993)
How do you feel about your higher education experience?	de Rojas & Camarero (2008); Mano & Oliver (1993)
How would you rate the higher education institution compared with other higher education institutions on overall satisfaction?	Garbarino & Johnson (1999); Mano & Oliver (1993)

4.3.7 Quality of Student Experience

The concept of quality of experience can be identified in literature related to consumption experience (Lemke et al., 2011) and service experience (Otto & Ritchie, 1996). While consumption experience refers to emotions and feelings elicited during product or service consumption (Westbrook & Oliver, 1991), service experience refers to the affective responses during a service encounter (Chen & Chen, 2010; Hui & Bateson, 1991; Otto & Ritchie, 1995). Such affective responses are typically hedonic in nature and include elements of fantasies, feeling and fun (Kao et al., 2008; Otto & Ritchie, 1995; O'Reilly, 2006). The emotions generated from a consumption experience or service encounter have a significant relationship with perceived quality and satisfaction, and they are important for the conceptualisation of quality of experience since there is an experiential nature during both consumption and the service encounter (de Rojas & Camarero, 2008).

The quality of experience is derived from emotions elicited from the consumption experience or the service encounter (Otto & Ritchie, 1995; Otto & Ritchie, 1996). Ideas and emotions related to fun, enjoyment and involvement are frequently associated with a high-quality experience (Gibson, 1998; Kao et al., 2008; Pitman et al., 2010; O'Reilly, 2006; Otto & Ritchie, 1995). Since emotions and experiential factors comprise a substantial portion of satisfaction which is determined by the quality of experience (de Rojas & Camarero, 2008; Otto & Ritchie, 1996), quality of experience refers to the state of superiority of the

consumption or service experience measured by the psychological responses resulting from the experience to the desired social-psychological benefits (Chen & Chen, 2010; Lemke et al., 2011).

The measurement of quality of experience is subjective and "tends to be holistic or gestalt rather than attribute-based, and the focus of evaluation is on self (internal) but not on service environment (external)" (Chen & Chen, 2010, p. 30). It is also difficult to predict the determinants of the quality of experience when core services are emergent, uncertain and not pre-established (Ng & Forbes, 2009). Based on a review of literature, the historical development, including explication of the nature and dimensionality of quality of experience, is summarised in Table 13, which shows hedonics, participation, involvement, stimulation, uniqueness and recognition to be common elements for the measurement of quality of experience.

Table 13: Historical Development of the Quality of Experience Construct

Nature of Quality of Experience Construct	**References**
A good consumption experience involves a steady flow of fantasies, feelings and fun.	Holbrook & Hirschman (1982); Holbrook et al. (1984)
Quality of experience comprises novelty, hedonics, interaction, stimulation, security and comfort.	Otto & Ritchie (1995); Otto & Ritchie (1996)
Quality of experience refers to experience that is directed and meaningful.	Bodger (1998)
Adventure and having the 'experience of a lifetime' contribute to quality of experience.	O'Reilly (2006)
Good quality experiences invoke pleasure, arousal and awakening of interest in consumption.	de Rojas & Camarero (2008)
Four essential experiential qualities are immersion, surprise, participation and fun.	Kao et al. (2008)
The value of a quality experience is co-created, emergent, unstructured, interactive, uncertain and hedonic in nature.	Ng & Forbes (2009)
Experiential quality refers to the psychological outcomes that result from consumption.	Chen & Chen (2010)

Nature of Quality of Experience Construct	**References**
Experiential quality involves notions of immersion with the environment, and being engaged with experience in the original context.	Pitman et al. (2010)
Quality of customer experience is defined as the perceived judgement about the superiority of the customer experience.	Lemke et al. (2011)

In the higher education context, since students are subject to a consumption and service experience through the higher education process, the term 'quality of student experience' is specifically used in place of the generic term 'quality of experience'. As discussed in section 4.2.2, the student experience generally refers to all facets of experiences that students encounter as part of the higher education process. Based on discussions in Section 3.2.1.2, it is also co-created by students. While a quantifiable measure of quality of experience in scale format is yet to be developed (Otto & Ritchie, 1995), it is still possible to infer items for the measurement of a construct of quality of student experience, through a review of literature related to quality of experience. These items comprise feelings of participation, recognition, hedonics, involvement, uniqueness and stimulation, which were discussed in relation to Table 13. A sense of participation and recognition is provided when students feel that their best interests are being served and that the rewards they gain are consistent with the effort they put in (Douglas et al., 2006; Otto & Ritchie, 1995). Hedonic experiences are manifested through a sense of enjoyment that students encounter as a result of the higher education experience (Arnould & Price, 1993; de Rojas & Camarero, 2008; Kao et al., 2008; Mano & Oliver, 1993; Otto & Ritchie, 1995). Due to the experiential nature of higher education, a feeling of involvement in the higher education process provides for a positive influence on experiential quality (Garrett, 1997; Kao et al., 2008; Otto & Ritchie, 1995; Peterson & Miller, 2004). Experiential quality is also determinable by providing students with a sense of uniqueness (Garrett, 1997; Kao et al., 2008; Otto & Ritchie, 1995). Lastly, a feeling of stimulation is

enabled when there is anticipation and intellectual challenge during the higher education process (de Rojas & Camarero, 2008; Otto & Ritchie, 1995; Peterson & Miller, 2004).

In summary, the measurement items for the operationalisation of the quality of student experience construct are listed in Table 14.

Table 14: Measurement Variables for Quality of Student Experience Construct

Measurement Variables	References
Students feel that their best interests are being served.	Douglas et al., (2006); Otto & Ritchie (1995)
Students feel that rewards gained are consistent with the effort put into the assessment.	Douglas et al., (2006); Otto & Ritchie (1995)
Students feel enjoyment with the education experience.	Arnould & Price (1993); de Rojas & Camarero (2008); Kao et al. (2008); Mano & Oliver (1993); Otto & Ritchie (1995)
Students feel involved with the higher education institution.	Garrett, 1997; Kao et al. (2008); Otto & Ritchie (1995); Peterson & Miller (2004)
Students feel a sense of uniqueness in being associated with the higher education institution.	Garrett, 1997; Kao et al. (2008); Otto & Ritchie (1995)
Students have a feeling of anticipation and being intellectually challenged.	de Rojas & Camarero (2008); Otto & Ritchie (1995); Peterson & Miller (2004)

4.3.8 Cognitive Outcomes

As discussed in the literature review at Section 3.6, cognitive outcomes are one major deliverable of a higher education experience. Cognitive outcomes of higher education measure how the higher education experience supports the cognitive development of students, and include demonstrable acquisition of specific knowledge and skills through the learning experience (Frye, 1999; Nusche, 2008). Hence, cognitive learning is most related to knowledge and its application (Shephard, 2008). Knowledge refers to both academic and operational competencies gained through a higher education process (Barnett, 1994b; Duque

& Weeks, 2010). It also comprises both tacit and explicit forms, and is created through recognition of the synergistic relationship between both forms of knowledge (Choo, 1996). Skills are competencies which are both generic and professional in nature, are demonstrable on the job, and are essential for a student's successful employment after graduation from a HEI (Tymon, 2013).

The philosophy for the development of knowledge and skills through the higher education experience are essentially economically driven at both the institutional and the national level (OECD, 2010; Rajah, 2014). At the institutional level, the development of good knowledge and skills in students enhances the employability rates of students graduating from a HEI, and hence provides a measure that improves the comparative institutional performance of the HEI (Frye, 1999); at the national level, a solid foundation in the education system which enables the development of knowledge and skills relevant to industry needs is crucial for generating productivity and employability, and hence economic growth for a nation (Rajah, 2014; Tan, 2015).

Based on the above discussions, it is inferable that cognitive outcomes are academic and operational in nature, and of relevance for student employability. Hence, it is essential that through the higher education experience students develop skills that are of relevance to industry (Duque & Weeks, 2010; Frye, 1999). It is also important for students to develop both effective problem-solving and communication skills (Duque & Weeks, 2010; Endo & Harpel, 1982; NTU, 2013). Endo and Harpel (2010) cited the development of general knowledge as an important outcome of higher education. The ability to manage, use and analyse information is also an essential competence that students need to acquire (Duque & Weeks, 2010). The cognitive outcomes construct may be operationalised using the measurement items listed in Table 15.

Table 15: Measurement Variables for Cognitive Outcomes Construct

Measurement Variables	References
Students develop effective problem-solving skills as a result of their higher education experience.	Duque & Weeks (2010); Endo & Harpel (1982); NTU (2013)
Students develop effective communication skills as a result of their higher education experience.	Duque & Weeks (2010); Endo & Harpel (1982); NTU (2013)
Students develop skills relevant for industry as a result of their higher education experience.	Duque & Weeks (2010); Frye (1999)
Students develop good general knowledge as a result of their higher education experience.	Endo & Harpel (1982)
Students are able to manage, use and analyse information as a result of their higher education experience.	Duque & Weeks (2010)

4.3.9 Affective Outcomes

Equally important to the acquisition of knowledge and skills is the affective development of students through the higher education experience. As discussed in Section 3.6, besides cognitive outcomes, affective outcomes are one other essential component of the higher education experience. In recognition of the value of learning for sustainability, many HEIs have focused their attention on affective learning outcomes (Shephard, 2008). Affective outcomes of higher education measure how the higher education experience supports the emotional and moral development of students, which includes the development of students' values, goals, attitudes, self-concepts, world views and behaviours (Frye, 1999). It is also related to the development of beliefs and values as a result of the higher education experience (Nusche, 2008). According to Shephard (2008), the affective domain includes:

> "an ability to listen, to respond in interactions with others, to demonstrate attitudes or values appropriate to particular situations, to demonstrate balance and consideration, and at the highest level, to display a commitment to principled practice on a day-to-

day basis, alongside a willingness to revise judgment and change behaviour in the light of new evidence" (p. 88).

Affective learning outcomes may be developed by HEIs through classroom and non-classroom activities (Nusche, 2008). A study by Gurin et al. (2002) hypothesised that affective outcomes such as active thinking and intellectual engagement can be acquired through a curriculum in the classroom environment and in the informal learning environment through interaction of students with their peers. The development of affective outcomes can also be facilitated through effective policy-making at the national level, such as attitudes towards lifelong learning (Tan, 2015).

The philosophy for the development of affective learning outcomes stems from values that underpin sustainable behaviour by businesses, government and society (Shephard, 2008). With the greater public expecting that higher education should instil in its students a sense of social responsibility and personal accountability, social conscience and integrity are important values that HEIs need to develop in students (Davis et al., 2007; Frye, 1999; NTU, 2013). Employers value in their employees essential characteristics like the ability to stay resilient and survive difficulties in their lives and careers (Frye, 1999; NTU, 2013; Tan, 2015). Self-concepts such as self-direction (Duque & Weeks, 2010; Endo & Harpel, 1982; Lee, 2015) and self-confidence (Duque & Weeks, 2010; Endo & Harpel, 1982) are valuable enablers for the development of resilience and independence in students. Finally, as students increasingly desire to serve the greater good, and to promote social growth so they are savvy in the world around them (Gurin et al., 2002; Shephard, 2008), the development of a world view has become a desirable affective educational outcome (Duque & Weeks, 2010; Frye, 1999; Lee, 2015).

Based on the above discussions, the affective outcomes construct may be operationalised using the measurement items listed in Table 16.

Table 16: Measurement Variables for Affective Outcomes Construct

Measurement Variables	References
The level of integrity of students as a result of the higher education experience	Frye (1999); NTU (2013)
The level of resilience of students as a result of the higher education experience	Frye (1999); NTU (2013); Tan, 2015
The level of social conscience of students as a result of the higher education experience	Frye (1999); NTU (2013)
The level of self-direction of students as a result of the higher education experience	Duque & Weeks (2010); Endo & Harpel (1982); Lee (2015)
The level of self-confidence of students as a result of the higher education experience	Duque & Weeks (2010); Endo & Harpel (1982)
The level of world view of students as a result of the higher education experience	Duque & Weeks (2010); Frye (1999); Lee (2015)

4.4 Chapter Summary

This chapter built on the literature review discussions in Chapter 3 and presented the development of the conceptual model along with the hypothesised relationships to address the research question and objectives highlighted in Section 1.4. The proposed conceptual model illustrates the relationship among SERVQUAL dimensions, student satisfaction, quality of student experience and higher education learning outcomes, which will be used in Chapter 6 to initiate tests of hypotheses. Theories found in literature were used to discuss and justify the hypothesised relationships. A literature review providing discussions of the theoretical and operational definitions of each construct in the proposed model was provided. With the establishment and justification of the proposed conceptual model in this chapter, the next chapter presents the research methodology and introduces the methodological theory and framework for the conduct of this research.

Chapter 5: Research Methodology

5.1 Introduction

Following the establishment and justification of the proposed conceptual model in Chapter 4, this chapter provides a discussion of the methodological theory and framework for this research. In Chapter 4, it was mentioned that the conceptual model plays an essential role in this study to investigate how quality of service elements influence the learning outcomes of higher education students, including the roles that student satisfaction and quality of student experience play in the relationship. The conceptual model also provides the basis to address the research question and objectives highlighted in Section 1.4. In order to investigate the hypothesised relationships relevant to the conceptual model and to address the research questions and objectives, it is essential that the methodological framework aligns with the nature of the research questions and objectives (Bryman & Bell, 2011; Creswell, 2009; Walker, 1997). The methodological approach is also dependent upon the nature of the research problem and social phenomena being investigated (Noor, 2008). Also, the appropriateness and rigour of the research methods used determines the impact of the analysis of the research findings (Scandura & Williams, 2000). Since the nature of the research problem, question and objective of this study focuses on measuring hypothesised relationships, and the differences among higher education stakeholders concerning their perceptions of the hypothesised relationships, a quantitative methodological approach was adopted for this study with the aim of making research findings that can be generalised (Tranfield et al., 2003).

The aims of this chapter are to:

x   provide a review, explanation and justification of the quantitative methodological approach for this study (Section 5.2);

x   provide an introduction to the methods used in the quantitative methodological approach for this study (Section 5.3);

x   discuss and justify the methods used for development of the questionnaire used for survey data collection in this study (Section 5.3.1);

x   discuss and justify the methods used for conducting the survey using the questionnaire developed and discussed in section 5.3.1 (Section 5.3.2);

x   discuss and justify the methods used for survey data analysis and interpretation (Section 5.3.3).

5.2 Methodological Approach

The methodological approach to, or strategy of, research comprises philosophical assumptions, methods and procedures (Creswell, 2009). It provides a framework for the collection and analysis of research data to address the research objectives and questions (Bryman & Bell, 2011). In developing the methodological framework and methods for this research, an evidence-based approach traditionally rooted in evidence-based medicine (Learmonth, 2008; Pfeffer & Sutton, 2006; Rousseau, 2006; Tranfield et al., 2003) was adopted. In evidence-based research, evidence produced from findings of existential research is used as the basis for a research agenda and practical application (Rousseau, 2006; Tranfield et al., 2003). Arguments against evidence-based management research are: (1) it operates within conflicting research paradigms, (2) it is constructed with the interest of those who hold and seek to maintain power, (3) it conceals the fact that management research is a social science that rarely provides categorical bases for spurring practical actions, and (4) it enjoys limited epistemological consensus (Learmonth, 2008; Tranfield et al., 2003). However, the positivistic philosophical inclination of evidence-based research is coherent with the need to develop valid and reliable

knowledge for management practice (Tranfield et al., 2003). For this research, a review of the extant literature in Chapters 3 and 4 provides the evidence base required for the justification of the proposed conceptual model which is used to address the research objectives and questions of this research.

The importance of the philosophy adopted for a research project cannot be over-emphasised since it influences the practice of research (Creswell, 2009) and contains the assumptions that underpin the research strategy and methods that will be chosen as part of the strategy (Saunders et al., 2009). The philosophical assumptions, or world view, are a "general orientation about the world and the nature of research that a researcher holds" (Creswell, 2009, p. 6) and are shaped by the belief and discipline area of the researcher. These philosophical assumptions should be clearly articulated in a research project, and should relate to the type of research design (Creswell & Clark, 2011). In thinking about philosophical assumptions, epistemology, which is "one of the core areas of philosophy that is primarily concerned with the nature and sources of knowledge" (Yu & Hong, 2008, p. 518), needs to be considered. It is concerned with "what constitutes acceptable knowledge in a field of study" (Saunders et al., 2009, p. 112).

In this research project, the positivist world view was adopted since the research objectives and questions concern the collection of facts about the social world and then building up an explanation of social phenomena by arranging such facts in a chain of causality (Noor, 2008). This chain of causality is demonstrated through the proposed conceptual model which provides a framework for illustrating causal relationships between constructs, and which require testing and validation. The nature of this research in investigating causal relationships between constructs is aligned with the positivistic agenda to "seek cause-and-effect laws that are sufficiently generalisable to ensure that knowledge of prior events enables a reasonable prediction of subsequent events" (Noblit & Hare, 1988, p. 12).

Positivism is the epistemological stance which posits that knowledge is objective since the knower and the known are independent, and that social phenomena is observable and quantifiable for the development and testing of hypotheses (Sale et al., 2002; Saunders et al., 2009; Teddie & Tashakkori, 2009). The constructs in the proposed conceptual framework—which comprise the SERVQUAL dimensions, quality of student experience, student satisfaction, cognitive outcomes and affective outcomes—are social constructs with different meanings that people place upon their experience. Social constructs are based on social constructions of reality which provide the bases for multiple realities or truth (Sale et al., 2002). Although the proposed conceptual model which was developed with social constructs lends support for a post-positivist world view which is concerned with "reality which is socially constructed rather than objectively determined" (Noor, 2008, p. 1602), the support that literature provides for the proposed hypothesised relationships in the conceptual model, made evident through discussions in Chapter 3, suggests a stronger justification for the adoption of a positivist world view for this research study. Such a stance calls for the use of a quantitative methodological approach and methods (Sale et al., 2002; Tranfield et al., 2003).

The choice of the research methodology is influenced by the research objective and the central questions that are being asked (Johnson & Onwuegbuzie, 2004). The objectives of this research were to (1) develop and validate a conceptual model that explores the hypothesised relationships among the SERVQUAL dimensions, student satisfaction, quality of student experience and higher education cognitive and affective learning outcomes and (2) explore different perceptions of the hypothesised relationships among stakeholders of higher education. As such, a quantitative methodological approach driven by the use of a quantitative survey research design was adopted for this project. Quantitative survey research designs require the development of appropriate items and scales for the measurement of constructs, which are subsequently used for data collection and subsequently confirmed through analytical

approaches to model confirmation and validation (Hinkin, 1995; Hinkin, 1998). Several studies (Abdullah, 2006a; Alves & Raposo, 2007; Ardi et al., 2012; Caruana, 2002; Chen, 2008; Chen & Chen, 2010; Duarte et al., 2012; Duque & Weeks, 2010; Garbarino & Johnson, 1999; Grace et al., 2012; Kang & James, 2004; Kao et al., 2008; Min et al., 2012; Sultan & Wong, 2011; Sultan & Wong, 2012; Sum at al., 2012) in the broad fields of services marketing and higher education have used the quantitative survey research design as an approach for data collection and model validation in field research. These studies are similar to this research in terms of the research design and analysis for model fit with survey data collected in field research, to address research questions related to the impacts of relationships between constructs in a conceptual model.

The survey design approach for this research comprises four main steps, which are adapted from procedures adopted by Abdullah (2006a), Dabholkar et al. (1996), Garbarino and Johnson (1999), Forza (2002), Grace et al. (2012), Hinkin (1995) and Hinkin (1998). Figure 3 illustrates these steps as a sequence in a flow chart. The steps comprise the development of the questionnaire, conduct of the survey, data analysis and interpretation, and recommendation of a conceptual model. Detailed discussions of each step are provided in the sections that follow in this chapter.

Figure 3: Methodological Approach

Develop questionnaire

x Develop questionnaire items and scales to operationalise each construct based on a literature review of each construct in the conceptual model

x Draft questionnaire

x Obtain expert validation

x Conduct pilot test of questionnaire

x Refine questionnaire

Conduct survey

x Identify respondents

x Administer online self-completion questionnaire with the respondents, controlling for non-response and non-response bias

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Data analysis and interpretation

x Prepare and purify data

x Assess construct validity through reliability analysis

x Confirm measurement theory using confirmatory factor analysis (CFA)

x Assess structural theory and validate hypotheses using structural equation modelling (SEM)

x Analyse for differences in perspectives among students, industry, and teaching and non-teaching staff of HEIs using MANOVA, discriminant analysis and SEM

Adopt or revise, and recommend conceptual model

5.3 Quantitative Research Design

Following the review, explanation and justification of the quantitative methodological approach for this study in Section 5.2, the sections that follow will provide discussions of each step of the methodological approach illustrated in Figure 3, and introduce the methods used for the quantitative survey research design for this study. The objective of quantitative research is to test theories by examining the relationships between variables, using instruments to measure these variables so that quantitative data can be collected and analysed using statistical procedures (Creswell, 2009). Discussions on the survey instrument used for measuring variables in relation to the conceptual model in Figure 2 are presented in Sections 5.3.1 and 5.3.2. Statistical procedures used for data analysis and interpretation are discussed in Section 5.3.3. The research design and methods used are aligned with a deductive, and hence confirmatory, research perspective.

5.3.1 Developing the Questionnaire

Questionnaires are one of the most commonly used instruments for data collection in field research in the management and social sciences (Bryman & Bell, 2011; Hinkin, 1995). The use of a questionnaire allows the standardised collection of information from a representative sample of a defined population, which allows inference of findings to a wider population (Rattray & Jones, 2007). A review of literature (Abdullah, 2006a; Alves & Raposo, 2007; Caruana, 2002; Dabholkar et al., 1996; Garbarino & Johnson, 1999; Grace et al., 2012; Hinkin, 1995; Hinkin, 1998; Rattray & Jones, 2007; Sum et al., 2002) on approaches to developing questionnaires for use with the quantitative research design shows commonalities with procedures recommended by Hinkin (1995, 1998). The process adopted for questionnaire development in this research is adapted from research by Abdullah (2006a), DeVellis (2012),

Hinkin (1995, 1998) and Rattray and Jones (2007). The questionnaire development started with item generation and scale development for each construct of the proposed conceptual model in Figure 2. Subsequently, the questionnaire was validated by experts in the field of services and higher education management, and subjected to pilot testing with a representative sample of the population of interest before being administered as a full-scale survey in the field. To facilitate discussions of the approach and pertinent aspects of questionnaire development for this research in Sections 5.3.1.1 and 5.3.1.2, a flow chart is presented in Figure 4 to illustrate the process of questionnaire development and the pertinent considerations used in developing the questionnaire.

Figure 4: Process for Questionnaire Development

Item Generation
x Item development
x Content validity assessment

Scale Development
x Wordings for items
x Number of items
x Order of items
x Item scaling
x Measurement reliability

Expert Validation

Pilot Testing and Refinement of Questionnaire
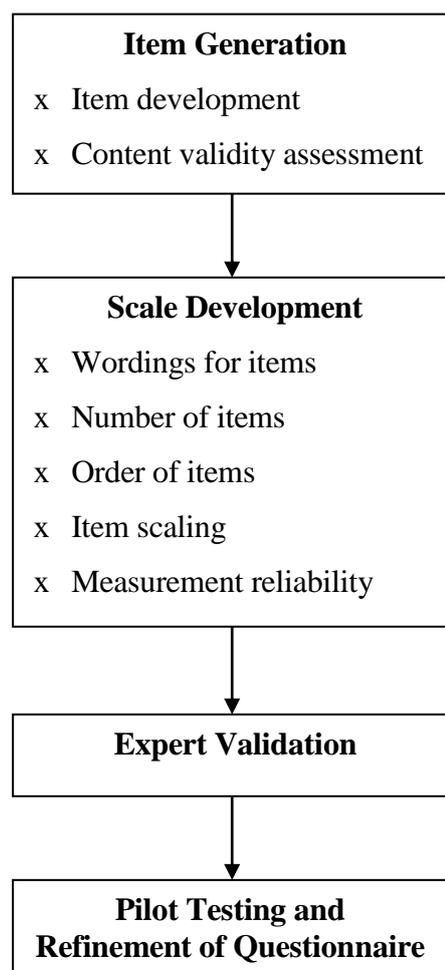
5.3.1.1 Item Generation and Scale Development

The first step in questionnaire development is to create items to assess the construct under examination (Hinkin, 1998). In this research, items to measure the constructs of the proposed conceptual model in Figure 2 were derived through a logical partitioning, hence deductive, approach (Hinkin, 1995). Through the use of this approach, the development of items for each construct was guided by the theoretical definition of the construct which was developed based on an understanding of the phenomenon being investigated and a thorough review of the literature (Hinkin, 1995; Hinkin, 1998; Liden & Maslyn, 1998). A thorough review of the literature for each construct of the proposed conceptual model provides an indication of how the construct has been conceptualised previously and how many possible components it has (Churchill, 1979; Clark & Watson, 1995; Dabholkar et al., 1996). The review also included "what may appear to be less immediately related constructs to articulate the conceptual boundaries of the target constructs" (Clark & Watson, 1995, p. 311). This thorough review of the constructs, as presented in Sections 4.3.1 to 4.3.9, was possible due to the extant body of knowledge on quality of service, student satisfaction, quality of student experience and higher education learning outcomes in the literature, which made constructs of the proposed conceptual model in Figure 2 identifiable from these sources of knowledge and provided the basis for generating items for operationalisation in the questionnaire.

A well-articulated theoretical foundation which indicates the content domain of constructs provides the basis for generating questionnaire items which demonstrate content validity (Clark & Watson, 1995; Hinkin, 1998; Rattray & Jones, 2007). Content validity refers to "the adequacy with which a measure assesses the domain of interest" (Hinkin, 1995, p. 968). As judgement must be exercised in validating a measure, content validity was built into the items through content analysis by ensuring that items generated are both conceptually consistent with the construct and relevant to the content domain of the research (Bagozzi & Edwards, 1998;

Ekinci & Riley, 2001; Hinkin, 1995). Items were also kept consistent and relevant in terms of perspective by revisiting the research questions and objective and ensuring items reflect these (Hinkin, 1998; Rattray & Jones, 2007).

Following item generation in questionnaire development is the scale development process. Item scales are developed for the measurement of phenomena or theoretical variables that are not directly observable or assessable (DeVellis, 2012). Scale development is an essential process in questionnaire development as the type of scales and response styles used for items have an influence on the nature of data produced from a survey and how it will be analysed (Rattray & Jones, 2007). A primary goal of scale development is to develop reliable and valid measures of latent constructs in a conceptual model (Clark & Watson, 1995). Hence, it is important to know which scale and response format to use (Rattray & Jones, 2007).

Scale development is impacted by several important factors in measurement that include wordings used, number of items used to represent the construct, order and manner in which items are combined to form scales, and item scaling (Clark & Watson, 1995; Hinkin, 1995; Hinkin, 1998; Rattray & Jones, 2007). These factors are important issues of consideration in scale development as they have an effect on measurement reliability and response bias (Rattray & Jones, 2007). Reliability is the extent of repeatability of measurement of the constructs (Bryman & Mell, 2011; Cortina, 1993), and is heavily dependent on measurement characteristics with lesser influence by sample characteristics and measure development procedures (Churchill & Peter, 1984). Response bias refers to "the tendency for respondents to agree with a statement, or respond in the same way to the items" (Rattray & Jones, 2007, p. 237).

When designing the questionnaire for this research, steps were taken to ensure reliability and to limit response bias by addressing scale development issues mentioned in the preceding paragraph. Items were worded using language which was simple, clear, straightforward,

familiar and appropriate to target respondents (Clark & Watson, 1995; Churchill & Peter, 1984; Hinkin, 1998; Rattray & Jones, 2007). Doing so reduces boredom and fatigue among respondents (Hinkin, 1998). Since the research objectives in Section 1.4 encompass the examination of the responses of three different target groups of higher education stakeholders—that is, students, teaching and non-teaching staff in HEIs, and industry practitioners—questionnaires were developed for each of these groups. These questionnaires contained items which operationalised the latent constructs in the same way, but they were worded differently for each group to enable clarity of understanding for the scale items. Items were also worded to address only a single issue, to prevent the confusion which usually occurs among respondents faced with 'double-barreled' items (Clark & Watson, 1995; Hinkin, 1998). Although negatively worded items are commonly used to reduce response bias, these were avoided in this research to prevent misinterpretation and to ensure consistency in interpretation among the stakeholders of higher education that were identified in Sections 1.4 and 3.7 as the target respondents in this research (Hinkin, 1995; Hinkin, 1998).

To ensure reliability through scale development, each construct in the proposed conceptual model was measured by multi-items, which are better than single-item measures in terms of ability to reduce measurement error and avoid bias (Alves & Raposo, 2007; Churchill, 1979; Churchill & Peter, 1984; Loo, 2002; Osagbemi, 1999; Rattray & Jones, 2007). A positive relationship exists between the number of items in a scale and the reliability of the measure (Churchill & Peter, 1984). While there is no 'hard and fast' rule guiding the decision on the number of items to include to measure a construct, it is recommended that at least three items be used to measure each construct, so that the homogeneity of these items can be tested (Grace et al., 2012; Hair et al., 2010; Hinkin, 1998). However, there is a need to strike a balance with the number of items used in a measure for a construct: having too many items creates problems like respondent fatigue and response bias, while having too little items causes a lack of content

validity, construct validity, test–retest reliability, and internal consistency in construct measurement (Hinkin, 1995). In order to strike a balance between parsimony and reliability in the measurement of constructs, a minimum of three items was used to measure the latent constructs in this research (Hair et al., 2010). Items were also grouped to ensure unidimensionality of constructs (Hair et al., 2010).

The response format, or item scaling type, used in a questionnaire is also an important factor in scale development due to its influence on response styles (Weijters et al., 2010). Item scales should generate sufficient variance in responses among respondents for subsequent statistical analysis and to reduce response bias (Hinkin, 1995). An optimal number of response categories in rating scales is needed to provide sufficient discrimination between responses (Preston & Colman, 2000; Weng, 2004). While the optimal number of response categories a rating scale should have remains debatable, it is generally accepted that five and up to seven response categories is adequate in providing sufficient variance in responses (Cox, 1980; Miller, 1956; Preston & Colman, 2000). Providing for fewer response categories (less than five) produces low discriminating power for responses, while having too many response alternatives (more than seven) may introduce an element of random responding that reduces the validity of responses (Clark & Watson, 1995; Preston & Colman, 2000; Weng, 2004).

Opinion varies regarding the desirability of an odd or even number of response categories for a rating scale (Weijters et al., 2010). An even number of response categories forces respondents to take sides with no neutral option, and provides information on the direction that neutral respondents are leaning towards (Taylor-Powell, 1998). On the contrary, an odd number of response categories provides a neutral point which allows ambivalent respondents to legitimately adopt a neutral position and not be forced to choose a response which may cause response bias (Clark & Watson, 1995; Cox, 1980; Rattray & Jones, 2007). However, when no midpoint is provided as one of the response categories, there is tendency for ambivalent

respondents to experience negative affect and respond negatively (Weijters et al., 2010). Hence, to ensure clear differentiation in responses and to prevent potential response bias, a seven-point measurement scale for each item was used (Cox, 1980; Matell & Jacoby, 1971; Matell & Jacoby, 1972; Preston & Colman, 2000).

Several scaling techniques are available for use when developing a questionnaire, such as Likert scales (Clark & Watson, 1995; Dabholkar et al., 1996; Garbarino & Johnson, 1999; Hinkin, 1998; Rattray & Jones, 2007; Shin & Jung, 2014), dichotomous responding (Clark & Watson, 1995), semantic differential scales (Garbarino & Johnson, 1999; Saleh, 2006) and comparative scales (Garbarino & Johnson, 1999). While Likert-type scales are commonly used in questionnaires for behavioural and social research (Hinkin, 1998; Rattray & Jones, 2007), a variety of other rating scales, which include semantic differential scales and comparative scales, were also used in this research to reduce the potential for halo effects— that is, biases that result from survey responses that are influence by preceding responses in the same survey—in survey responses (Boyer & Lewis, 2009; Garbarino & Johnson, 1999; Harrison & Freeman, 1999). Likert-type scales are ordinal scales, and they were used to measure attitudes or opinions on the strength of an experience (Rattray & Jones, 2007). Semantic differential scales, which are designed to measure positive psychological constructs, were used to measure affective responses to an experience (Bradley & Lang, 1994; Denscombe, 1992; Friborg et al., 2006; Garbarino & Johnson, 1999). Comparative scales were used to rate satisfaction in comparison with other entities (Garbarino & Johnson, 1999).

The use of a variety of scales and response formats in this research allowed for the control of common-method bias. Common-method bias is a main source of measurement error in surveys; it affects reliability and is caused by the method being used to measure constructs, such as having a common rating scale or a common measurement context, and the characteristics of the items themselves (Podsakoff, et al., 2003). To address common-method bias in this research,

different response formats for rating scales were used in the questionnaire design to provide for methodological separation of the measurement of predictor (dependent) and criterion (independent) variables. In this research, the independent variables are reliability, assurance, tangibles, empathy and responsiveness. The dependent variables are student satisfaction, quality of student experience, cognitive outcomes and affective outcomes. Likert-type scales, with response categories from 1 = strongly disagree to 7 = strongly agree, were used for items measuring reliability, assurance, tangibles, empathy, responsiveness, quality of student experience and cognitive outcomes, since the items for these constructs were worded to measure levels of agreement/disagreement to a statement. Items measuring affective outcomes were also measured using the Likert-type scale, with response categories from 1 = under achieving to 7 = very accomplished, since the items were worded to elicit the degree or extent of agreement with the statement (Clark & Watson, 1995). Items measuring student satisfaction were measured using both the semantic differential scale and comparative scale (Garbarino & Johnson, 1999). As satisfaction is a positive psychological construct with emotive underpinnings (Bradley & Lang, 1994; Friborg et al., 2006), the use of the semantic differential scale, with response categories from 1 = very dissatisfied to 7 = very satisfied, was justifiable. The comparative scale, with response categories from 1 = much worse to 7 = much better, was used to elicit responses for an item which required comparison of respondent satisfaction between institutions. Table 17 summarises the rating scale type and response categories used for each construct of the proposed conceptual model.

Table 17: Scale Type and Response Categories for Constructs

Construct	Variable Type	Rating Scale Type	Response Categories
Reliability	Independent	Likert	1 = strongly disagree to 7 = strongly agree
Assurance	Independent	Likert	1 = strongly disagree to 7 = strongly agree
Tangibles	Independent	Likert	1 = strongly disagree to 7 = strongly agree
Empathy	Independent	Likert	1 = strongly disagree to 7 = strongly agree
Responsiveness	Independent	Likert	1 = strongly disagree to 7 = strongly agree
Student satisfaction	Dependent	Semantic differential and comparative	1 = very dissatisfied to 7 = very satisfied (for sematic differential scale); 1 = much worse to 7 = much better (for comparative scale)
Quality of student experience	Dependent	Likert	1 = strongly disagree to 7 = strongly agree
Cognitive outcomes	Dependent	Likert	1 = strongly disagree to 7 = strongly agree
Affective outcomes	Dependent	Likert	1 = under achieving to 7 = very accomplished

As a consolidation of the discussions presented in this section, Appendix 1 presents the operationalisation of the constructs with item measures, the accompanying rating scales and response categories used for each item measure of the related construct, and the literature sources of questionnaire items.

5.3.1.2 Expert Validation and Pilot Testing

To further ensure the reliability and validity of the questionnaires, the draft questionnaires were subject to validation by two experts from the higher education industry. The aim of the expert

validation was to obtain feedback on "any perceived ambiguities, omissions, or errors concerning the draft questionnaire" (Abdullah, 2006a, p. 573) before administration of the survey. Expert validation established the face validity of the questionnaire items as valid measures of the respective constructs in the proposed conceptual model.

The draft questionnaires were also subject to a pilot test to ensure the clarity of the terms used and to check for the adequacy of the questionnaire in relation to the process of conducting a large-scale survey, leading to potential refinements before the actual administration of the survey (Abdullah, 2006a; Ardi et al., 2012; Liden & Maslyn, 1998; Rattray & Jones, 2007; Teijlingen et al., 2001). Conducting a pilot test with clear aims and objectives encourages methodological development and improves validity of the survey instrument (Lancaster et al, 2004). A well-conducted pilot study provides the justification of the methods used in questionnaire design and survey data collection (Teijlingen et al., 2001). A small sample size of the intended respondent groups is sufficient to perform systematic appraisal of questionnaire performance in a pilot test (Anderson & Gerbing, 1991; Ardi et al., 2012; Rattray & Jones, 2007).

Based on a convenience and purposive sampling strategy (Sultan, 2011), the pilot test was conducted over a one-week period from 29 July 2014 to 4 August 2014 by manually giving the questionnaires to five students from a particular HEI in Singapore, five teaching and non-teaching staff working in a particular HEI in Singapore, and five industry practitioners based in Singapore. As there is no known guideline for the number of participants necessary to conduct a pilot test with a survey instrument, the choice of five people for each stakeholder group which provides a total of 15 participants in the pilot test was adapted from research conducted by Ardi et al. (2012) and Pereda et al. (2007). Ethics clearance was obtained from the University of Canberra's Human Research Ethics Committee (HREC) before the pilot test was conducted. During the pilot test, respondents were given opportunities to evaluate the method of

distributing the questionnaire, the method of gaining access to respondents, and the time it took to complete the questionnaire.

In summary, conducting the pilot test provided lessons in survey management for the researcher, as well as the chance to experiment with "the balancing act of using research methods in the most optimal way under the combined pressure of time, ethical considerations and the influences of stakeholders" (Teijlingen et al., 2001, p. 290). The pilot test also provided opportunities to test survey execution procedures (Forza, 2002). As the questionnaire took an average of eight minutes to complete, and as pilot respondents gave positive feedback in relation to the content, the questionnaires were deemed appropriate for deployment in the field. The final versions of the questionnaires for each of the stakeholder groups identified in Section 5.3.1.1 are presented in Appendix 2.

5.3.2 Conducting the Survey

Following the development of the questionnaire for each stakeholder group of higher education—that is, students, teaching and non-teaching staff in HEIs, and industry practitioners—and expert validation and pilot testing, a survey was conducted in the field using the specific questionnaires designed for each stakeholder group of higher education, as mentioned. The successful use of questionnaires for data collection is dependent on appropriate plans for large-scale survey administration, including considerations of costs, schedule, production, process for distributing the questionnaire, and collection of data for the analysis of results (Denscombe, 1992). The sections that follow provide the discussions on the strategies taken for sampling, survey administration, management of response rates, and ethics considerations.

5.3.2.1 Sampling Strategy

Based on the objectives of this research, as described earlier in Section 1.4, the population of interest was composed of students, teaching and non-teaching staff of HEIs, and industry practitioners. The stakeholder groups previously identified were the unit of analysis for this research since this is the level of data aggregation for subsequent analysis (Forza, 2002). As described in Section 1.5, Scope of the Study, the study was delimited to the context of Singapore, which was described as a possible generalisable model of higher education systems in the Asia-Pacific region due to its modernised Confucian model as a hybrid system of Eastern and Western philosophies. The delimitation of the research context to Singapore as the sampling frame also allowed for the control of the impacts of macro-environment diversity among countries; the uncontrollability of these external variables may otherwise have had an impact on data collection and analysis (Grace et al., 2012; Saleh, 2006). Due to the inability of novices to service encounters to evaluate service attributes, due to their lack of post-service experience (McGill & Iacobucci, 1992; Bateson, 2002), the delimitation of the study to the Singapore context also ensured that the population of the study was limited to (1) students who are studying in HEIs in Singapore, (2) teaching and non-teaching staff working in HEIs in Singapore and (3) industry practitioners who are working in Singapore and familiar with its higher education landscape.

As the intent of conducting a survey is to collect large amounts of research data from respondents for generalisation to a population, an appropriate sample size is required. While noting the impact that sample sizes have on achieving statistical significance of survey results, it is important to plan for sample sizes that also provide accuracy in parameter estimation (Kelley and Maxwell, 2003). In the context of this research, the use of an appropriate sample size was also important for achieving adequate power to test hypotheses for model fit (MacCallum et al., 1996). Using an appropriate sample size allows for the achievement of a

desired level of power with a given model (McQuitty, 2004) and has an impact on fit indices for assessing model fit (Kenny & McCoach, 2003). A study by MacCallum et al. (1996) discovered that as the degrees of freedom which account for all manifest variables—that is, items in the questionnaire—increase, the sample size required to achieve a power of 0.80 reduces. In this study, the 47 manifest variables had translated to degrees of freedom of 1,034, which, according to a study by MacCallum et al. (1996), meant that a sample size of below 100 was sufficient to yield a power of 0.80.

Several other recommendations for sample sizes exist. Maxwell (2000) and Tinsley and Tinsley (1987) suggest that, as a rule of thumb, the sample size should be at least 10 respondents for every item in the questionnaire. Nunnally and Bernstein (1994) recommend that at least 300 respondents may be a necessity. For the purposes of testing an SEM, sample sizes in the range of 100 to 400—and not more than 400—are recommended (Hair et al., 2010). However, some literature demonstrates the use of less than 100 samples to analyse an SEM (Grace et al., 2012; Whittaker et al., 2007). Therefore, in order to achieve both statistical significance and accuracy of parameter estimation, this study attempted to yield approximately 100 or more usable samples for each stakeholder group to provide a total of approximately 300 usable samples, which was sufficient for testing and analysis of the SEM. This also accords with the recommendation that the sample size needs to be greater than the number of items in a questionnaire (MacCallum et al., 1996).

A convenience sampling approach was used to recruit respondents for the survey for reasons associated with ease of accessibility to participants (Bryman & Bell, 2011; Grace et al., 2012). While the use of probability sampling is most common in quantitative survey research designs, due to its advantages in eliminating bias and allowing generalisability of results derived from a sample to its population (Sultan, 2011), it is also fairly common for management researchers to rely on convenience sampling when the data collection is dependent on the need to make use of

opportunities that present themselves in the course of conducting the research or when a complete and accurate list of the population is unavailable (Bourque & Fielder, 2003; Bryman & Bell, 2011; Grace et al., 2012). As will be discussed further in Section 5.3.2.2 on survey administration, the administration of the survey as self-completion questionnaires on the internet provided the opportunity for convenience sampling, since respondents were contacted based on the availability of their email addresses and social media sites. Students were recruited from personal contacts and 13 social networking groups in Facebook (http://www.facebook.com). Teaching and non-teaching staff members of HEIs were recruited from 13 institutions which publish individual contact details on their websites. Industry practitioners were recruited through personal contacts, 14 social networking groups in LinkedIn (http://www.linkedin.com), three industrial associations which publish individual contact details on their websites, and contacts available through the Singapore Government Directory on the internet.

5.3.2.2 Survey Administration and Management of Response Rate

Self-administered surveys are relatively easily facilitated via the use of the internet (Berrens et al., 2003; Simsek & Veiga, 2001; Kaplowitz et al., 2004). Hence, the survey was administered as an online self-completion questionnaire. Respondents were invited to access a web-based survey hosted on SurveyGizmo (http://www.surveygizmo.com) by clicking a hypertext link provided via email and social media platforms. Invitations to participate in the survey were posted on social networking sites to recruit students and industry practitioners, whereas email was used to contact individuals working in HEIs and industry.

As previously discussed in Section 5.3.2.1, Facebook and LinkedIn were used as the sources for contacting respondents from the student and industry community respectively in Singapore.

Social networking sites such as Facebook and LinkedIn are becoming increasingly popular in usage as they provide users with the ability to message in various forms and to connect with a wide network of people (Joinson, 2008). Facebook was used for recruiting students as it is a communication technology widely adopted by students, while LinkedIn was used for recruiting survey participants from industry due to its professional orientation and work-related context (Ellison et al., 2007; Papacharissi, 2009; Roblyer et al., 2010). Due to the richness of social capital provided by social networking sites, heavy usage patterns and technological capacities that bridge online and offline connections, the advantage of using social media websites such as Facebook and LinkedIn in this research was the uninhibited, extensive access to students and industry practitioners that such websites provided for the establishment of a personal network of respondents to this research (Ellison et al., 2007; Lin & Lu, 2011; Waters et al., 2008).

A further advantage of using online methods for data collection, is that as compared to personal interviews, the administration of the survey as an online self-completion questionnaire through email or social media enabled the provision of a better measure of the actual perceptions of respondents and a better indication of the reliability of the responses (Sudman et al., 1965; Kaplan & Haenlein, 2010). Self-completion questionnaires may be administered in a supervised or unsupervised mode (Bourque & Fielder, 2003). This study adopted the unsupervised mode, as it enhances survey reliability due to the absence of the interviewer in the administration of the self-completion questionnaire, which eliminates interviewer variability and interactional factors due to interviewer effects (Bryman & Bell, 2011; Denscombe, 1992). The economic factors of the low cost of administering an online survey, and the high speed of data collection, were also reasons for adopting this survey administration method (Simsek & Veiga, 2001).

However, the administration of the self-completion questionnaires on the internet through email or social media is not without disadvantages—it needs to be controlled. The administration of

the survey on the internet presented a risk of receiving responses from respondents beyond the target group (Bourque & Fielder, 2003). This risk was controlled by ensuring that the invitations to participate were clear about the target audience. Also, due to the absence of interactional contact between interviewer and respondent when administering a self-completion questionnaire, non-responses are common. This may result in non-response bias and undermine the generalisability of collected data from a sample to the population (Armstrong & Overton, 1977; Rogelberg & Stanton, 2007; Werner et al., 2007). Non-response bias results from systematic differences in responses on survey items between respondents and non-respondents (Rogelberg & Luong, 1998). The non-response rate for self-administered questionnaires with no incentives provided to respondents is typically expected to be no better than 20% (Bourque & Fielder, 2003). Hence, it is important to minimise the non-response rate since there is "no way of knowing whether those who did not respond were in some way different from those who did respond" (Denscombe, 1992, p. 12). Methods (Simsek & Veiga, 2001) that were used to increase response rates and to minimise non-response bias included providing:

(1) an introduction at the beginning of the questionnaire to introduce the research and chief investigator;

(2) a brief explanation of the objectives, importance and respondent's place in the research;

(3) a statement of assurance of confidentiality and anonymity;

(4) the chief investigator's contact details and the survey's expected date of completion.

Other steps that were taken to improve response rates included ensuring the questionnaire had a desirable layout, and clear and simple instructions for respondents to follow (Bryman & Bell, 2011; Simsek & Veiga, 2001). These steps, and those in the preceding paragraph, were aimed at providing clarity and assurance to the survey participants.

The survey was opened for a four-month period from 5 August 2014 to 30 November 2014. A total of 484 responses were received and will be discussed further in Chapter 5. Among those who responded to the survey were 166 students, 185 staff members working in HEIs, and 133 industry practitioners. The response rate of staff members working in HEIs was 7.3% relative to 2,535 staff members who were contacted through email. It was not possible to compute the response rates among students and industry practitioners, since these two stakeholder groups were predominantly recruited through social media groups on Facebook and LinkedIn, which had dynamic group memberships over the four-month survey period. The survey responses were stored online in the SurveyGizmo portal, which is password-protected, and downloaded in SPSS and Microsoft Excel file formats for analysis. The downloaded data was stored on a password-protected computer.

5.3.2.3 Ethical Considerations

Ethics in management and social research are concerned with the role of values that the researcher brings to the research process (Bryman & Bell, 2011). While it is arguable that the issues faced by management and social researchers are different (Bell & Bryman, 2007), ethical practice generally involves ensuring that research participants are able to provide informed consent to participate, and are not subjected to harm, deception and invasion of privacy during the research process (Bryman & Bell, 2011; Rose et al., 2015). General ethical principles are also applicable in online research (Rose et al., 2015). Formalised codes for ethical practice in management research have also been developed by professional organisations such as the Academy of Management (Academy of Management, 2006), the British Academy of Management (British Academy of Management, 2013), and the Australian Research Council (Australian Government, 2007).

As this research involved interacting with people by means of conducting an online survey, ethical issues and questions were addressed. To ensure responsible practice in research, this study was conducted in compliance with the University of Canberra's human ethics guidelines (University of Canberra, 2015). The university's HREC granted approval before the data collection commenced on 1 August 2014. Informed consent procedures were followed by providing participants with a consent statement to read and accept before they proceeded with the survey. In order to minimise participants' discomfort about taking part in this research, they were informed that participation in the online survey was completely voluntary, and that they could withdraw at any stage during the survey. Participants were also assured that their responses would be private and confidential. Participants' identities were also protected, as they were not required to provide personal identification data when completing the questionnaire. Hence, data was not individually identifiable, as it was provided anonymously. Data protection ensured the confidentiality of information collected during the survey process. Only the chief investigator of this research had access to data, which was stored securely in a computer to which only the chief investigator had rights access. Appendix 2 presents both the participant information and the consent documents that assured participants of privacy, confidentiality, anonymity and comfort during the survey process.

5.3.3 Data Analysis and Interpretation

The data analysis process reflected the objectives of this research. The process started with the preparation and purification of data to ensure that data collected from the online survey was ready for analysis and interpretation (Hair et al., 2010; Kent, 2015). To address the first objective of the research—investigating the relationships between constructs illustrated by the

proposed conceptual model presented in Chapter 4—data analysis proceeded with the empirical assessment of measurement quality by means of construct reliability and validity. Once measurement quality was established, CFA was performed to assess and validate the measurement relationship between the survey items and latent constructs measured. This was finally followed by a test of the structural theory through the use of SEM. It was necessary to use the confirmatory methods of both CFA and SEM to assess both the measurement and the structural models respectively, to test the conceptual model and related hypotheses (Anderson & Gerbing, 1988). To address the second objective of the research describe in Section 1.4, MANOVA, discriminant analysis and SEM were used to test and analyse for differences in perceptions among students, teaching and non-teaching staff in HEIs, and industry practitioners. Figure 5 illustrates the data analysis process.

Figure 5: Data Analysis Process
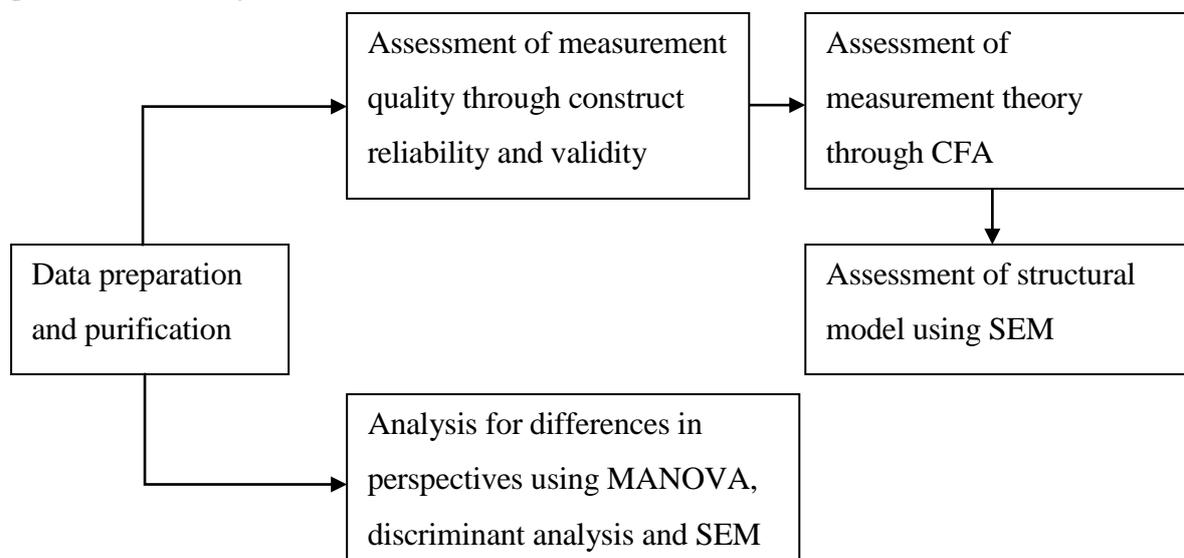
IBM SPSS version 21 software was used to perform reliability analysis, MANOVA tests and discriminant analysis; IBM AMOS version 21 software was used to perform CFA and SEM. The sections that follow provide discussions of each step of the data analysis process presented in Figure 5.

5.3.3.1 Preparation and Purification of Data

As briefly mentioned in the previous section, the data collected in a quantitative study needs to be prepared for analysis. The preparation process entails checking, editing and assembling the data for analysis using data analysis software (Forza, 2002; Kent, 2015). Data examination is a necessary step in analysis to identify the impact of missing data and outliers, as well as to test the statistical assumptions underlying the data analytical techniques used (Forza, 2002; Hair et al., 2010).

The issue of missing data was addressed in the initial data preparation phase, because missing data may create bias in survey results and data analysis (Hair et al., 2010). Following the collection of data through the web-based survey hosted on SurveyGizmo, as discussed in Section 5.3.2.2, the data was directly downloaded as an SPSS Statistics data document format (.sav) from the survey portal. The survey administration period of four months closed on 1 December 2014. The survey was set up so that it was compulsory for respondents to answer all items, which prevented the occurrence of missing data. However, as survey participants could withdraw at any stage—as explained in Section 5.3.2.3—failure to complete the questionnaire could result in the occurrence of non-random missing data. Hence, the data sets were checked for missing data due to partial completion of the questionnaire. Responses with attrition in not completing the questionnaire were deleted. The exclusion of such responses is the most efficient remedy for dealing with missing data. It substantially reduces the extent of missing data while also, importantly, ensuring a sufficient number of responses with no missing data (Hair et al., 2010).

The data that remained after the deletion of incomplete responses was considered adequate for preliminarily analysis at the univariate level, to explore the characteristics and properties of the data, and to analyse for outliers and deviations from statistical normality (Forza, 2002). Outliers are responses that are distinctly different from other responses of the same item

variable; normality, which is a fundamental assumption for multivariate analysis, refers to the correspondence of the distribution of the responses for an item variable with a normal distribution (Abdullah, 2006a; Hair et al., 2010). The preliminary data analysis at the univariate level used measures of central tendency, measures of dispersion, measures of shape, and frequency distribution (Forza, 2002; Grace et al., 2012). The occurrence of outliers may be ignored unless proven to be distinctly different from any observations in the population; violation of the normality assumption may be ignored if the shape of the frequency distribution is close to the normal distribution, and for large sample sizes (Hair et al., 2010).

5.3.3.2 Assessment of Measurement Quality

The quality of measurements in a survey instrument is evaluated in terms of the reliability and validity of the items used to measure the associated constructs (Forza, 2002). Reliability refers to the degree of internal consistency in the measure of a set of multi-items associated with a latent construct; validity refers to the extent that items constituting a measure represent the latent construct measured (Hair et al., 2010). The assurance of measurement quality for survey instruments is important to reduce measurement error and to allow correct inferences and conclusions to be made from analysis (Forza, 2002; Hair et al., 2010; Saris & Gallhofer, 2014).

The coefficient alpha, also known as Cronbach's alpha, was used to assess construct reliability, by analysing the reliability of the measurement items associated with each latent construct (Cronbach, 1951; Cortina, 1993). As previously mentioned, IBM SPSS software was used in this analysis. Several researchers (Ardi et al., 2010; Dabholkar et al., 1996; Kao et al., 2008; Min et al., 2012; Parasumaran et al., 1988) used the coefficient alpha as a measure of reliability of survey responses. Coefficient alpha, which provides a measure of the internal consistency of

a set of items, is a useful statistic for estimating the reliability of item measures when item-specific variance in a unidimensional test is of interest (Churchill, 1979; Cortina, 1993; Santos, 1999). Coefficient alpha was used to estimate reliability through the internal consistency method, to assess "the equivalence, homogeneity and inter-correlation of the items used in a measure" (Forza, 2002, p. 177). High values for coefficient alpha indicate the reliability of questionnaire items in measuring the associated latent construct and implies very little item-specific variance (Cortina, 1993; Dabholkar et al., 1996). Internal consistency of measures for a construct indicates that the measures hang together as a set and are capable of independently measuring the same construct (Forza, 2002). A coefficient alpha value of at least 0.70 was used to conclude that the measurement scale is reliable and that internal consistency of measures exists within the construct (Abdullah, 2006a; Forza, 2002; Hair et al., 2010; Nunnally & Bernstein, 1994).

Following the establishment of internal reliability of item measures for each latent construct of the conceptual model, it was necessary to assess the validity of the constructs (Abdullah, 2006a; Hair et al., 2010). Construct validity is established when all item measures correctly represent the concept of study (Forza, 2002). Since validity presumes reliability, one criterion used to establish construct validity was the internal reliability of item measures associated with the construct (Bryman & Bell, 2007; Hair et al., 2010). Another criterion used was to ensure face validity of the constructs, judged solely on the researcher's and expert judgement (Hair et al., 2010). Judgement of face validity was performed as part of the expert validation of the questionnaire design, discussed in Section 5.3.1.2. Empirically, face validity was also ensured through the unidimensionality of measures, allowing no within-construct and/or between-construct error covariance within the measurement model. Tests for convergent validity, which indicates convergence between measures of the same construct, were also conducted to verify content validity (Abdullah, 2006a; Forza, 2002; Hair et al., 2010). Measures used for the

assessment of convergent validity among item measures were the individual factor loadings and average variance extracted (AVE) that were derived from measurement model analysis. Standardised loading estimates of 0.5 or higher, and AVE of 0.5 or higher, were used as the benchmark that suggested adequate convergence (Ardi et al., 2012; Hair et al., 2010).

5.3.3.3 Measurement Model Analysis

Following the establishment of construct reliability and validity, CFA was used to test measurement theory, through the development and assessment of a measurement model to establish how well item measures represented the associated latent constructs in the conceptual model (Weston & Gore, 2006). Providing a confirmatory test of measurement theory is a necessary step prior to testing the structural model in SEM (Anderson & Gerbing, 1988; Ardi et al., 2012; Nunkoo et al., 2013). A measurement model illustrates measurement theory as the relationships between measured variables and latent constructs (Schreiber et al., 2006; Hair et al., 2010). Measurement theory specifies how item measures "logically and systematically represent constructs involved in a theoretical model" (Hair et al., 2010, p. 693). Therefore, CFA provides a confirmatory means to assess the extent of correspondence between the item measures and latent constructs, hence measurement theory (Anderson & Gerbing, 1988; Hurley et al., 1997; Schreiber et al., 2006).

Analysis of the measurement model using CFA should first be dictated by a strong theoretical base (Hair et al., 2010l; Hurley et al., 1997). Therefore, the measurement model was developed and justified based on theoretical arguments for each construct discussed in Chapter 4. IBM AMOS software was used to specify and estimate the measurement model. The maximum likelihood approach was adopted as the estimation procedure, since it provides stable and valid results for at least small sample sizes, and is robust to violations of the

normality assumptions for multivariate analysis (Hair et al., 2010). Upon estimation, the model's fit to the data was evaluated using fit indices in order to assess the validity of the measurement model (Weston & Gore, 2006). While modification indices are provided in the software output to suggest improvement of model fit by model respecification, by freeing paths between error, measured and latent variables, "the desire to achieve good fit should never compromise the theory being tested" (Hair et al., 2010, p. 671). Clear consensus exists in literature (Hair et al., 2010; Hurley et al., 1997; MacCallum et al., 1992) on not using modification indices to respecify models to improve model fit, since doing otherwise follows an exploratory trial-and-error approach which is inconsistent with the intended purpose of CFA as a confirmatory test of measurement theory. Hence, in order to also maintain unidimensonality of measures and to assure construct validity as discussed in Section 5.3.3.2, modification indices were not interpreted in this research.

Model fit indices measure goodness-of-fit for the measurement model by comparing the hypothesised model with observed data (Hair et al., 2010; Hu & Bentler, 1999). Several indices exist to evaluate model fit; however, there is little consensus on the merits and numbers of indices that should be reported (Hair et al., 2010; Hurley et al., 1997; Jackson et al., 2006; Schreiber et al., 2006; Weston & Gore, 2006). The most common fit indices reported in CFA studies are root mean square error of approximation (RMSEA), comparative fit index (CFI) and Tucker-Lewis index (TLI) (Jackson et al., 2006; Schreiber et al., 2006). Model fit is typically assessed using three or four fit indices, which should include one absolute index, at least one incremental index, the chi-square value and the associated degrees of freedom (Bentler & Bonett, 1980; Hair et al., 2010). Incremental fit indices should be used in addition to other indices for statistical evaluation of the model (Bentler & Bonett, 1980). RMSEA, normed chi-square (CMIN/DF), CFI, TLI and incremental fit index (IFI) are also commonly used as a set of indices for assessing model fit, and they are examined

simultaneously (Kenny & McCoach, 2003; Saleh, 2006; Sultan 2011). Hence, the absolute fit indices that were used consisted of RMSEA and CMIN/DF, while the incremental fit indices used comprised CFI, TLI and IFI.

Cut-off criteria for fit indices have been proposed in literature to justify model fit (Hair et al., 2010; Hooper et al., 2008; Hu & Bentler, 1999; Schreiber et al., 2006). The absolute cut-off criteria for fit indices are meant to provide a guideline for acceptance of model fit (Marsh et al., 2004; Weston & Gore, 2006). Table 18 provides a summary of absolute cut-off values that researchers have proposed for RMSEA, CMIN/DF, CFI, TLI and IFI.

Table 18: Cut-off Values of Fit Indices for Model Fit

Fit Index	Cut-off Value	Supporting References
RMSEA	≤ 0.06	Hu & Bentler (1999)
	≤ 0.08	Hair et al. (2010); Hooper et al. (2008); Schreiber et al. (2006)
CMIN/DF	≤ 3	Hair et al. (2010); Schreiber et al. (2006)
CFI	Close to 1.0	Hair et al. (2010)
	0.90 to 0.95 (adequate fit) ≥ 0.95 (good overall fit)	Hooper et al. (2008); Hu & Bentler (1999); Hulland et al. (1996); Schreiber et al. (2006)
TLI	Close to 1.0	Hair et al. (2010)
	0.90 to 0.95 (adequate fit) ≥ 0.95 (good overall fit)	Hooper et al. (2008); Hu & Bentler (1999); Hulland et al. (1996); Schreiber et al. (2006)
IFI	Close to 1.0	Hair et al. (2010)
	0.90 to 0.95 (adequate fit) ≥ 0.95 (good overall fit)	Hu & Bentler (1999); Hulland et al. (1996); Schreiber et al. (2006)

While evidence from Table 18 shows consensus on absolute cut-off values for evaluation of model fit, researchers have also questioned whether such absolute values are a necessary basis for valid interpretations (Hair et al., 2010; Marsh et al., 2004; Yu, 2002). It is more acceptable to interpret fit indices using the characteristics of the research as a basis (Hair et

al., 2010). Therefore, in this research, while the absolute cut-off values were used as a guide, research characteristics comprising sample size, model complexity, and the underlying distribution of data were also considered for acceptance of model fit (Hair et al., 2010; Weston & Gore, 2006; Yu, 2012).

5.3.3.4 Structural Model Analysis

Once the measurement model was validated through model fit and construct validity, the structural model was specified and assessed for validity (Anderson & Gerbing, 1988; Hair et al., 2010). Analysis of the structural model through SEM is a standard method used for investigating the plausibility of theoretical models (Hu & Bentler, 1988). Hence, it is a justified analysis tool in the context of higher education for measuring the relationships between variables in a structural model (Ardi et al., 2012). A key difference between the measurement model and the structural model is that, while the measurement model specifies dependence relationships between observable variables and latent constructs, the structural model specifies dependence relationships between latent constructs which represent the structural hypotheses illustrated by a conceptual model (Hair et al., 2010; Weston & Gore, 2006). The structural hypotheses were proposed in Section 4.2 and illustrated in Figure 2. As previously discussed, the dependence relationships specified in the structural model were posited by theory (Anderson & Gerbing, 1988).

Structural model analysis allows the examination of multiple hypotheses in order to validate overall model fit with data collected from the field (Newman et al., 2010). Analysis of the structural model involved assessing overall structure fit and testing the structural relationships which represent the research hypotheses (Hair et al., 2010). The structural model was examined

in the same manner as the measurement model, with an additional focus on diagnostic information concerning the relationships between the latent constructs (Hair et al., 2010).

Structural model fit was examined using the same criteria as the measurement model, based both on the same model fit indices discussed in Section 5.3.3.3 and on criteria presented in Table 17. To further assess model fit, fit indices for the structural model were also assessed for closeness with the same fit indices for the measurement model. As the measurement model provides an upper limit for fit indices of the structural model, the closer the fit indices for the structural model are to those of the measurement model, the better the structural model fit (Hair et al., 2010). The treatment in the event of inadequate model fit concerning the use of modification indices for model respecification was also similar to the measurement model. This is because model respecification should not be the result of searching for relationships between constructs, and at the expense of generalisability to other samples within a population (Hair et al., 2010; MacCallum et al., 1992).

In addition to model fit for a structural model to be considered valid, parameter estimates which measure the path relationships between constructs should be statistically significant and in the hypothesised direction (Grace et al. 2012; Hair et al., 2010; Newman et al., 2010). Path coefficients were analysed both for statistical significance based on type I error of at most 0.05, as well as for magnitude and direction of relationship between latent constructs (Duque & Weeks, 2010; Hair et al., 2010; Kao et al., 2008). Critical t-values greater than 1.96 ($\geq$1.96) were also used to signify path relationships that were statistically significant (Ardi et al., 2012; Garbarino & Johnson, 1999; Grace et al., 2012; Kao et al., 2008; Ning & Downing, 2011). As the analysis was performed using IBM AMOS software, regressions weights and covariance were the path estimates used to measure the strength of dependence relationships and covariance relationships between constructs respectively (Blunch, 2013).

5.3.3.5 Analysis for Differences in Perceptions among Stakeholder Groups

The analysis for differences in perception among stakeholder groups of higher education requires the use of appropriate multivariate group comparison techniques (Huberty & Morris, 1989; Cole et al., 1993; Sherry, 2006). A multi-method approach was used in this research to provide for triangulation of analysis (Duque & Weeks 2010). Triangulation refers to the use of multiple approaches to find whether similar conclusions are derived (Kent, 2015; Oppermann, 2000). By means of triangulation, the use of a multi-method approach for analysis of the same phenomenon provides a desirable validation of results through the convergence or agreement of results derived from multiple methods of analysis (Duque & Week, 2010; Johnson et al., 2007; Kent, 2015). Hence, triangulation enables problems of bias with a particular method of data analysis to be overcome by combining methods and capitalising on the strength of multiple methods to reduce bias and improve validity of analysis (Oppermann, 2000). There are variations in the composition of a multi-method approach to analyse for differences. In a study by Duque and Weeks (2010), a multi-method approach comprising the use of quadrant analysis, analysis of variance (ANOVA) and SEM was used to analyse for differences in perceptions between faculty members and students. Governed by the general linear model (GLM) approach, this research used three different, albeit statistically similar, multivariate group comparison approaches, namely, MANOVA, discriminant analysis and SEM. Amidst differences in the nature of conducting analysis using MANOVA, discriminant analysis and SEM, the three methods are common in their intent to examine dependence relationships, as well as to determine if differences exist and to explain differences in responses across different stakeholder groups regarded as treatments within the domain of multivariate analysis (Hair et al., 2010; Huberty & Morris, 1989).

As the primary reason for conducting a MANOVA is to determine treatment variable effects, MANOVA was used in this research to test for differences in responses among the identified

stakeholders of higher education, in accordance with one of the purposes of the research effort, as discussed in Section 1.4 (Huberty & Morris, 1989). MANOVA is a multivariate method which has the capability to simultaneously test for differences among multiple dependent variables across groups, and is able to detect combined differences not found in univariate tests such as ANOVA (Hair et al., 2010; Haase & Ellis, 1987). Literature (Hair et al., 2010; Haase & Ellis, 1987; Huberty & Morris, 1989; Sherry, 2006) provides comparisons of the use of MANOVA and ANOVA in a group comparison context, and suggests that MANOVA is most suitable when multiple outcome variables are involved since it allows the consideration of intercorrelations among dependent variables and reduces type I and type II error rates which would be inflated if multiple ANOVAs were conducted. In this research, the outcome or dependent variables were the measured variables forming the latent constructs of the proposed model, while the independent variables, groups or treatment were the identified stakeholders of higher education.

Four common multivariate statistical measures—Roy's greatest root criterion (Θ), Wilks' lambda (Λ), Pillai's criterion (V) and Hotelling's T^2—were used to test for significant differences among the identified stakeholder groups of higher education (Hair et al., 2010; Haase & Ellis, 1987). The use of these four statistical measures to identify significant differences among the groups is justifiable due to their ability to provide similar conclusions across a majority of situations, and their relative robustness to violations of multivariate normality assumptions (Haase & Ellis, 1987; Field, 2013). However, when results differ between measures, specific measures may be selected for use based on the reality of the situation analysed (Hair et al., 2010). As a common statistical practice, the significance of the MANOVA effect was assessed using the "*F*-test approximation to any of the multivariate test statistics per se" (Haase & Ellis, 1987, p. 408).

When the MANOVA test showed significant differences in perceptions between each stakeholder, both discriminant analysis and SEM were used to further delineate the differences that best discriminate the groups by discovering which variables contributed to group differences (Cole et al., 1993; Field, 2013; Hair et al., 2010; Huberty & Olejnik, 2006; Sherry, 2006). Discriminant analysis distinguishes groups by determining significant differences in variates that are derived through the analysis (Hair et al., 2010; Laroche et al., 2001). It is usually used as an analytical method along with MANOVA when a research question, as is the case in this research, aims to compare different groups of analysis units, each of which has many outcome variable scores (Huberty & Olejnik, 2006). In order to identify group differences through discriminant analysis, the structure coefficients, standardised function coefficients and group centroids were evaluated (Sherry, 2006). In this sense, discriminant analysis was an appropriate methodological tool used for analysis of group differences, since the stakeholder groups are dependent variables which are categorical in nature (Ndubisi & Chan, 2005). SEM was also used to delineate group differences by showing the differences in the structural model across the stakeholder groups (Grace et al., 2012). The use of SEM to reflect group differences is particularly suited to situations where the phenomenon under investigation is reflected in latent variable systems, and where there is a need to investigate a within-group dependent variable structure, which was the case for this research (Cole et al., 1993). To identify group differences, path estimates of the structural models for each stakeholder group of higher education were analysed in a similar manner, as discussed in Section 5.3.3.4, to identify differences in relationships between constructs.

5.4 Chapter Summary

This chapter presented a discussion of the quantitative methodological approach adopted for this study. The methodological approach was justified by the positivist world view that was adopted, and it was influenced by the stated objectives of this research. The research design was composed of questionnaire development and online self-administered surveys of students, industry and staff members of HEIs. Methods used for sampling, management of non-responses, and data analysis were also discussed and justified. The following chapter presents findings in relation to the steps of the analytical process illustrated previously in Figure 5.

Chapter 6: Research Findings

6.1 Introduction

The previous chapter presented explanations and justifications of the methodology employed for this research. Discussions on the quantitative research design were in the sequence comprising questionnaire development, data collection through conduct of an online self-administered survey, data analysis and interpretation. This chapter presents the findings in terms of data analysis and interpretation in relation to the analytical process illustrated previously in Figure 5 of Section 5.3.3.

The aims of this chapter are to:

x   describe the sample demographics and responses from the survey with statistics, and to address data accuracy through the assessment of normality, outliers and non-response bias (Section 6.2);

x   assess the reliability and validity of the latent constructs forming the proposed conceptual model (Section 6.3);

x   examine the validity of measurement theory through the use of CFA to assess the measurement model of SEM (Section 6.4);

x   examine the validity of structural theory, upon validation of measurement theory, to assess the structural model of SEM (Section 6.5);

x   validate the hypothesised relationships between latent constructs of the proposed conceptual model (Section 6.6);

x examine the differences in perceptions among stakeholders of higher education comprising students, staff working in HEIs, and industry through the use of a multi-method approach (Section 6.7).

6.2 Sample Demographics, Descriptive Statistics and Data Accuracy

As discussed in Section 5.3.3.1, it is necessary to prepare and purify data collected through an online self-administered survey. The sections that follow provide detailed assessments of sample demographics and descriptive statistics of survey responses to establish data clarity and accuracy prior to further analysis that will address the objectives of this research. Section 6.2.1 reports on and examines the profile of respondents to the survey. Descriptive statistics of responses to each questionnaire item are assessed in Section 6.2.2. Statistical normality of data and occurrence of data outliers are examined in Section 6.2.3. In Section 6.2.4, non-response bias is assessed to address the handling of non-responses, discussed in Sections 5.3.2.2 and 5.3.3.1.

6.2.1 Respondent Profile of Survey Responses

In support of discussions related to the sampling strategy in Section 5.3.2.1, this section reports on demographic information of respondents to the survey conducted for this research. Respondents' demographic information is presented in order to provide a generalised view in terms of participation of respondents in the survey and to improve the quality of reporting (Kelley et al., 2003; Saleh, 2006). Reporting of demographic information in this research is essential since one of its objectives was to identify differences in perceptions among stakeholders of higher education, namely, students, staff members working in HEIs and industry. However, in view of the need to adhere to ethical considerations in order to maintain

the privacy and confidentiality of individual respondents—as was discussed in Section 4.3.2.3—respondents' profiles are reported at an aggregate level. The types of demographic information requested from respondents are provided in the questionnaires in Appendix 2.

The demographic profile of respondents is summarised in Table 19, along with frequency distributions of demographic variables in line with good practice (Forza, 2002). As previously mentioned in Section 5.3.2.2, 484 responses—comprising 166 students, 185 staff members working in HEIs and 133 industry practitioners—were received through the administration of the online questionnaire based on the methods discussed in Section 5.3.2. Following the data preparation and purification process discussed in Section 5.3.3.1, a total of 348 responses remained and was found to be complete, which allowed for further analysis. These remaining complete responses provided an adequate sample size for multivariate data analysis, while the incomplete responses were deleted from the analysis since this was most appropriate for SEM (Hair et al., 2010). Among the total number of complete responses were 141 students, 115 staff members working in HEIs, and 92 industry practitioners.

Table 19: Demographics of Survey Respondents

Demographic Features	Frequency	Per cent
Stakeholder Group		
Students	141	40.52%
Teaching staff in HEIs	89	25.57%
Non-teaching staff in HEIs	26	7.47%
Industry practitioners	92	26.44%
Total	348	100.00%
Gender		
Male:		
Students	75	36.06%
Teaching staff in HEIs	58	27.88%
Non-teaching staff in HEIs	10	4.81%
Industry practitioners	65	31.25%

Demographic Features	Frequency	Per cent
Total	208	100.00%
Female:		
Students	66	47.14%
Teaching staff in HEIs	31	22.14%
Non-teaching staff in HEIs	16	11.43%
Industry practitioners	27	19.29%
Total	140	100.00%
Student Demographics		
Institution type:		
Polytechnic students	130	92.20%
University students	11	7.80%
Total	141	100.00%
Level of study:		
Freshmen (1st year of study)	81	57.50%
Junior (2nd or 3rd year of study)	34	24.10%
Senior (final year of study)	26	18.40%
Total	141	100.00%
Student enrolment type:		
Domestic	124	87.90%
International	17	12.10%
Total	141	100.00%
Institution Type of Staff Members of HEIs		
University	43	37.40%
Polytechnic	66	57.40%
Private education provider	6	5.20%
Total	115	100.00%

The demographic information presented in Table 19 provides a generalised view of respondent participation. Gender and stakeholder type are two common demographic characteristics that were derived from the surveys. There was a relative balance in terms of respondents' genders: 60% of respondents were male, while 40% were female. There was also relative balance in terms of participation by stakeholder type: approximately 41% were

students, 33% were staff members of HEIs, and 26% were from industry. The number of responses from each of the three stakeholder groups was also sufficient to be used for multivariate data analysis (Hair et al., 2010). In addition, each gender type was represented by all three stakeholder groups. The participation of both students from various institution types, levels of study and enrolment status, and staff members from various institution types also contributed to the generalised view of respondents.

Age was also a determinant of the generalised view that the demographic information intended to portray. Table 20 presents the frequency of age categories for the three stakeholder groups.

Table 20: Age Categories of Survey Respondents

Age Categories	Frequency	Per cent
Overall:		
Under 21	133	38.2%
21 to 30	55	15.8%
31 to 40	71	20.4%
41 to 50	51	14.7%
51 to 60	32	9.2%
Above 60	6	1.7%
Total	348	100.0%
Students:		
Under 21	133	94.0%
21 to 30	7	5.0%
31 to 40	1	1.0%
Total	141	100.0%
Staff members of HEIs:		
21 to 30	7	6.1%
31 to 40	45	39.1%
41 to 50	32	27.8%
51 to 60	27	23.5%
Above 60	4	3.5%

Age Categories	Frequency	Per cent
Total	115	100.0%
<u>Industry:</u>		
21 to 30	41	45.0%
31 to 40	25	27.0%
41 to 50	19	21.0%
51 to 60	5	5.0%
Above 60	2	2.0%
Total	92	100.0%

In general, the overall age of respondents ranged from under 21 years to above 60 years. The majority (60.6%) were mature respondents aged 21 and above, with an average age of 39. Of the students who responded, 94% were under 21 years. Of the staff members of HEIs, 90.4% were aged between 31 and 60. Of the respondents from industry, 93% were below the age of 51.

6.2.2 Descriptive Statistics of Item Responses

Following the deletion of incomplete response cases, as justified in Section 5.3.3.1, the data that remained was considered good data for preliminary analysis in order to determine its characteristics and properties for further analysis. The characteristics and properties of response data were determined through the use of descriptive statistics for checking central tendencies, dispersions and shape (Forza, 2002; Hopkins & Weeks, 1990). Central tendencies were measured using mean, median and mode. Standard deviation was used as the measure of dispersion, while both skewness and kurtosis were used as measures of shape. It is important to report the values for these statistical indices due to the descriptive value regarding the nature of their distribution (Hopkins & Weeks, 1990). Appendix 3 provides a summary of the descriptive

statistics of the responses for each questionnaire item. The average value of each descriptive

statistic for each latent variable is presented in Table 21.

Table 21: Average Value of Descriptive Statistics for Latent Variables

Latent Variable	Mean	Median	Mode	Minimum	Maximum	Standard Deviation	Skewness	Kurtosis
Reliability	5.29	5.67	5.67	1.00	7.00	1.25	–0.70	0.45
Assurance	5.38	5.80	6.00	1.00	7.00	1.23	–0.81	0.95
Tangibles	5.40	5.80	6.00	1.00	7.00	1.22	–0.93	1.03
Empathy	5.22	5.50	5.83	1.00	7.00	1.28	–0.73	0.53
Responsiveness	5.21	5.20	5.60	1.00	7.00	1.29	–0.70	0.60
Quality of experience	5.14	5.00	6.00	1.00	7.00	1.23	–0.76	0.75
Student satisfaction	5.23	5.67	6.00	1.00	7.00	1.16	–0.70	0.58
Cognitive outcomes	5.31	5.10	5.80	1.00	7.00	1.17	–0.81	0.95
Affective outcomes	5.13	5.08	6.00	1.00	7.00	1.15	–0.83	0.88

From an analysis of Table 21, and recalling that each item measure was measured on a seven-

point response scale—as discussed in Section 5.3.1.1—the average characteristics for each

latent variable were derived. In relation to measures of central tendency, the average mean,

median and mode for all latent variables had values of five or greater, which was above the

neutral response of four. This implies that a respondent did take a position on average. The

average median was greater than the average mean for all latent variables, except for

responsiveness, quality of experience, cognitive outcomes and affective outcomes. The

average mode was greater than the average mean for all latent constructs. Variability of

responses for all latent variables was similar since the minimum and maximum response

values were identical and values of standard deviation were close to one another. Skewness

coefficients for all latent variables, which measure the degree of symmetry of distribution of

data, carried negative values, which imply negatively skewed distributions (Forza, 2003). The

kurtosis coefficients for all latent variables, which measure the peakedness of data distribution, carried values of less than one except for the tangibles construct (kurtosis = 1.03). The low kurtosis values imply a flatter peak in the distribution of data (Hopkins & Weeks, 1990).

6.2.3 Assessment of Normality and Outliers

Descriptive statistics presented in Table 21 were used to assess for data response normality and outliers. As mentioned in Section 5.3.3.1, normality refers to the distribution of data which reflects a normal distribution. A normal distribution forms a smooth curve which is symmetric and has a single hump and peakedness (Kent, 2015). Both skewness and kurtosis are common descriptive statistical indices used for assessment of normality of data distribution (Hair et al., 2010; Hopkins & Weeks, 1990; Saleh, 2006; Sultan, 2011). A symmetric characteristic is evident when values of mean, median and mode are identical (Kent, 2015). Ideally, a normal distribution requires data to exhibit symmetric distribution, that is, skewness = 0, and adequate peakedness, that is, kurtosis = 3 (Mitra, 1998). The existence of outliers results in deviations from normality (Hopkins & Weeks, 1990). However, as no distribution in reality can be an exact reflection of a normal distribution due to the finiteness of the actual highest and lowest data values, "a measure of skewness which is less than one (or minus one) is generally taken as an indicator that the distribution is approximately normal in shape" (Kent, 2015, p. 93).

Based on an analysis of the values in Table 21 and Appendix 3, although values of mean, median and mode are not the same for each variable, it is possible to conclude that the distribution for each variable is approximately normal since the skewness coefficients are near zero and less than one, and the sample sizes are large (Hair et al., 2010; Kent, 2015). This conclusion is valid despite the occurrence of a few outliers present in response data for each

variable, as presented in the boxplot for each variable in Figure 6. A boxplot is a graphical method used for representation of the distribution of data (Hair et al., 2010). Due to the approximate normality of data gathered in this research, the normality assumption for use of multivariate analysis in this research is validated as previously justified in Section 5.3.3.1.

Figure 6: Boxplot for Response Data of Questionnaire Item Variables
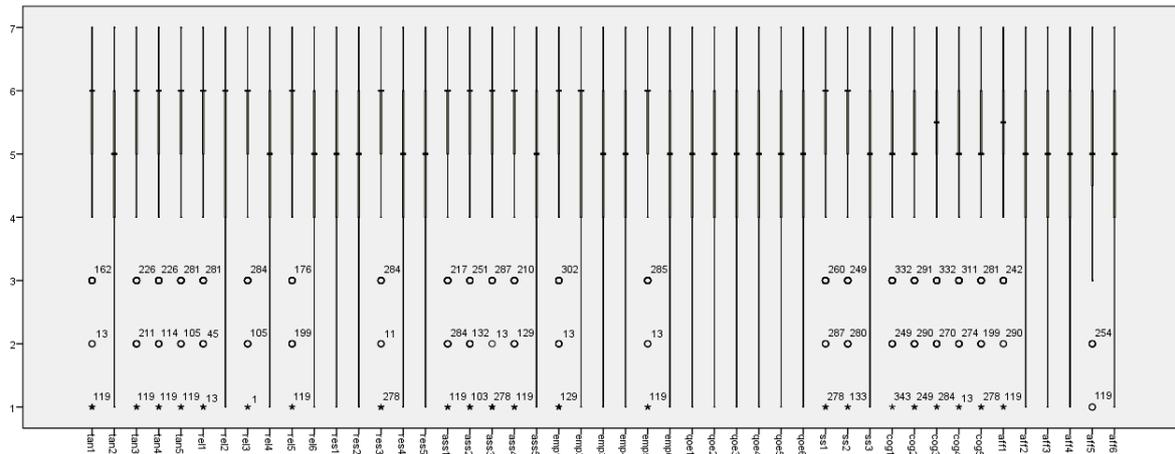
6.2.4 Assessment of Non-Response Bias

While analysis of non-responses is seldom reported in research studies, the analysis provides important information about how representative a sample is of the population (Werner et al., 2007). When non-responses are analysed systematically, the existence of non-response bias may be determined (Rogelberg & Luong, 1998). As previously mentioned in Section 5.3.2.2, non-response bias affects the generalisability of research findings to the population. Four common methods for analysing non-response bias exist, which include the archival approach, wave approach, follow-up approach and intentions approach (Werner et al., 2007; Rogelberg et al., 2003). However, these methods contain limitations primarily due to the impracticality of gathering substantive information from non-respondents who are in reality not readily identifiable and quite elusive (Rogelberg et al., 2003). The wave approach compares individuals who respond to a survey prior to a survey deadline with individuals who respond

after the deadline. While the wave approach appears to be most commonly used (Saleh, 2006; Sultan, 2011), the reality that late responders did eventually respond precludes them from being considered as non-responders (Rogelberg et al., 2003).

On the basis of preceding discussions concerning the limitations of existing methods in determining non-response bias, it is possible to conclude that non-response bias in this study is minimal for several reasons. Firstly, discussions in Section 5.3.2.2 have highlighted the steps taken in this research to manage non-response bias by minimising non-response rates through questionnaire design and communication to potential respondents. Secondly, the use of a convenience sampling approach, as discussed in Section 5.3.2.1, would render the gathering of responses after the survey deadline inappropriate. Thirdly, the number of responses gathered after the survey deadline was sufficient for multivariate analysis as justified in Section 5.3.2.1. Finally, the demographic profile of respondents as illustrated and discussed in Section 6.2.1 provided evidence of a generalised view in terms of participation in the study.

6.3 Construct Reliability and Validity

The quality of a survey instrument is assessed in terms of reliability and validity of item measurements for the associated latent constructs (Forza, 2002). As previously discussed in Section 5.3.3.2, the reliability of item measures for the latent constructs of the proposed conceptual model in Figure 2 were assessed using the Cronbach's alpha, while construct validity was assessed in terms of internal reliability of item measures, face validity and convergent validity. Convergent validity was assessed using standardised loading estimates and AVE derived from the measurement model through CFA (Forza, 2002). The standardised loading estimates denote the extent of loading of item measures on the latent construct; AVE, which is calculated as the average of the total of all squared standardised factor loadings of a

latent construct, denotes the average percentage of variation, hence convergence, explained among items of the construct (Hair et al., 2010; Kao et al., 2008). The values of Cronbach's alpha, standardised factor loadings and AVE for the item measures are presented in Table 22.

Table 22: Measurement Properties for Construct Reliability and Validity

Factor	Item (and code)	Standardised Factor Loading	Cronbach's Alpha	AVE
Tangibles	Learning resources provided for student learning are up-to-date (tan1)	0.779	0.892	0.624
	Learning resources are visually appealing (tan2)	0.730		
	The appearance of the physical facilities is in keeping with the type of services provided to students (tan3)	0.797		
	Learning spaces are conducive for student learning (tan4)	0.826		
	The learning environment conveys a sense of competence, confidence and professionalism (tan5)	0.814		
Reliability	Student services are readily available and delivered on time (rel1)	0.794	0.906	0.624
	Staff members are dependable for assistance (rel2)	0.755		
	Staff members render assistance to students to solve their problems (rel3)	0.815		
	Teaching staff are consistent in the way they teach (rel4)	0.707		
	Up-to-date communications are provided to students promptly (rel5)	0.835		
	Services to students are provided right first time (rel6)	0.825		
Responsiveness	Prompt feedback on student performance is provided (res1)	0.737	0.903	0.656

Factor	Item (and code)	Standardised Factor Loading	Cronbach's Alpha	AVE
	Staff members provide prompt response to students' requests (res2)	0.859		
	Staff members are always willing to assist students (res3)	0.879		
	Staff members are never too busy to respond to students' requests promptly (res4)	0.754		
	Teaching staff are always available to respond to students' requests (res5)	0.812		
Assurance	Teaching staff are skilful and competent in what they teach (ass1)	0.817	0.916	0.689
	Staff members are honest in their interaction with students (ass2)	0.869		
	A student feels safe in their interaction with staff members (ass3)	0.841		
	The institution inspires confidence in the student (ass4)	0.778		
	Staff are sympathetic and reassuring with students who face problems (ass5)	0.842		
Empathy	Staff members show respect for the feelings, concerns and opinions of students (emp1)	0.857	0.914	0.651
	Staff members have the students' best interest at heart (emp2)	0.876		
	Staff members know what the needs of students are (emp3)	0.820		
	Operating hours of student resources are convenient for students (emp4)	0.663		
	Staff members are friendly and caring (emp5)	0.886		
	Students are provided individualised attention in their	0.714		

Factor	Item (and code)	Standardised Factor Loading	Cronbach's Alpha	AVE
	learning process (emp6)			
Quality of student experience	Students feel that that their best interest are being served by the higher education institution (qoe1)	0.829	0.928	0.684
	Students feel that rewards gained are consistent with the effort they put into the assessment (qoe2)	0.777		
	Students feel enjoyment with the education experience (qoe3)	0.863		
	Students feel involved with the higher education institution they are attending (qoe4)	0.863		
	Students feel a sense of uniqueness of being associated with the higher education institution they are attending (qoe5)	0.835		
	Students have a feeling of anticipation and being intellectually challenged (qoe6)	0.790		
Student satisfaction	Students feelings about the higher education institution in meeting their expectations of a higher education (ss1)	0.886	0.861	0.695
	Students feelings about their higher education experience (ss2)	0.891		
	Rating of the higher education institution compared with other higher education institutions on the overall satisfaction (ss3)	0.712		
Cognitive outcomes	Students develop effective problem-solving skills as a result of their experience in the higher education institution (cog1)	0.885	0.920	0.700
	Students develop effective communication skills as a result of their experience in the higher	0.829		

Factor	Item (and code)	Standardised Factor Loading	Cronbach's Alpha	AVE
	education institution (cog2)			
	Students develop skills relevant for industry as a result of their experience in the higher education institution (cog3)	0.818		
	Students develop good general knowledge as a result of their higher education experience in the institution (cog4)	0.802		
	Students are able to manage, use and analyse information as a result of their higher education experience in the institution (cog5)	0.844		
Affective outcomes	Integrity of students (aff1)	0.799	0.919	0.658
	Resilience of students (aff2)	0.808		
	Social conscience of students (aff3)	0.840		
	Self-direction of students (aff4)	0.817		
	Self-confidence of students (aff5)	0.847		
	World view of students (aff6)	0.752		

Based on the criteria for Cronbach's alpha, standardised loading estimate and AVE discussed in Section 5.3.3.2, the estimates of the quality of measurement properties as presented in Table 22 suggest construct reliability and validity. The value of Cronbach's alpha for all constructs exceeded the suggested minimum requirement of 0.70, which suggests good internal reliability of item measures for the associated latent constructs. Seven of the nine latent constructs— namely, reliability, responsiveness, assurance, empathy, quality of student experience, cognitive outcomes and affective outcomes—had high Cronbach's alpha values of greater than 0.90. Convergent validity was evident since the values of all standardised factor loadings and values of AVE for all latent constructs were greater than 0.5. The standardised loading

estimates were also high and significant since the p-values for the corresponding loading estimates were less than 0.001, that is, $p < 0.001$ (Kao et al., 2008). The evidence of both internal consistency among item measures and convergent validity contributes to the existence of construct validity in this research (Hair et al., 2010). Since the values of Cronbach's alpha, standardised factor loading and AVE all exceeded the minimum requirements, it is possible to conclude that the measurement items for each of the associated latent constructs were consistent and valid measures for the construct.

6.4 Assessment of Measurement Theory

In order to confirm that the measured variables truly represented the latent constructs of the proposed conceptual model in Figure 2, a measurement model was developed and analysed using CFA using IBM AMOS software, as previously mentioned in Chapter 4. The reporting of CFA results in this section was adapted from recommendations for reporting proposed by Schreiber et al. (2006). The measurement model is presented in Appendix 4. As discussed in Section 5.3.3.3, the measurement model was evaluated for fit with data collected using goodness-of-fit indices. With reference to discussions in Section 6.3, the standardised loading estimates for each item variable were also analysed to assess the representation of each item variable of the associated construct. As all item measures had standardised loading estimates greater than 0.5, it was possible to conclude, as an extension of discussions on validity in Section 5.3, that each item measure was significant and considered a good representation of the construct it was meant to measure (Ardi et al., 2012).

Measurement model fit was assessed using both absolute and IFIs. As explained in Section 5.3.3.3, RMSEA, CMIN/DF, CFI, TLI and IFI (Hair et al., 2010; Kenny & McCoach, 2003; Saleh, 2006; Schreiber et al., 2006; Sultan 2011) were the fit indices used for assessing

measurement model fit with the field data collected through conduct of the online survey, previously described in Section 5.3.2. Values of RMSEA, CMIN/DF, CFI, TLI and IFI derived from CFA of the measurement model are presented in Table 23.

Table 23: Results of Measurement Model Fit

Type	Fit Index	Acceptable Conditions (Hair et al., 2010)	Measurement Model Result	Interpretation
Absolute fit indices	RMSEA	Values less than 0.08	0.065	Adequate fit
	CMIN/DF	Values less than 3.0	2.487	Adequate fit
Incremental fit indices	CFI	Values close to 1.0	0.900	Adequate fit
	TLI	Values close to 1.0	0.892	Adequate fit
	IFI	Values close to 1.0	0.901	Adequate fit

The values of all fit indices shown in Table 23 are within acceptable conditions (Hair et al., 2010). Both the absolute fit indices of RMSEA and CMIN/DF have values less than the recommended cut-off values of 0.08 and 3.0 respectively. Values for both RMSEA and CMIN/DF are also significant since the p-values for these two measures are less than 0.001, that is, 0.1% level of significance, which implies that the probability that both RMSEA and CMIN/DF will be as high as the results in Table 23 is negligible. While all IFIs exceed the recommended minimum of 0.90 with the exception of TLI, these fit measures are acceptable as they are close to 1.0 (Hair et al., 2010; Hooper et al., 2008; Hu & Bentler, 1999; Hulland et al., 1996; Schreiber et al., 2006). Since "no single magic value for fit indices separates good from poor models" (Hair et al., 2010, p. 678) and "conventional CFA goodness-of-fit criteria are too restrictive when applied to most multifactor rating instruments" (Marsh et al., 2004, p. 325), the overall measurement model has acceptable fit as justified by values of fit indices in Table 22.

This judgement is justified for the following reasons. Firstly, it is unrealistic for complex models—as is the case for this research, with nine latent variables and 47 measured variables—to adhere strictly to guidelines for model fit cut-off values, especially adherence to cut-off

values of 0.95 for IFIs (Hair et al., 2010). Secondly, since the sample size for this research was less than 500, that is, N=348, adhering strictly to stringent cut-off criteria for fit indices could result in incorrect rejection of an acceptable model (Weston & Gore, 2006). Furthermore, as explained in Section 5.3.3.3, the acceptable fit of the measurement model also justifies the non-reliance of modification indices to improve measurement model fit since the use of modification indices to improve model fit is "inherently susceptible to capitalisation on chance characteristics of the data, thus raising the question of whether model modifications generalise to other samples or to the population" (MacCallum et al., 1992, p. 490).

6.5 Assessment of Model Fit with Structural Equation Modelling

Following the validation of the measurement model in the previous section, and noting the justifications for construct reliability and validity in Section 6.3, this section presents the findings in relation to the development and validation of the structural model to enable testing of structural relationships between the latent constructs of the proposed conceptual model in Figure 2. The structural model which was developed is presented in Appendix 5.

In accordance with discussions in Section 5.3.3.4, the analysis of the structural model was performed using model fit indices similar to those used for evaluation of measurement model fit, which was discussed earlier in Section 6.4. Fit indices of RMSEA CMIN/DF, CFI, TLI and IFI were interpreted for assessing overall fit of the structural model with the data collected against similar guidelines of cut-off values used for the measurement model. Values of RMSEA, CMIN/DF, CFI, TLI and IFI derived from structural model analysis of SEM are presented in Table 24. In order to facilitate comparison of the fit indices between the structural and measurement models, values of the fit indices derived from analysis of the measurement model are presented in the same table.

Table 24: Results of Structural Model Fit and Comparisons with the Measurement Model

Type	Fit Index	Acceptable Conditions (Hair et al., 2010)	Structural Model Result	Measurement Model Result	Interpretation
Absolute fit indices	RMSEA	Values less than 0.08	0.066	0.065	Adequate fit
	CMIN/DF	Values less than 3.0	2.506	2.487	Adequate fit
Incremental fit indices	CFI	Values close to 1.0	0.898	0.900	Adequate fit
	TLI	Values close to 1.0	0.891	0.892	Adequate fit
	IFI	Values close to 1.0	0.898	0.901	Adequate fit

As presented in Table 24, the values of both absolute and IFIs of the structural model are within acceptable conditions (Hair et al., 2010) and present similar conditions to those of the measurement model. Both the absolute fit indices of RMSEA and CMIN/DF have values less than the recommended cut-off values of 0.08 and 3.0 respectively. Values for both RMSEA and CMIN/DF are also significant since the p-values for these two measures are less than 0.001, which implies that the probability that both RMSEA and CMIN/DF will be as high as the results in Table 24 is negligible. While all incremental fit indices are marginally less than the recommended minimum of 0.90, these fit measures are acceptable not only because they are close to 1.0 but also because the use of samples less than 500 against a model which is complex does not require strict adherence to stringent cut-off criteria for fit indices (Hair et al., 2010; Weston & Gore, 2006). Hence, based on interpretation of the fit indices for the structural model, the overall structural model has acceptable fit for reasons similarly explained in Section 6.4 for the measurement model. The reasons for non-reliance of modification indices for improvement of model fit indices for the structural model are also similar to those for the measurement model.

As elaborated in Section 6.5, it was necessary to compare the fit indices of the structural model with those of the measurement model in order to further establish the fit of the structural model with the observed data collected. The closer the fit indices of the structural model are to the measurement model, the better the structural model fit would be, since the measurement model fit provides an upper boundary to the fit of the structural model (Hair et al., 2010). As presented in Table 24, the structural model fit indices are not only within acceptable conditions but also close to those of the measurement model. As was the case for this research, it was also not unusual to have model fit indices for the structural model to portray lesser fit than those of the measurement model, since a model is at best an approximation of real-world phenomena and may not be simplified substantially without loss of overall fit (MacCallum et al., 1992). Hence, it was possible to conclude that there is sufficient overall fit of the structural model with the data collected.

6.6 Hypothesis Test Results

Following the validation of the structural model through interpretation of model fit indices in Section 6.5, this section presents the findings on the structural relationships between the latent constructs of the proposed conceptual model in Figure 2. The findings in relation to the hypothesised structural relationships, as explained in Chapter 4, address the first objective of this research, which was outlined in Section 1.4.

In order to establish that structural relationships in the conceptual model are consistent with the theoretical expectations, path estimates, which measure the predicted relationships between constructs in terms of the significance of the regression weights and the standardised regression weights, were interpreted. As previously explained in Section 5.3.3.4, the statistical significance of the path estimates were interpreted using both t-values and p-values to identify

statistical significance at 5%, 1% and 0.1% levels of significance (Kao et al., 2008). Statistical

significance of the path estimates, which signify significant path relationships between latent

constructs, were interpreted to exist when p-values were less than 0.05, 0.1 or 0.001 (Hair et al.,

2010). The magnitude and direction of the path estimates were also interpreted. These statistical

measures of the path relationships in relation to the associated hypotheses previously explained

in Chapter 4 are presented in Table 25.

Table 25: Results of Test of Model Relationships

Hypo-thesis	Standardised Path Estimate	Path Estimate (Unstandardised)	t-value	p-value	Signifi-cant?	Is the Hypothesis Falsified or Not Falsified?
H1	−0.056 (tan→ss)	−0.050 (tan→ss)	−0.474	0.636	No	Falsified
	−0.203 (res→ss)	−0.165 (res→ss)	−1.047	0.295	No	
	0.155 (rel→ss)	0.140 (rel→ss)	0.802	0.423	No	
	0.269 (ass→ss)	0.229 (ass→ss)	0.575	0.565	No	
	−0.038 (emp→ss)	−0.032 (emp→ss)	−0.094	0.925	No	
H2	0.326 (tan→qoe)	0.311 (tan→qoe)	3.075	0.002	Yes	Falsified
	−0.308 (res→qoe)	−0.270 (res→qoe)	−1.731	0.083	No	
	−0.091 (rel→qoe)	−0.089 (rel→qoe)	−0.508	0.611	No	
	0.126 (ass→qoe)	0.116 (ass→qoe)	0.285	0.776	No	
	0.825 (emp→qoe)	0.746 (emp→qoe)	2.207	0.027	Yes	
H3	0.693 (qoe→ss)	0.642 (qoe→ss)	7.095	<0.001	Yes	Not falsified
H4	0.342 (ss→cog)	0.375 (ss→cog)	4.546	<0.001	Yes	Falsified
	0.125 (ss→aff)	0.137 (ss→aff)	1.594	0.111	No	
H5	0.532 (qoe→cog)	0.541 (qoe→cog)	7.007	<0.001	Yes	Not falsified
	0.684 (qoe→aff)	0.691 (qoe→aff)	8.080	<0.001	Yes	
H6	0.837 (tan↔rel)	0.798 (tan↔rel)	9.860	<0.001	Yes	Not falsified
	0.713 (tan↔res)	0.750 (tan↔res)	8.970	<0.001	Yes	
	0.735 (tan↔ass)	0.738 (tan↔ass)	9.268	<0.001	Yes	
	0.663 (tan↔emp)	0.678 (tan↔emp)	8.887	<0.001	Yes	

Hypo-thesis	Standardised Path Estimate	Path Estimate (Unstandardised)	t-value	p-value	Signifi-cant?	Is the Hypothesis Falsified or Not Falsified?
	0.911 (rel↔res)	0.941 (rel↔res)	10.303	<0.001	Yes	
	0.890 (rel↔ass)	0.878 (rel↔ass)	10.394	<0.001	Yes	
	0.849 (rel↔emp)	0.853 (rel↔emp)	10.391	<0.001	Yes	
	0.926 (res↔ass)	1.008 (res↔ass)	10.445	<0.001	Yes	
	0.907(res↔emp)	1.006 (res↔emp)	10.590	<0.001	Yes	
	0.974 (ass↔emp)	1.031 (ass↔emp)	11.172	<0.001	Yes	

Notes: tan = tangibles; res = responsiveness; rel = reliability; ass = assurance; emp = empathy; ss = student satisfaction; qoe = quality of student experience; cog = cognitive outcomes; aff = affective outcomes

Based on an interpretation of the t-values and p-values of the 25 path relationships in Table 25, 16 are statistically significant and hence validated. The remaining nine path relationships were not statistically significant since their standardised loading estimates are less than 0.5, t-values are less than 1.96, or p-values are greater than 0.05. Furthermore, the path estimates for the relationship between tangibles and student satisfaction, responsiveness and student satisfaction, empathy and student satisfaction, responsiveness and quality of experience, and reliability and quality of experience are not in the predicted positive direction. Only the relationships between reliability and student satisfaction, assurance and student satisfaction, student satisfaction and affective outcomes, and assurance and quality of experience are in the predicted positive direction, even though these relationships are not significant. Hence, as presented in Table 25, H3, H5 and H6 are not falsified, while H1, H2 and H4 are falsified. H1 is falsified since all path relationships related to the hypothesis have p-values greater than 0.05 and therefore are statistically insignificant. Both H2 and H4 are also falsified and cannot be fully non-falsified since each has at least one insignificant path estimate. Three out of five path estimates related to H2 are insignificant, while one out of two path estimates related to H4 is insignificant. Figure 7 presents the overall structural model with the path estimates. Overall, given that not all

hypotheses are non-falsified, the conceptual model may not be completely validated against data collected through the survey process described in Chapter 5.

Figure 7: Overall Structural Model with Path Estimates
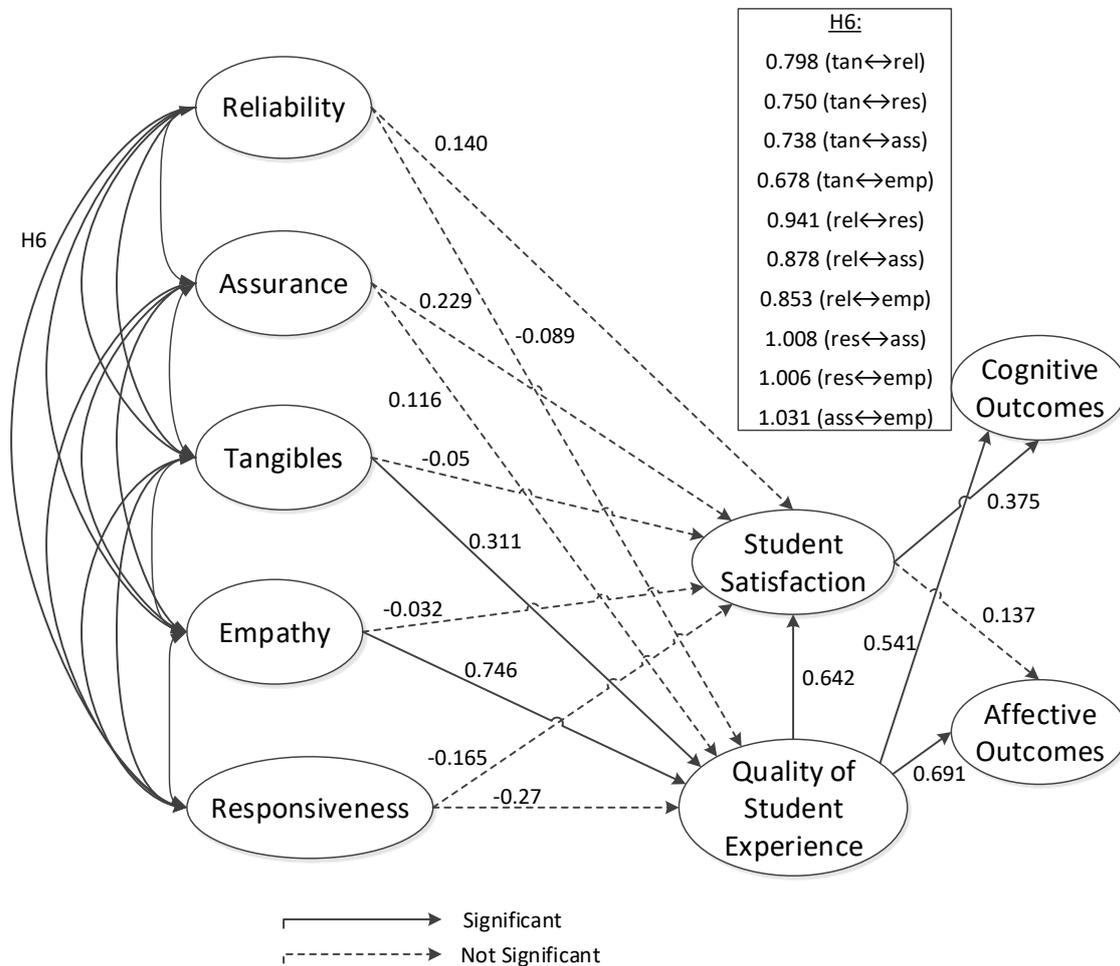
6.7 Results of Analysis for Differences in Perceptions among Stakeholder Groups

The findings presented in this section address the second objective of this research as outlined in Section 1.4. As explained in Section 5.3.3.5, a multi-method approach comprising MANOVA, discriminant analysis and SEM were used to analyse for differences in perceptions among students, staff members of HEIs, and industry. This multi-method approach was necessary to provide for triangulation in the identification and delineation of differences in

perceptions concerning the relationships between latent constructs of the conceptual model in Figure 2. MANOVA was used to enable a test for differences in responses in a single analysis, while discriminant analysis and SEM were used to identify variables that contribute to differences in perceptions among the three stakeholder groups of higher education.

As previously explained in Section 5.3.3.5, Roy's greatest root criterion (Θ), Wilks' lambda (Λ), Pillai's criterion (V) and Hotelling's T^2 were the four statistical measures used to test for significant differences among the students, staff members of HEIs, and industry. The results of the MANOVA test showed significant differences between the three groups of stakeholders. All four MANOVA test statistics showed significant differences among stakeholder groups, with p-values for each test being less than 0.05, which implies that differences in perceptions exist among stakeholder groups at 5% level of significance. The results of the MANOVA test are shown in Table 26.

Table 26: Results of MANOVA Test

	Value	**F-value**	**Hypothesis df**	**Error df**	**p-value**
Pillai's trace (V)	0.762	3.926	94.000	600.000	0.000
Wilks' lambda (Λ)	0.381	3.949	94.000	598.000	0.000
Hotelling's T^2	1.253	3.973	94.000	596.000	0.000
Roy's greatest root (Θ)	0.764	4.876	47.000	300.000	0.000

In order to identify the variables contributing to differences in perceptions among the three stakeholder groups, a discriminant analysis was conducted. A test of statistical significance of discriminant functions using the Wilks's lambda statistic, as shown in Table 27, shows that both discriminant functions were statistically significant, implying that there are differentiating variables between groups and that the functions may be further interpreted (Sherry, 2006). This analysis is consistent with the preceding MANOVA analysis, which also showed statistically

significant differences between groups. The statistical significance of the discriminant functions are justified by the negligible p-values at 5% level of significance.

Table 27: Test of Statistical Significance of Discriminant Functions

Test of Function(s)	Wilks' Lambda	Chi-square	df	p-value
1 through 2	0.381	311.008	94	0.000
2	0.671	128.251	46	0.000

As described in Section 5.3.3.5, in order to identify where differences in perceptions among the stakeholder groups lay, the structure coefficients, standardised function coefficients, and group centroids were evaluated. The structure coefficient matrix and standardised function coefficients are presented in Appendix 6 and Appendix 7 respectively. Based on an evaluation of both the structure coefficients and standardised function coefficients, it was apparent that variables related to the latent constructs that represent the RATER dimensions of the conceptual model as described in Chapter 3—that is, reliability, assurance, tangibles, empathy and responsiveness—contributed more to group differences due to the relatively high structure coefficients (> 0.2) for these variables. However, all other variables were also contributors to group differences, albeit not at a primary level. The group centroid analysis, as shown in the group centroid plot in Figure 8, further illustrates the distinct differences between the stakeholder groups. Group centroids are the average of discriminant function scores within each group (Sherry, 2006).

Figure 8: Group Centroid Plot
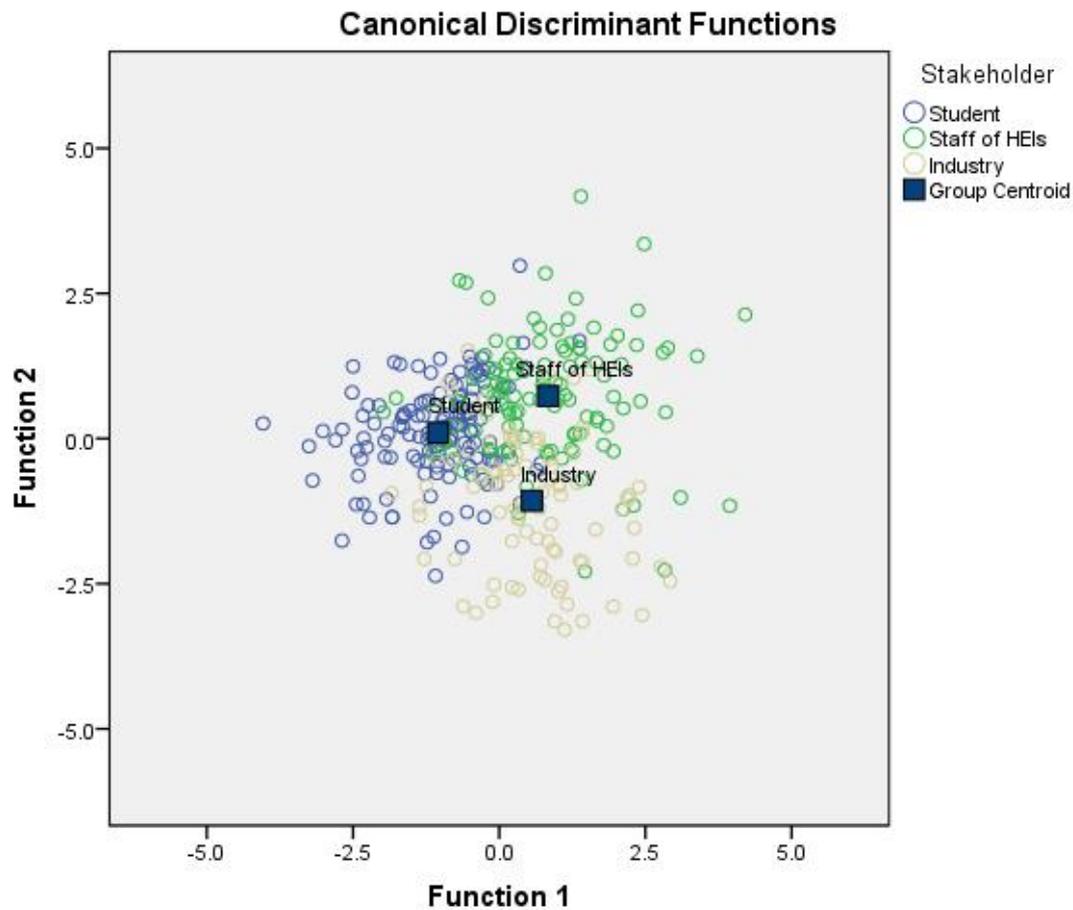
As significant differences exist among the stakeholder groups, structural models were developed for each stakeholder group to assess the differences in the structural model for these groups. The structural models which were developed for comparisons among the stakeholder groups are shown in Figure 9.

Figure 9: Structural Model for Students, Staff of HEIs, and Industry

SEM Model for Students

H6:
0.849 (tan↔rel)
0.760 (tan↔res)
0.748 (tan↔ass)
0.736 (tan↔emp)
0.869 (rel↔res)
0.809 (rel↔ass)
0.770 (rel↔emp)
0.912 (res↔ass)
0.867 (res↔emp)
0.887 (ass↔emp)

SEM Model for Staff of HEIs

H6:
0.784 (tan↔rel)
0.661 (tan↔res)
0.636 (tan↔ass)
0.502 (tan↔emp)
0.800 (rel↔res)
0.706 (rel↔ass)
0.636 (rel↔emp)
0.734 (res↔ass)
0.705 (res↔emp)
0.715 (ass↔emp)
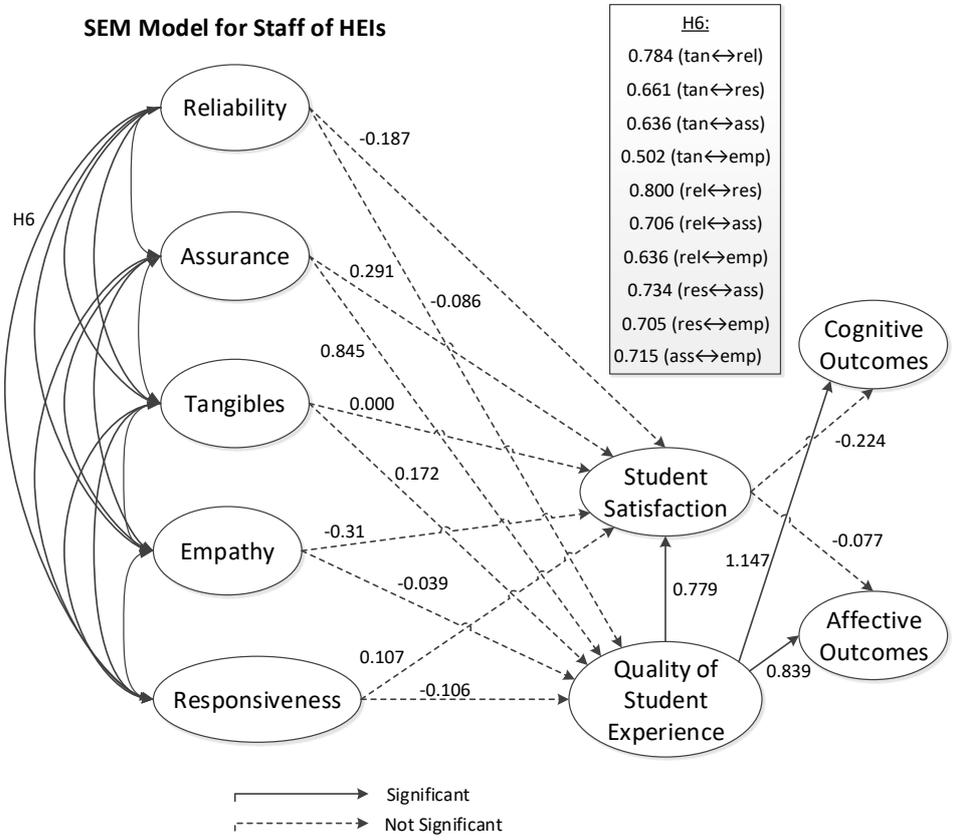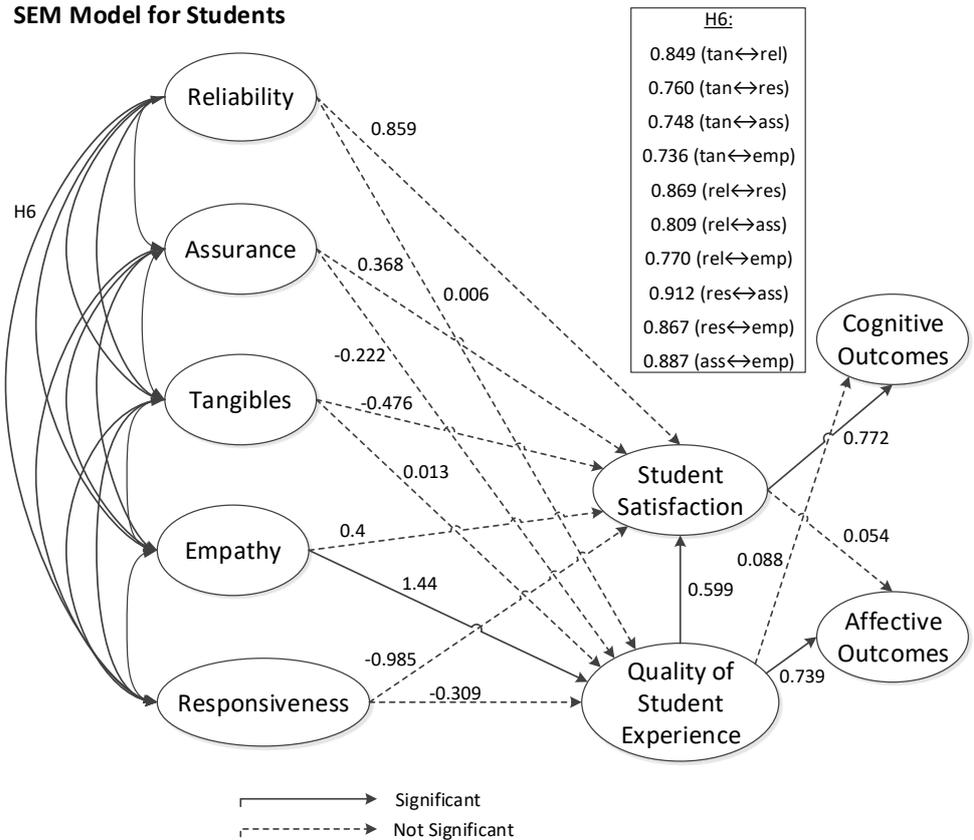
Figure 9: Structural Model for Students, Staff of HEIs and Industry (continued)
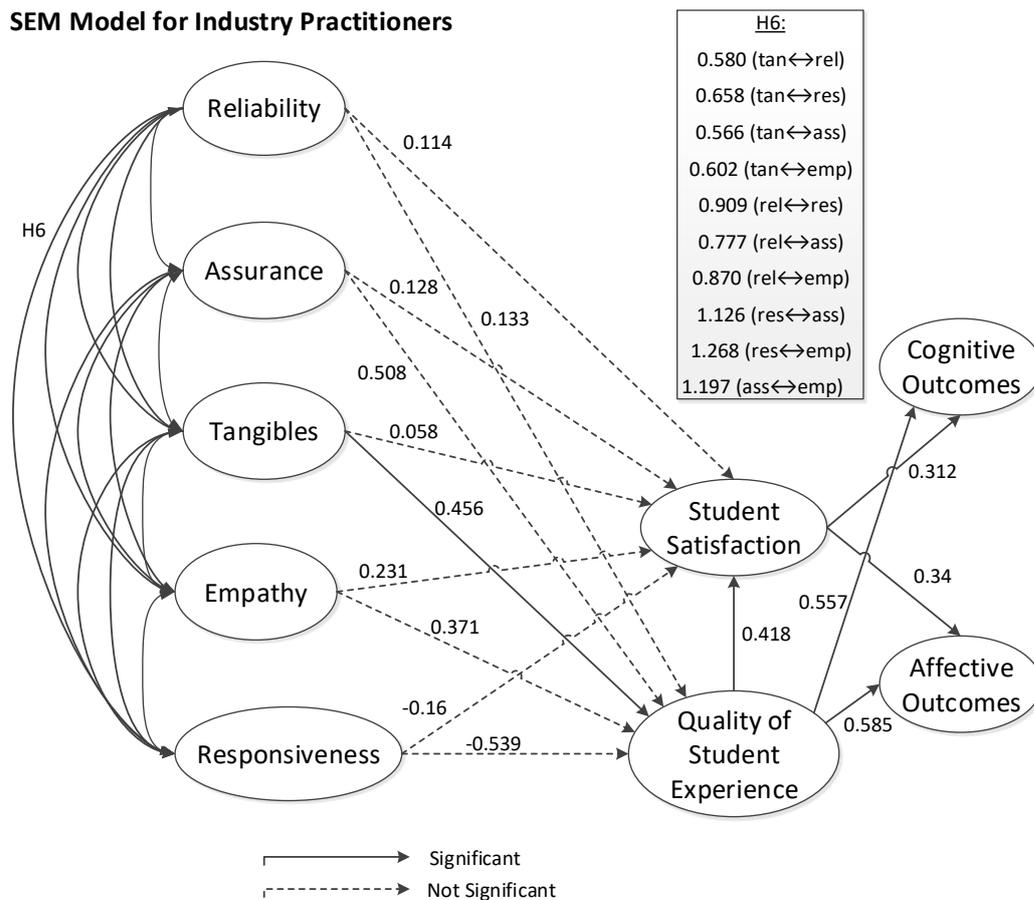
Similar to discussions in Section 6.6, statistical significance of the path estimates for the structural models of each stakeholder group were interpreted to be significant when p-values were less than 0.05, 0.1 or 0.001. The magnitude and direction of the path estimates were also interpreted. These statistical measures of the path relationships in relation to the associated hypotheses for each stakeholder group are detailed in Appendix 8. Clearly, there are differences in perceptions among the three stakeholder groups—that is, students, staff members of HEIs, and industry—when the research hypotheses of Section 4.2 are analysed from the perspective of each stakeholder. Table 28 summarises the results of the test of hypotheses from the perspective of each stakeholder group.

Table 28: Summary of Test of Hypotheses for Each Stakeholder Group

Hypothesis	Students	Staff of HEIs	Industry
H1	Falsified	Falsified	Falsified
H2	Falsified	Falsified	Falsified
H3	Not falsified	Not falsified	Not falsified
H4	Falsified	Falsified	Not falsified
H5	Falsified	Not falsified	Not falsified
H6	Not falsified	Not falsified	Not falsified

A comparison of the structural models for the three stakeholder groups yields both similarities and differences, and more differences than similarities. These similarities and differences are discussed in Table 29. The differences in the structural models of the three stakeholder groups clearly illustrate the divergent views of the three groups concerning the path relationships among quality of service dimensions, quality of student experience, student satisfaction and higher education learning outcomes.

Table 29: Similarities and Differences in Structural Model of Stakeholder Groups

Similarities	Differences
x Strong interrelationships between SERVQUAL dimensions exist. x The influences of SERVQUAL dimensions on student satisfaction are not significant. x The positive influence of quality of student experience on student satisfaction is significant. x The positive influence of quality of experience on affective higher education outcomes is generally significant. x The influence of assurance on student satisfaction is not significant. x The influences of assurance, reliability and responsiveness on quality of student experience are not significant. x The negative influence of responsiveness on	x Relationship between tangibles and quality of student experience: A strong positive relationship exists from the industry perspective, while a non-significant positive relationship exists from the perspectives of both students and staff members of HEIs. x Relationship between empathy and quality of student experience: A strong positive relationship exists from the student perspective, a non-significant positive relationship exists from the industry perspective, and a non-significant negative relationship exists from the perspective of staff members of HEIs. x Relationship between assurance and quality of student experience: A non-significant positive relationship exists from the perspectives of both industry and staff

Similarities	**Differences**
quality of student experience is not significant.	working in HEIs, while a non-significant negative relationship exists from the student perspective.
	✗ <u>Relationship between reliability and quality of student experience, between empathy and student satisfaction, and between reliability and student satisfaction</u>: A non-significant positive relationship exists from the perspectives of both students and industry, while a non-significant negative relationship exists from perspective of staff members of HEIs.
	✗ <u>Relationship between tangibles and student satisfaction</u>: A non-significant positive relationship exists from the industry perspective, a non-significant negative relationship exists from the student perspective, and no significant relationship exists from perspective of staff members of HEIs.
	✗ <u>Relationship between responsiveness and student satisfaction</u>: A non-significant positive relationship exists from the perspective of staff members of HEIs, and a non-significant negative relationship exists from both the perspectives of students and industry.
	✗ <u>Relationship between quality of student experience and cognitive outcomes</u>: A non-significant positive relationship exists from the student perspective, and a strong positive relationship exists from the perspectives of both industry and staff members of HEIs.
	✗ <u>Relationship between student satisfaction and cognitive outcomes</u>: A strong positive relationship exists from the perspectives of both students and industry, while a non-significant negative relationship exists from the perspective of staff members of HEIs.
	✗ <u>Relationship between student satisfaction and affective outcomes</u>: A strong positive relationship exists from the industry perspective, a strong non-significant positive relationship exists from the student

Similarities	Differences
	perspective, while a non-significant negative relationship exists from the perspective of staff members of HEIs.

6.8 Chapter Summary

Presented in this chapter were the findings of this research in relation to the analytical process previously illustrated in Figure 5. Section 6.2 provided a generalised view of responses through analysis of respondent demographics. Descriptive statistics of item responses, and assessment of normality, outliers and non-response bias were used to establish data accuracy. Measurement quality was established through the assessment of construct reliability and validity in Section 6.3, which allowed the assessment of both the measurement and structural model through the use of model fit indices in Sections 6.4 and 6.5 respectively. Both measurement model fit and structural model fit with data collected were established in the two sections respectively. The hypothesised relationships of the conceptual model in Figure 2 were tested in Section 6.6, with validation of the overall structural model by means of assessment of the significance of path estimates. In Section 6.7, differences in perceptions among students, staff members of HEIs, and industry were examined through the use of MANOVA, discriminant analysis and SEM.

Major findings were established in relation to the objectives and research question presented in Section 1.4 of this thesis. The objectives and research question were linked with the research hypotheses explained in Chapter 4. In general, the conceptual model presented in Figure 2 could not be completely validated since not all hypotheses were non-falsified. Hypotheses H3, H5 and H6 were not falsified, while hypotheses H1, H2 and H4 were falsified. This major finding, especially the falsification of the latter three hypotheses, does not mean that the proposed conceptual model was erroneous, since the construction of the

model in terms of the relationship between constructs was justified by literature in Chapter 4. Another major finding is the significant differences in perceptions among the three groups of stakeholders—namely, students, staff members of HEIs, and industry—concerning the relationship among quality of service dimensions, quality of student experience, student satisfaction and higher education learning outcomes. These differences, as mentioned previously, were uncovered through the use of a multi-method approach comprising MANOVA, discriminant analysis, and the construction and analysis of an SEM for each stakeholder group. Differences in perceptions among the stakeholder groups were also evident when the six hypotheses of this research were tested and yielded different results for each stakeholder group. The acceptance and falsification of each hypothesis from the perspective of each stakeholder group is summarised in Appendix 8.

In the following chapter, the findings presented in this chapter are further analysed and discussed, with an articulation of the contributions made to theory and practice.

Chapter 7: Discussion and Implications

7.1 Introduction

The purpose of this chapter is to draw on the findings described in Chapter 6 to provide a systematic discussion of the findings and the original contributions that this research provides in the context of the research problem described in Section 1.3. In Section 7.2, the findings of this research, described in Chapter 6, are systematically analysed and discussed against the findings produced from the review of literature themes in Chapter 3 and conceptual model constructs in Chapter 4. This section also formally addresses the research questions and objectives presented in Section 1.4. Following the discussion of the research findings, the chapter provides a discussion of the original contributions to theory, methodology, and policy and practice, in Section 7.3. Finally, the limitations of this research leading to the implications for future research are addressed in Section 7.4.

7.2 Systematic Analysis and Discussion of Research Findings

The idealism of higher education was surfaced as a research problem in Section 1.3. HEIs face the challenge of balancing neo-liberal governing models of operations steered by the demands of globalisation and consumerism in higher education, on the one hand, with the nature and purpose of education, on the other. As explained in Chapter 2, several classical and contemporary educational philosophers have attested that the traditional tenets and meaning of higher education and student learning are true and ideal. However, due to the increasing commoditisation of higher education, which deeply entrenches the perception of higher education as a service to individuals (Gibb, 2001; Hemsley-Brown & Oplatka, 2006), HEIs have adopted neo-liberal movements of governance involving market-oriented and

service-oriented practices, and the use of quality assurance and accreditation for the achievement of performance management and accountability objectives for stakeholders. The dyad between the neo-liberal and traditional views of higher education provide the research problem, which is operationalised as the central research question introduced in Section 1.4. The research question addresses how quality of service, as a neo-liberal and market-oriented competitive strategy in HEIs, influences the learning outcomes of students, and the role that student satisfaction and the quality of student experience plays in the relationship between quality of service and learning outcomes.

The major findings produced in Chapter 6 fulfil the research purpose and objectives highlighted in Sections 1.3 and 1.4 to: (1) assess the impact of elements relating to quality of service in maintaining market competitiveness of HEIs on the traditional purpose of higher education, and (2) explore the differences between major stakeholders identified through the literature review in Section 2.7—namely, students, staff members of HEIs, and industry— with regard to the relationships described in the central research question. This fulfilment of the research objectives is illustrated and summarised in Table 30.

Table 30: Summary of Central Research Question, Research Objectives and Research Findings

Central Research Question	Research Objectives	Research Findings
How does quality of service influence higher education learning outcomes, and what role does student satisfaction and quality of student experience play in this relationship?	To assess the impact of elements relating to quality of service on higher education learning outcomes through the use of a conceptual model developed based on relevant theories and literature. The proposed conceptual model, based on Figure 2 in Section 3.2, illustrates six hypotheses as follows: H1: SERVQUAL dimensions have a positive influence on student satisfaction.	x H1 is falsified. x H2 is falsified. x H3 is not falsified. x H4 is falsified. x H5 is not falsified. x H6 is not falsified.

Central Research Question	Research Objectives	Research Findings
	H2: SERVQUAL dimensions have a positive influence on quality of student experience. H3: Quality of student experience positively influences student satisfaction. H4: Student satisfaction has a positive influence on cognitive and affective outcomes of higher education. H5: Quality of student experience positively influences cognitive and affective outcomes of higher education. H6: Quality of service dimensions, comprising reliability, assurance, tangibles, empathy and responsiveness, are strongly correlated in their effect on higher education outcomes.	
	Explore the differences between students, staff members of HEIs, and industry, with regard to the relationships described in the central research question.	Reproduced from Table 28 as follows: <u>Students:</u> x H1 is falsified. x H2 is falsified. x H3 is not falsified. x H4 is falsified. x H5 is falsified. x H6 is not falsified. <u>Staff of HEIs:</u> x H1 is falsified. x H2 is falsified.

Central Research Question	Research Objectives	Research Findings
		x H3 is not falsified.
		x H4 is falsified.
		x H5 is not falsified.
		x H6 is not falsified.
		Industry:
		x H1 is falsified.
		x H2 is falsified.
		x H3 is not falsified.
		x H4 is not falsified.
		x H5 is not falsified.
		x H6 is not falsified.

Methodologically, the research produced major findings that are justified. With regard to the first objective of this research, to develop and test the conceptual model illustrated in Figure 2, it was noted that structural model fit was assessed and the hypothesised path relationships between the latent constructs of the model were analysed in Sections 6.5 and 6.6 respectively. Fit indices comprising RMSEA, CMIN/DF, CFI, TLI and IFI show adequate measurement model and structural model fit, without a need for model modifications to improve fit at both the measurement and structural levels, as was proven previously in Table 24. However, it was noted in Figure 7 of Section 6.6 that nine out of the 25 path relationships were insignificant, of which five were also not in the hypothesised positive direction. The nine insignificant path relationships contributed to the falsification of H1, H2 and H4. Based on survey data collected using the sampling strategy described in Chapter 5, H3, H5 and H6 were not falsified. Although all the hypothesised relationships concerning the latent constructs of the conceptual model (Figure 2) were justified a priori by literature discussed in Chapter 4, it was

interesting to conclude that there were mixed results for the hypothesised relationships in Section 6.6, particularly the falsification of H1, H2 and H4.

As mentioned in Section 6.6, the nine path estimates were insignificant since the standardised loading estimates were less than 0.5, t-values were less than 1.96, or p-values were greater than 0.05, as shown previously in Table 25 (Hair et al., 2010). While the adequate structural model fit, despite having a relatively substantial proportion of insignificant path relationships—that is, 36%—may be due to the impact of the specification of correlational path relationships between the RATER constructs of the conceptual model which prevent a significant change in the degrees of freedom of the structural model as compared with the measurement model (Hair et al., 2010), the specification of correlational path relationships between the RATER dimensions was necessary due to the need to test the hypothesised correlational relationships in H6. Studies (Hair et al., 2010; Frone et al., 1992; Raykov, 1994) also exist where structural models were specified with both causal and correlational relationships between latent constructs. The specification of correlational relationships in a structural model is also justifiable since a structural equation model is a hypothesised pattern of both directional (causal) and non-directional (correlational) linear relationships among a set of measured and latent variables (MacCallum & Austin, 2000). Also, as mentioned previously in Chapter 4, theoretical support provides the specification of the structural model in this research (Hair et al., 2010).

An understanding of the findings concerning the hypothesised relationships between the latent constructs of the conceptual model may be derived by considering the hypotheses in the context of each stakeholder group, that is, students, staff members of HEIs, and industry. The results of hypotheses testing for each stakeholder group are summarised in Appendix 8. Generally, the acceptance or falsification of the hypotheses for each stakeholder group was similar to the result when considering all stakeholder groups as a whole, as was discussed in

the preceding paragraph. The only distinct differences were found where H4 was not falsified for the industry group, and where H5 was falsified for the student group. Where hypotheses were not falsified across all stakeholder groups as a whole—that is, H3 and H6—the path relationships related to these hypotheses were significant from the perspectives of the three stakeholder groups, as was illustrated earlier in Figure 9. H1 was falsified from the perspectives of all three stakeholder groups, since all path relationships related to H1 were insignificant. H2 was generally falsified due to differences in significance of path relationships in association with H2 among the three stakeholder groups.

Empathy was the only variable that had a significant positive effect on quality of student experience from the perspective of students, while tangibles was the only variable that had a significant positive effect on quality of student experience from the perspective of industry practitioners. All the RATER dimensions had no significant effect on quality of student experience from the perspective of staff members of HEIs. H4 was also generally falsified in a similar pattern to that of H2. Staff members of HEIs are the only stakeholder group that do not perceive significant positive effect of student satisfaction on cognitive outcomes, while industry practitioners are the only stakeholder group which perceive significant positive effect of student satisfaction on affective outcomes. Industry practitioners are also the only stakeholder group that perceive significant positive effect of student satisfaction on both cognitive and affective outcomes of higher education.

With regard to the second objective of this research—to explore the differences between students, staff members of HEIs and industry in relation to the hypothesised relationships of the conceptual model—differences were clearly delineated through the use of MANOVA, discriminant analysis and analysis of the structural model for each stakeholder group, as discussed in Section 6.7. All four statistical measures of the MANOVA test—Roy's greatest root criterion (Θ), Wilks' lambda (Λ), Pillai's criterion (V) and Hotelling's T^2—concluded

with statistically significant general differences in perceptions among the three stakeholder groups. The discriminant analysis went further to confirm the results of the MANOVA test and indicated that variables that measured the RATER constructs contributed more to the differences among stakeholder groups. Eventually, the structural models created for each stakeholder group confirmed the differences by providing a visualisation of differences in the hypothesised path relationships between constructs among stakeholder groups. These differences can be clearly analysed from Appendix 8. The understanding of differences was also supported by considerations of the hypothesised relationships for each stakeholder group, as discussed in the preceding paragraph. Collectively, the multi-method approach of using MANOVA, discriminant analysis and SEM to explore for differences between students, staff members of HEI, and industry in relation to the hypothesised relationships of the conceptual model was consistent in delineating differences.

The major findings of this research, which were previously summarised in Table 30, are also worthy of discussion in relation to the review of literature themes provided in Chapter 3 and the conceptual model constructs explained in Chapter 4. As mentioned in Chapter 3, literature within the domains of services marketing, quality of service and higher education was systematically reviewed and provided insights into existential research interests and the state of knowledge in these research areas. Theoretically, the major findings from this research provide support for the current state of knowledge in literature as well as new directions in relation to the three research domains just mentioned.

From discussions in Chapter 3, higher education is strongly noted in literature as a service for several stakeholders who are customers of higher education from the services marketing point of view, and who have different perspectives of higher education. The three stakeholders of major concern, identified in Section 3.7, are students as receivers of higher education, the HEI staff members who provide the higher education service, and industry as the recipients

of students seeking employment after graduation from higher education. These three major stakeholder groups play different roles in a higher education system and possess difference perspectives of higher education. The major findings in relation to differences in acceptances and falsifications of the six research hypotheses, among students, the HEI as an organisation, and industry, highlight the reality of differences and contradictions in perspectives among stakeholder groups of higher education. For instance, while all three stakeholder groups have both common disagreement with H1 and H2, and common agreement with H3 and H6, there are differences in the acceptance of H4 and H5. While it was only industry for which H4 was not falsified, H5 was falsified only with students.

Despite a strong regard for higher education as a service, which carries a nuance of being embodied with transactions of a utilitarian nature, as seen in the various definitions in Table 1, it is interesting to highlight from the major findings of this research that all three stakeholder groups do not perceive the SERVQUAL dimensions as having a positive influence on student satisfaction and the quality of student experience, even when each of the SERVQUAL dimensions were strongly correlated according to H6. On the contrary, all three stakeholder groups perceived the quality of student experience as having a positive influence on student satisfaction. Although the literature review on dimensions and measurement of quality of service in Sections 3.4 and 3.5 respectively point to a common perception that the quality of service in higher education is analogous to the management of student expectations through the dimensions of quality of service, the findings of this research instead point to a different common perception of higher education as a service in reality.

While the commoditised sense of 'service' with higher education is strong in the findings, all three stakeholder groups interpreted higher education service as the provision of quality student experiences which tend to be emotive in nature, which is an important aspect of a service encounter and services marketing, as previously highlighted in Section 3.2.1.1.

Hence, an appropriate definition of service in higher education may be that provided by Gemmel et al. (2013) in Table 1. It is also possible to derive differing interests among each stakeholder group with regard to a higher education service experience. Students, as direct consumers of higher education services, are most interested in deriving satisfaction through a quality student experience, although the satisfaction they receive may not have a relation to the learning outcomes they achieve. HEIs, as providers of higher education services, have less interest in student satisfaction and perceive the quality of student experience as the significant driver for higher education learning outcomes, whereas industry perceives the importance of quality student experiences in influencing both student satisfaction and quality learning outcomes. Therefore, in relation to discussions on the definition of quality of service for higher education in Section 3.3, a high-quality student experience in higher education which positively influences cognitive and affective outcomes of students for all stakeholders might be the most universal and consistent definition for a high-quality service provided by a HEI.

With reference to the six positive statements of hypotheses explained in Chapter 4, further explanations are possible for the falsification of hypotheses for all stakeholders in general and for specific stakeholders. As mentioned previously, both H1 and H2 were resoundingly falsified by all stakeholder groups in this research. Although the literature, as explained in Section 4.2.1, provides support for the positive influence that SERVQUAL dimensions have on both student satisfaction and quality of student experience, the falsification of both hypotheses might imply that H1 and H2 may not be generalisable across industries and cultures. As mentioned in Section 4.2.1, the hypotheses were derived from studies conducted in various industries, including higher education, but not in the context of Singapore, within which this research was conducted. Also, the highly subjective and affective nature of the student experience might mean that the delivery of a quality student experience through the

provision of quality service dimensions is subjective, even though both quality of service and quality of experience are two complementing service concepts that service industries employ (Otto & Ritchie, 1995).

The general falsification of H4, contributed predominantly by students and staff members of HEIs, may be reflective of the opinionated and emotive nature of student satisfaction, as described in Section 4.3.6. Since satisfaction is a function of feelings for a service encounter between students and staff members of HEIs, it is not unsurprising that H4 was falsified by the two stakeholder groups just mentioned, who are directly involved in a service encounter in higher education. Although discussions in Section 4.3.6 highlight the measurement of student satisfaction as a means to assess the quality of student learning, such a correlation might be too positivistic since the element of feelings in satisfaction is subdued. Feelings that students derive from a service encounter might not result in high-quality learning outcomes, since students tend to be emotional when evaluating their learning experience, and staff members of HEIs may not solely rely on student satisfaction feedback to improve the quality of student learning. The indirect involvement of industry in the service encounter in a HEI might be a reason for the acceptance of H4 from the industry perspective.

Finally, while literature discussions in Sections 3.2.1.1 and 3.2.1.2 highlight the importance of the quality of student experience in a higher education service encounter, the falsification of H5 solely by students comes as a paradox. Education literature (Campbell & Li, 2007; Ellis et al., 2004; Harvey & Knight, 2009; Kim, 2007; Ning & Downing, 2011; Ng & Forbes, 2009; Peterson & Miller, 2004; Trigwell & Prosser, 1991) referred to in Section 4.2.3 have presented strong consensus for the positive influence that a quality student experience has on the development of both cognitive and affective outcomes of learning in higher education. Furthermore, since the higher education learning experience is co-created by students, student engagement was the key idea behind the measurement of the 'quality of student experience'

construct in this research, as illustrated in Section 4.3.7. The falsification of H5 by students against the acceptance of H5 by industry and staff members of HEI might signify differences in ideas concerning how students learn and eventually develop through the learning experience. It might also mean that students may not solely be the best judge of their own learning outcomes, hence the importance for a higher education learning experience to be a co-created phenomenon.

In conclusion, discussions for the findings of this research have served to address the central research question introduced in terms of the two objectives explained in Section 1.4. Methodologically, the major findings of this thesis—previously summarised in Table 30—are justified. More importantly, based on discussions in relation to the literature review chapter of this thesis, the findings provide support for the current state of knowledge as well as new directions in the research domains of services marketing, quality of service and higher education. Major findings based on the hypothesised relationships of Figure 2 were analysed collectively as well as from the perspectives of students, staff members of HEIs, and industry. While there was general consensus on some hypothesised relationships, there were also significant differences in the perceptions of students, staff of HEIs, and industry regarding the specific hypothesised relationships referred to in H4 and H5. Hence, while there is consensus that quality of service has no significant impact on student satisfaction and that student satisfaction is a function of quality of student experience, the role that student satisfaction and quality of student experience play in influencing higher education learning outcomes is stakeholder dependent. Also, within the similarities in path relationships there are differences in path estimates. The divergent views may be due to differences in needs and purposes perceived by each stakeholder group. Also, while student satisfaction may generally appear to play a mediating role between quality of student experience and both cognitive and affective learning outcomes, due to its intervening presence between the former and the latter (Hair et

al., 2010; Li, 2011), investigating its mediating effect may not be applicable due to variation among the three stakeholder groups concerning the significant impact of student satisfaction on both cognitive and affective learning outcomes.

7.3 Implications of Research

The implications of this research are explained in the following sections in terms of the contributions to theory, methodology, and policy and practice. The contributions are derived from discussions in Section 7.2 which provide important insights by addressing the central research question:

How does quality of service influence higher education learning outcomes, and what role does student satisfaction and the quality of student experience play in this relationship?

The research question, in alignment with the research background and problem discussed in Sections 1.1 and 1.3, highlights the value of exploring the impact that market-oriented governance models, which HEIs are compelled to operate under in a competitive higher education market, have on the traditional mission of HEIs, which is to develop students with holistic competencies for a global knowledge society. The theoretical contributions are derived through the identification of the theoretical body of knowledge in which this research situates itself, and the conclusions that may be derived from addressing the major findings addressed in Section 7.2. The methodological contributions of this research are derived in terms of the approach that was taken to arrive at its theoretical findings. Finally, the research contributes to policy and practice in terms of considerations that higher education administrators may adopt as a result of the research findings. These contributions complement the significance of this research, which were highlighted in Section 1.6.

7.3.1 Contributions to Theory

As mentioned in Section 3.2.1, the theoretical foundation for this research was derived from the overarching theories of services marketing and higher education. Therefore, the theoretical contributions made by the findings of this research are situated at the confluence of services marketing theory and higher education theory, which was introduced as the focus of research and illustrated in Figure 1 of Section 3.8. Both theories were introduced as parent theories for this research in Sections 3.2.1.1 and 3.2.1.2 respectively. The contributions are made against the backdrop of the global phenomenon of the marketisation of higher education (Akonkwa, 2009; Hemsley-Brown & Oplatka, 2006; Mok, 2007; Woodall et al., 2014), the common focus of quality of service as a business growth strategy in HEIs (Joseph et al., 2005; Sharabi, 2013), and the increasing attention given to higher education learning outcomes among the global higher education community (OECD, 2013a; UNESCO, 2010), as was highlighted in Section 1.1.

The discussions and conclusions of findings from this research in Section 7.2 in relation to the two objectives presented in Section 1.4 highlight two important concerns raised earlier in Section 1.2. These concerns are (1) that quality of service as a purely market-oriented perspective is contentious and (2) that HEIs face the challenge of striking a balance between market-oriented intentions, through providing quality of service, and sustaining the fundamental intentions of providing quality learning experiences for students. The two concerns—which were also highlighted by Akonkwa (2009), Michael (1992) and the OECD (2014)—were confirmed through the falsification of H1, H2 and H4, the confirmation of H3, H5 and H6, and the delineation of differences in perceptions among students, staff members of HEIs, and industry regarding the hypothesised relationships. The falsifications of H1, H2 and H4 denies the theoretical support for the positive influence that market-oriented quality of service has on a quality student learning experience and student satisfaction, as was

discussed in Chapter 4. The acceptance of H3, H5 and H6 confirmed the strong theoretical support for quality of student experience having a positive influence on student satisfaction (H3), quality of student experience having a positive influence on both cognitive and affective outcomes (H5), and the strong interrelationships among the RATER dimensions (H6).

At the stakeholder level, while both similarities and differences in the acceptance or falsification of the hypothesised relationships were revealed—that is, H5 was falsified only with students due to an insignificant positive influence of quality of student experience on cognitive outcomes while H4 was confirmed from the industry perspective only—these similarities and differences contributed to the overall falsification of H1, H2 and H4, and to the confirmation of H3, H5 and H6. The differences in perceptions among students, staff members of HEIs and industry, though minimal, in this research provide theoretical significance, since the research affirms the existence of divergent perspectives among stakeholders of higher education—as was previously highlighted in the review of literature in Section 3.7—and supports the need to include the perspectives of various stakeholders in service-oriented higher education studies (Joseph et al., 2005).

While literature discussed in Chapter 4 provided theoretical support for the six hypothesised relationships, as represented by the conceptual model in Figure 2, the overall falsification of H1, H2 and H4, and the confirmation of H3, H5 and H6 provide the key theoretical contribution of this research. From the falsification of H1, H2 and H4 it can be inferred that market-oriented quality of service strategies in improving student satisfaction and quality of student experience are insignificant, and student satisfaction in improving student learning outcomes is insignificant. This signifies that it is contentious to perceive and pursue quality of service in higher education from a purely market-oriented perspective. These findings

provide a signal to problems surrounding the use of market orientation in higher education (Akonkwa, 2009).

The confirmation of H3 and H5 implies that it is important to manage the quality of student experience in determining student satisfaction, and to ensure a quality student learning experience in positively influencing both cognitive and affective higher education learning outcomes respectively. In particular, the confirmation of H3 and H5 is in alignment with the pedagogical understanding that the student experience that is created through the involvement of students in the learning process is essential for students to derive positive learning outcomes (Kauchak & Eggen, 2012). Discussions in Section 4.3.7 highlighted student involvement as an element of the quality of student experience, which had a positive impact on both student satisfaction and the learning outcomes of higher education, as previously discussed in Chapter 6, Research Findings. More importantly, due to the importance of student involvement in the higher education experience, the acceptance of H5 makes a strong theoretical contribution to dialogical pedagogical theory (Skidmore, 2006) by highlighting the idea that the quality of interactions that students initiate with educators has a positive impact on student learning outcomes. This idea was previously explained in Section 2.3. The the confirmation of H6 contributes to the study of the nature of interrelationships between quality of service dimensions, which has been limited (Buttle, 1996), particularly in the higher education context, as mentioned in Section 2.8.

A collective meta-analysis of the falsification and confirmation of the research hypotheses, which indicates a strong agreement among students, staff of HEIs, and industry on the fundamental role of HEIs in providing a quality learning experience as the core mission of higher education, provides a contribution to literature. The quality of learning experience—defined as the student's sense of having their interests best served, being rewarded in consistency with the effort they expended, and feeling enjoyment, involvement, unique,

anticipation and challenged in their higher education experience, as explained in Section 4.3.7—reflects the value of higher education which stakeholders demand, as was mentioned in Section 3.8. While the concept of value is problematic in conceptualisation (Woodall et al., 2014), this research defined it in terms of the elements just mentioned. In fact, stakeholders of higher education tend to focus on the student learning experience when making judgements about the quality of a higher education (Harvey & Knight. 1993). This argument validates the challenge that HEIs face in balancing market-oriented intentions to stay competitive with their fundamental mission of providing education (Sharabi, 2013). Perhaps the arguments presented in this thesis up to this section now show that while the influence of neo-liberal market-oriented thinking in higher education management is a realism, HEIs face a paradoxical situation having to deliver the core mission of higher education. Hence, as another contribution to literature, this study might suggest that a better higher education system is one which is able to put the interest of students and their learning experience at the highest priority.

7.3.2 Contributions to Methodology

The second objective of this research was to explore the differences in stakeholder perceptions concerning the hypothesised relationships of the conceptual model. The use of a multi-method approach to meet this objective provides a contribution to methodology. Since higher education has to deal with a variety of stakeholders (Akonkwa, 2009), it was necessary—as was proposed in Section 3.7—to consider the perspectives of the various stakeholders. As discussed in Section 5.3.3.5, a multi-method approach comprising MANOVA, discriminant analysis and SEM was used in this research to delineate the differences in perceptions among students, staff members of HEIs, and industry. As was also

indicated in Section 5.3.3.5, the use of a multi-method approach was necessary to allow for the triangulation of analysis to provide a clear indication of differences in perceptions that exist among stakeholder groups. Several analytical methods of making group comparisons exist (Sherry, 1993). While a study by Duque and Weeks (2010) used a multi-method approach to analyse for group differences, this study used a different set of multi-method approaches to explore the differences in perceptions among stakeholder groups.

Another contribution to methodology was made through the use of both discriminant analysis and SEM as follow-up tests after MANOVA, to identify the differences in perceptions among students, staff of HEIs, and industry. MANOVA has been identified in literature (Cole et al., 1993; Darlaston-Jones et al., 2003; Joinson, 2008; Kelley & Turley, 2001; Sherry, 1993; Westbrook & Oliver, 1991; Wilkins & Balakrishnan, 2013) as a common method of identifying group differences in management and consumer research. Most of the studies (Kelley & Turley, 2001; Westbrook & Oliver, 1991; Wilkins & Balakrishnan, 2013) used follow-up univariate ANOVAs to identify where the differences were when the MANOVA test had indicated significant group differences. This implies that since MANOVAs only identify the significance of group differences, follow-up studies after MANOVAs are necessary to identify where those differences are. While a justification given for conducting a MANOVA prior to multiple ANOVAs is to control for type I statistical error (Huberty & Morris, 1989), the conduct of multiple ANOVAs as a post-hoc technique for MANOVA might be inappropriate. This is because ANOVAs are dissimilar to a MANOVA. The former does not treat outcome variables as a linear combination, whereas a MANOVA does, and the conduct of multiple ANOVAs on the same data would increase type I errors (Field, 2013).

Hence, in this research both discriminant analysis and SEM were used as follow-up tests, since both methods provide a means of reducing type I error by pinpointing exactly where group differences are (Cole et al., 1993; Sherry, 1993). Discriminant analysis was used as a

post-hoc technique for MANOVA to "indicate both that group differences exist and precisely where they exist among the variables" (Sherry, 1993, p. 666). SEM was also used an appropriate follow-up test to the MANOVA since the objective of this research reflected a latent variable system (Cole et al., 1993) and the use of SEM had provided a visualisation of the significance of the hypothesised relationships between latent constructs through the use of structural models for each stakeholder group. While comparisons have been made between the use of MANOVA and SEM (Cole et al., 1993), and between MANOVA and discriminant analysis (Sherry, 1993), this study proceeded with the use of all three methods to provide maximum possibilities in exploring differences in perceptions among students, staff members of HEIs, and industry. The use of a combination of MANOVA, discriminant analysis and SEM in this research to explore for differences in perception among stakeholders is a contribution to methodology since the earlier discussion in this section shows that such a combination does not exist in literature, even though literature relating to the use of each of the three methods exist. Also, the use of discriminant analysis as an analytical method is limited in literature.

7.3.3 Contributions to Policy and Practice

The practical significance of this research, previously introduced in Section 1.6, provides the contributions to policy and practice in higher education. The contributions relate to the implications for higher education administration, the significance of conducting the research in the context of Singapore, and the implications of globalisation and neo-liberalism on learning in higher education.

A major contribution to the administration of higher education concerns the need for HEIs to be attentive to the perspectives of three major stakeholder groups of higher education—

namely, students, the HEI organisation and industry—in their decision-making. Higher education deals with a variety of stakeholders, and their expectations need to be managed (Akonkwa, 2009). Implications for higher education administration in terms of the need to manage the expectations of stakeholders are derived directly from the findings of this research, which were coherent with discussions in Section 3.7 and recommendations by Harvey and Knight (1993). As explained in Section 7.2, findings from tests of hypotheses across all stakeholder groups, as well as from specific stakeholder groups, show that quality of service has no significant impact on student satisfaction, that student satisfaction is a function of quality of student experience, and that the role that student satisfaction and quality of student experience play in influencing higher education learning outcomes is stakeholder dependent. The differences in the role that student satisfaction and quality of student experience play in influencing learning outcomes is summarised in Appendix 8.

Students perceive a significant positive association between both student satisfaction and cognitive learning outcomes, and quality of student experience and affective learning outcomes. For staff of HEIs, while no significant association between student satisfaction and both cognitive and affective learning outcomes is perceived, a significant positive association between quality of student experience and both cognitive and affective learning outcomes is perceived. On the other hand, industry perceives significant positive associations between student satisfaction and both cognitive and affective learning outcomes, as well as between quality of student experience and both cognitive and affective learning outcomes. The findings clearly show that it is important that higher education administrators consider the perspectives of various stakeholders to allow a more inclusive understanding, management and improvement of quality and student learning in HEIs (Joseph et al., 2005). This importance was highlighted in Section 3.8 as a research gap, which mentioned the need to

consider the student, educational and organisational perspectives. It is also important to consider the industry perspective.

A second contribution to the administration of higher education concerns the need for HEIs to implement policies that balance the need for service orientation with the core mission of higher education. The core mission of higher education relates to its social and economic functions, which are to reduce social equality and contribute to social unity, and to prepare its graduates for employment, respectively (Vickerstaff, 2012). HEIs need to be able to balance the dual nature of higher education (Michael, 1997; Akonkwa, 2009).

It was interesting to note from the findings of this research that, while quality of service has no significant association with student satisfaction, each stakeholder group of higher education identified in this research considered that student satisfaction was a necessary precursor to a quality student experience. Also, while the role that student satisfaction and quality of student experience play in influencing higher education learning outcomes is stakeholder dependent, with the differences delineated in the preceding paragraph, all three stakeholders highlighted in this research share a common understanding of the importance that stakeholders place on learning outcomes of higher education. In fact, the quality of a higher education is predominantly measured in terms of the learning outcomes, regardless of whether it is cognitive or affective in nature (Harvey & Knight, 1993). The quality of learning outcomes represents the value of a higher education, increasingly demanded by stakeholders of higher education, as previously mentioned in Sections 3.8 and 7.3.1 (Sharabi, 1993). Hence, it is increasingly important for HEIs to portray this value creation with its stakeholders (Edvardsson et al., 2005). Since effective learning is dependent on the quality of teaching (OECD, 2010), the findings of this research justify the need for HEIs to stay focused on their core mission of higher education, despite facing intense market-oriented competition.

A final contribution relating to higher education administration concerns the need for HEIs to be cautious with the use of service-oriented measurement tools such as SERVQUAL in the management and improvement of higher education. This recommendation is based on the finding of this research that quality of service has no significant association with student satisfaction across all stakeholders of higher education identified in this research. The finding is in antithesis to knowledge in literature (Alves & Raposo, 2007; Ardi et al., 2012; Purgailis & Zaksa, 2012; Sultan & Wong, 2012) which commonly portrays the positive association between quality of service and service satisfaction, and justifies critiques (Buttle, 1996; Cuthbert, 1996; Kang & James, 2004; Ladhari, 2009) of SERVQUAL. A possible explanation for the lack of association between quality of service and student satisfaction in the findings of this research is that SERVQUAL was designed to focus on the service delivery process and not on the outcomes of the service encounter (Buttle, 1996; Kang & James, 2004). Ladhari (2009) noted the importance that SERVQUAL not be used as it is in all circumstances. A study by Cuthbert (1996) questioned the applicability of SERVQUAL for the management of quality of service in higher education, and proposed that an instrument be developed that would measure quality of service management in higher education specifically. Hence, HEIs need to be aware of the consequences of using SERVQUAL to their specific circumstances.

The conduct of this research also provides practical and policy implications for higher education in the context of Singapore. Knowledge gained in terms of the extent of influence that quality of service, quality of student experience and student satisfaction have on higher education learning outcomes may be used as a guide for administrators of HEIs in Singapore to implement institution-specific policies that are not just service-centric but also both experience-centric and learning-centric, so as to provide a holistic learning experience for students. This recommendation supports the view that education is a social institution that

supports the acquisition of skills and knowledge, and the broadening of personal horizons (Giddens & Sutton, 2014).

Findings in this research also highlight the relevance of portraying Singapore as the basis of comparison for HEIs internationally. Even though the research was conducted in Singapore, the use of a sample space that comprised respondents with either domestic or international identities in Singapore underscores the international status of higher education in Singapore, and hence implies that its findings may also be generalisable both within and beyond Singapore. As highlighted in Section 1.5, Singapore represents a hybrid higher education system that reflects a distinctive blend of Confucianism, associated with Eastern-style education, and liberalism, associated with Western-style education. Singapore also benchmarks higher education systems of member countries of the OECD (Rajah, 2014), and its public-funded HEIs are well-ranked in global university rankings (Altbach & Salmi, 2011; Lim & Boey, 2014; Liu & Cheng, 2005; Wong et al., 2007).

Hence, HEIs beyond Singapore, particularly those of OECD member nations or those which are globally ranked, may also make use of the findings of this research to implement policies which are both experience-centric and learning-centric, since these institutions also have student enrolments that are of an international nature. This argument suggests that the findings may provide a useful starting point to study the effects of globalisation and neo-liberalism on higher education learning outcomes to enable the refinement of higher education policies in response to the two global phenomena. As discussed in Sections 1.1 and 3.2.2.1, HEIs are responding to the challenges of globalisation through the adoption of market-oriented objectives. This study provides the impetus for the international higher education community to relook at and balance the commercialisation effects of higher education on long-term learning outcomes for students in the midst of thriving neo-liberalism in the higher education community.

7.4 Limitations and Implications for Future Research

The research gaps identified in Section 3.8, with contributions made to theory, methodology, and policy and practice, were addressed in Section 7.3. This section acknowledges the limitations of the study.

First, it is important to note that the data for this study was gathered over a specified time frame and therefore represents only a snapshot of perceptions of the respondents. The findings do not reflect changes in perceptions and phenomena over time, and therefore are not longitudinal in nature. Respondents may have been influenced by events that had happened in the past or at the time of participation in the survey (Saleh, 2006). Hence, it would also be important to study the longitudinal nature of the higher education service experience, since not only is there a cumulative effect in higher education transactions but the perceptions of students change as a result of the learning experience (Li & Kaye, 1999; Rowley, 1997). According to O'Neill (2003), there is a need for longitudinal measures for the quality of the education experience, since existing measures for the quality of the education experience with a HEI are flawed because they do not consider the effects of time on perceptions of stakeholders.

A second limitation resulted from the collection of data from respondents over a specified time frame using a convenience sampling strategy. The limited time frame for data collection placed a constraint on the variety of respondents who would participate. The use of a convenience sampling approach to gather responses also contributed to possible limits in the variety of respondents who would participate, since responses are gathered by virtue of accessibility of respondents and may not provide a representative sample (Sumaedi et al., 2012). However, there are justifications for the use of a convenience sampling approach, which were explained in Section 5.3.2.1. In addition, as no incentive was provided to

encourage survey participation, the survey may not have gathered the responses of an extensive group of potential respondents. However, the absence of incentives to participate meant there was no influence or coercion on respondents to participate which otherwise would bias the responses. Hence, a possible remedy to improve the variety of respondents who might participate in the survey would be to increase the response and participation rates. However, it is also worthy to note that having a large sample size in terms of response rates in this research would render SEM too sensitive to detect almost any difference, which would allow goodness-of-fit measures to suggest poor fit unnecessarily (Hair et al., 2010).

A third limitation was the result of the administration of the survey as a self-completion questionnaire on the internet. As discussed in Section 5.3.2.2, the survey was hosted on SurveyGizmo, and participants were invited through email and social media platforms. While efforts were made in the survey design process to ensure responses would be accurate, as highlighted in Section 5.3.1.1, the nature of a self-administered online questionnaire presents possible risks in misinterpretation of the survey items and limited opportunity for participants to clarify their responses. Another weakness with the use of self-administered internet-based data collection platforms in this research was that there was no possible control over who actually completed the survey and the profile of respondents, since the study also used a convenience sampling approach. However, as highlighted in Section 5.3.2.2, administering a self-completed online questionnaire improves the speed of data collection in a limited time frame. It also reduces the likelihood of bias in responses due to the non-existence of interactional factors between the respondent and interviewer which would exist if the survey had been conducted face-to-face.

A final limitation for this research is found in the findings that is predominantly derived from research conducted only in Singapore which has a higher education system based on a modernised Confucian model comprising of a mix of Eastern and Western values as

explained in Sections 1.5 and 3.8. Despite the hybrid nature of Singapore's higher education system, the embeddedness of the Confucian philosophy in its higher education system is more profound as highlighted in Section 2.2. As discussed in Section 3.8, the generalisability of the research findings might be extended to higher education systems with a strong Confucian philosophy within the Asia-Pacific region. However, the results of this study may or may not be applicable to countries following a predominantly Socratic system.

In spite of the limitations identified in this research, positive implications are identifiable from its findings. Through the development and discussion of a proposed conceptual model which illustrated theory-based hypothesised relationships between RATER dimensions, student satisfaction, quality of student experience, cognitive learning outcomes and affective learning outcomes, the study has provided an understanding of the central research question presented in Section 1.4. It is also an expansive study that has explored the perspectives of three major stakeholders of higher education—that is, students, staff members of HEIs, including both administrative and academic members, and industry. Discussions in Section 7.3.3 also suggested that the findings in this research may be generalisable both within and beyond Singapore. More importantly, the research has contributed to a research conversation which is situated at the intersection of services marketing and higher education theory.

Opportunities for future research are also identifiable. Firstly, as mentioned earlier in this section, there is a need for longitudinal measures for the quality of the education experience, since existing measures are flawed because they do not consider the effects of time on perceptions of stakeholders. The scope of this research does not address the effect of time on perceptions concerning the hypothesised relationships between RATER dimensions, student satisfaction, quality of student experience, cognitive learning outcomes and affective learning outcomes. A longitudinal study assessing the perceptions of stakeholders would have impacts on the exploration of the effect of time on perceptions and phenomena concerning the

hypothesised relationships, especially among students, who may experience a process of change as a result of their higher education experience. As mentioned previously, survey respondents may be influenced by events that have happened in the past or at the time of participation in a survey; conducting a longitudinal assessment of the perceptions of staff members of HEIs and industry may also aid in the identification of these influencers, which may affect the accuracy of responses. A pre-test-post-test longitudinal design may be adopted; this kind of research design is typical for research on higher education outcomes and student development (Tam, 2006). Such longitudinal studies are meant to track perceptions over time, but they have been afforded very little attention compared with their cross-sectional counterpart, particularly in the evaluation of quality of service in the higher education sector (O'Neill, 2003; Sultan, 2012; Sumaedi et al., 2012).

A second opportunity for future research is presented by the need for a better measurement tool for the management and improvement of higher education. As previously explained in Section 7.3.3, this need is the result of findings in this research which show no significant association between quality of service and student satisfaction. This finding provides the justification that measurement tools which focus on institutional aspects of quality are not effective in assessing the student dimension of quality in higher education. Hence, there is a need for the development of a measurement tool that is centred on the students' experience when evaluating the quality and performance of HEIs (Tam, 2001; Tam, 2006). An essential prerequisite for such a quality measurement tool for higher education is that it accounts for the perceptions and expectations of, as well as the complexity of contributions by, various stakeholders of higher education (Rowley, 1997).

A third research opportunity would be to further validate the argument for generalisability by conducting comparative studies across countries and higher education systems. While the case for generalisability of the research findings was presented in Section 7.3.3, it would be

worthwhile to further investigate for similarities and differences across countries and higher education systems that might provide interesting findings. As mentioned in Section 1.5, Singapore has a hybrid higher education system that is modelled on Western and Confucian philosophies, and it is recognised as an international higher education hub. Through the comparative studies, it would be interesting to explore if countries that follow either a Western liberal or Confucian higher education model show similarities or differences in relation to the findings in this research. In particular, this research explored the influence of market orientation of HEIs in terms of quality of service, quality of student experience and student satisfaction on higher education learning outcomes. Akonkwa (2009) had questioned the relevance of market orientation as a relevant strategy for HEIs. It would also be interesting to address this issue in the comparative studies.

Another opportunity for future research would be to further conceptualise the value of a higher education that stakeholders demand, so that HEIs may be provided with a clearer understanding of how stakeholders would value their offerings. In Section 7.3.1, the value of a higher education was explained in relation to the research gap that was identified in Section 3.8. This value refers to the quality learning experiences that HEIs should provide and that stakeholders demand. However, further research related to the conceptualisation of the value of a higher education could be conducted through perspectives of the service-dominant logic and exchange theory since these concepts contribute to the foundation of service science, and HEIs are compelled to understand how stakeholders think and behave (Finney & Finney, 2010; Maglio & Spohrer, 2008; Ng & Forbes, 2009; Woodall et al., 2014). While they are different in their perspectives, both the service-dominant logic and exchange perspectives offer explanations of the interactions between the provider and consumers of a service (Finney & Finney, 2010). The conceptualisation of value could also take the form of the identification of dimensions that are representative of the value that HEIs create for

stakeholders. This value creation is central to the role of service (Vargo & Lusch, 2008b), with possible implications on service productivity, quality and innovation in HEIs (Parasumaran, 2010). Hence, further research into the value that higher education delivers may be desirable since higher education is a service, and looking at value creation in higher education through the lens of its stakeholders may add to future understanding of the service approach in higher education (Edvardsson et al., 2005; Ng & Forbes, 2009).

Finally, the hypothesised relationships that form the conceptual model in Chapter 3 may be further studied by utilising a systems perspective since higher education is a system, and the variables that form the conceptual model in the context of higher education are systems or parts of a system. As previously discussed in Section 4.2.4, a system relies on the interdependencies or interrelationships among its components to affect a desired outcome. Higher education, which forms the larger system in this study, may exhibit non-linear behaviour in contrast to conventional expectations based on a belief in linear causality between variables (Alvani et al., 2011). Hence, systems thinking tools such as causal loop diagrams and dynamic modelling may be used to provide an understanding of the dynamic behaviour of the interactions between the variables of the conceptual model so as to provide meaningful inputs for institution-specific policy improvements and strategy development (Strauss & Borenstein, 2015).

Chapter 8: Further Implications - A Discourse from the Education and Pedagogical Perspective

8.1 Introduction

The intent of this chapter is to provide discussions in the form of a reflective discourse from the education and pedagogical perspective to further clarify the implications of the research findings and discussions that were synthesised in Chapters 6 and 7 respectively. As previously discussed in Chapter 2, the discourse in this chapter is synthesised holistically to leverage the philosophical discussions of student learning and its underlying theories to underscore the basis of this thesis in pedagogical theory. As the research context and problem introduced in Chapter 1 are situated within the broad field of higher education, this discourse from the education and pedagogical perspective is essential to provide the foundational platform of the research question, research objectives, literature review, findings, discussions and research contributions. These were addressed in the previous chapters and will be further integrated and reflected upon in this chapter. The discourse in this chapter is also aimed at providing further elaborations on both the theoretical and the practical contributions of this research, introduced in Chapter 7. Since this research concerns student learning outcomes in higher education, the education and pedagogical perspective is of primacy due to the influence that pedagogy has on teaching and learning, the student learning experience and education policy (Mortimore, 1999). The following sections address these arguments. Section 8.2 addresses the purpose of education in general, while Section 8.3 reasons pedagogical theory in education in relation to learning outcomes. Finally, Section 8.4 addresses the challenges that higher education faces in the 21st century and the recommended future directions it might take.

8.2 The Purpose of Education

The rise of neo-liberalism, a trademark of globalisation, has brought into question the public and civic purpose of education (Abowitz, 2008; East et al., 2014; Giroux, 2010; Torres & Schugurensky, 2002). It is necessary to realise that education is both for the development of the individual as well as to make a living (Dewey, 1897; Gibbs, 2001; Holtzhausen & Meyer, 2005; Noddings, 2015). Whatever the reasons for education, the question of purpose should always have a place in educational discussions, particularly when focusing discussions on the measurement and comparison of educational outcomes (Biesta, 2009; Gibbs, 2001). This assertion is similarly relevant for this thesis since the research effort in this thesis concerns learning outcomes that students achieve through higher education, as previously explained in Chapters 1 to 4. The intent of this section of the chapter is to further clarify the implications of the research findings and discussions in Chapters 6 and 7 respectively in terms of the purpose of an education.

From a philosophical stance, it is important to consider purpose, since it provides the basis for behaviour, actions and results (Rosenblueth et al., 1943). Purpose also represents a sense of goals, aims and directions for achieving something (George & Park, 2013). While it is important to address educational processes and their improvement, it is equally important to address the purpose or purposes that constitute good education brought about by educational processes (Biesta, 2009). The purpose of education has been commonly embodied in the mission, vision, core values and strategic thrusts of educational institutions worldwide, made evident through the various ways these institutions communicate via the media. The idea of purpose is also ingrained in student learning and deemed to be an important basis for education, as previously examined in Chapter 2. While the primacy of knowledge might be the purpose of education, the understanding of the purpose of education is multifaceted and still debatable (Noddings, 2015; Roosevelt, 2008; Smith, 2013). The purpose of education

may be divided into the need for personal development, and the need for preparation of the learner for the labour market (Holtzhausen & Meyer, 2005). Tensions might also exist between the self-actualisation role that education plays in an individual's desire for self-realisation, and the economic role that education plays in providing meaningful employment and financial independence (Liberal Democrats Online Policy Consultation Group, 2008). These tensions, however, appear to be addressed in Singapore's model of lifelong learning through its national SkillsFuture[5] initiative (Tan, 2015). In addition, Biesta (2015) identifies the three domains of educational purpose or functions of education as consisting of qualification, socialisation and subjectification.

A conventional response to the question "What is the purpose of education?" often consists of comments about the acquisition of knowledge and the learning of facts, with education institutions being responsible for that acquisition (Alba & Barnacle, 2007; Gibbons. 1998; Roosevelt, 2008), an idea previously introduced and debunked by most classical and contemporary philosophers mentioned in Chapter 2. This conventional response, however, fits with the qualification function of education, which without doubt is a major function of organised education (Biesta, 2009). The nature of this response is interestingly historical, originating from the metaphor of the Greek pedagogue who "led the boy to and from school, and was his keeper rather than his teacher" (Hall, 1905, p. 375). However, the metaphorical conceptualisation of the term 'pedagogy' is moving into obsolescence and is deemed inappropriate in modern times due to the evolving nature of education and pedagogy (Mortimore, 1999).

While the education institution is still a place where learners seek to acquire knowledge and skills, the mode of transfer of knowledge and skills to learners is no longer didactic but is, as

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[5] SkillsFuture is a national movement in Singapore to develop a workforce with relevant future skills through continuous lifelong learning.

previously highlighted in Chapter 3, a co-creative experience that requires the active involvement of learners in the learning process to create a quality learning experience for students (Austin, 1999; Ng & Forbes, 2009). The phenomenon of a co-creative experience in education is congruent with the conceptualisation of the quality of student experience in Chapter 4. An implication of this phenomenon is a shift away from an emphasis on education towards learning (Jarvis et al., 2005), which inspires the need for the engagement of students in a dialogic learning process, a mode of student learning advocated in Chapter 2. As mentioned in Chapter 2, the essence of education is student learning, that is, the ability of students to learn, and the importance for students to learn as a process of education. Since the reality is that industry cannot depend on education institutions to bear the responsibility of knowledge and skills transfer, since in-house training specific to operations will always need to be provided to employees (Liberal Democrats Online Policy Consultation Group, 2008), education institutions should focus on instilling in individuals an appreciation and aptitude for lifelong learning, and the development of a civic culture (Gibbon, 1998; Jarvis et al., 2005; Liberal Democrats Online Policy Consultation Group, 2008).

Education might also be used as an "administrative apparatus to govern, discipline, and regulate" (Koh, 2004, p. 336) a national population. This purpose fits with the socialisation function of education. Socialisation refers to the many ways in which individuals become members of particular social, cultural or political orders through the education process (Biesta, 2009). Several examples of the socialisation function of education exist. Forster's Education Act which was enacted in Great Britain in 1870 was a conscious attempt to educate the electorate to make informed choices about the future of their country (Liberal Democrats Online Policy Consultation Group, 2008). In Singapore, an example is the infusion of outdoor and national education in the curriculum of national schools (Ho, 2014; Koh, 2004). The notion of public education also lends support for the socialisation function

since the idea of 'public' in education "typically refers to the governance and curriculum of schools, shaped to promote this inclusion of different kinds of families and students into common, universal education and ultimately in shared political life" (Abowitz. 2009, p. 359). Noting the preceding discussions concerning the socialisation function of education, it is apparent that education is an effective strategy for governments and communities to attain their economic and political goals.

In contrast to the function of socialisation, education also influences how individuals develop initiative and responsibility rather than remain objects of the actions of others (Biesta, 2015). This is the subjectification function, or individuating effect, that education plays in allowing "those being educated to become more autonomous and independent in their thinking and acting" (Biesta, 2009, p. 41). The contribution of education to the subjectification of individuals is even more relevant with the emergence of lifelong learning as a result of paradigm shifts such as from teaching to learning, teacher-centredness to student-centredness, knowledge as truth to knowledge as discourse, rote learning to learning as reflection, and welfare needs to market demands (Jarvis et al., 2005). The idea of subjectification has also been embodied in skills and competencies identified by the OECD for the 21st century (Ananiadou & Claro, 2009). These skills and competencies include critical thinking, creativity, problem-solving, decision-making, communication, self-direction, research and inquiry, leadership, and flexibility and adaptability.

Nevertheless, amidst a multitude of arguments concerning what the purpose of education is, a more expanded understanding of the purpose of education is in the promotion of the well-being of the individual and ultimately society, for both economic and social objectives (Gibbon, 1998; Altbach et al., 2009; Mok, 2003a; Smith, 2013). The unifying purpose of education is to produce better individuals for society (Noddings, 2015). In this sense, the declaration by Dewey (1897) on what true education is, is still relevant today. True education

occurs when one is participative and stimulated by the social circumstances that one is in, and as a result of that involvement is able to form in the mind of oneself the perspective of the social group to which one belongs (Dewey, 1897). Interestingly, it appears that this declaration is composed of elements of qualification, socialisation and subjectification, which implies that the true purpose of education has not changed dramatically for more than a century. It is also possible to infer from discussions in this and earlier paragraphs that the purpose of education tacitly exists within the learning outcomes of education—hence the importance of attention on the treatment of learning outcomes.

The findings of this research exemplify the true purpose of education, which was explained earlier. Through the analysis and discussion of the key findings of this research in Chapter 7, it was revealed that student satisfaction and quality of student experience are generally insignificant functions of the SERVQUAL dimensions. Likewise, both cognitive and affective outcomes of higher education are also insignificant functions of student satisfaction. If the education was purely for the purpose of the acquisition of knowledge and the learning of facts through the banking approach—a monologic mode of educational instruction introduced in Chapter 2—then student satisfaction and the quality of student experiences—constructs previously discussed in Chapter 4—would be positively impacted by the quality of service that HEIs provide, and how students perceive the achievement of learning outcomes would be dependent on their satisfaction with the learning experience with a HEI. This is because the idea of knowledge acquisition and learning of facts bears the connotation of utilitarianism on the basis that knowledge and learning may be treated as commodities that are involved in a transaction during a learning process. If this was the case, then higher education would be no different from services which bear the general notion as a commodity for trade, as previously highlighted in Section 3.2.1.1.

However, since the quality of student experience is generally an important influencer of cognitive and affective learning outcomes of higher education, as this research has shown and explained in Chapters 6 and 7 respectively, the purpose of that education might be inspired from a definition of a high-quality HEI service proposed in Section 7.2. That is, a definition for quality of service in higher education may be improved on that which was previously discussed in Section 3.3: it is the high quality of student experience that HEIs provide to positively develop learning outcomes of students. This proposed definition for a high-quality higher education service profoundly informs the purpose of an education that HEIs provide. Clearly, the purpose of education in general is neither about providing a high-quality service to satisfy students or other stakeholders nor to influence the perception of a student learning experience. Instead, the purpose of education is about directly and meaningfully providing quality student experiences that befit quality student learning to positively impact student learning outcomes. By providing students with a learning experience that encompasses enjoyment, challenge, anticipation, involvement, a sense of uniqueness, and a sense of achievement that are consistent with the desired learning outcomes—that is, the elements of quality of student experience presented previously in Table 13—students may develop as holistic individuals who assume the learning outcomes presented previously in Table 14 and Table 15.

The preceding discourse, which foregrounds the quality of student experience as the main intent and purpose of an education experience, is also consistent with the examination of the notion of student learning provided previously in Section 2.2. As mentioned in that section, the concept of quality of experience in learning is not only emphasised by contemporary education philosophers but also traceable to classical education theory such as the Socratic method of learning, which challenges students in critical thinking, analysis and reflection—that is, the elements of learning which are reflected in the measurable variables for the quality

of student experience construct explained in Section 3.3.7. Also, as discussed in Section 2.2, student learning involves not only the internal process of acquisition of knowledge and skills but also students in an external socialisation process. Hence, it is possible to declare that the purpose of an education contains the functions of qualification, socialisation and subjectification, as was mentioned earlier in this section.

The discourse on the purpose of education in the preceding paragraphs of this section has clarified and emphasised the origins of education and its purpose, which consequently provides the foundational basis for a deeper understanding of the research findings, discussions and contributions in relation to the research objectives and questions of this research. The research findings have manifested the role of the quality of student experience as an influencer of learning outcomes. This phenomenon was interpreted in Section 7.3.1 to be a reflection of the agreement that a fundamental role of HEIs is the provision of a quality learning experience, which is the value that stakeholders of higher education demand. The implication of this interpretation is the existence of a positive correlation between the quality of the student experience and a quality learning experience which has significant positive influence on learning outcomes. It is also highly probable that stakeholders refer to the quality of student experience as the quality of learning experiences.

Hence, it is feasible to posit from the education perspective that the origins of education and its purpose are still highly valued by stakeholders of higher education. The importance of education that stakeholders place in their lives in relation to the origins of education and its purpose is still relevant, despite the idea that HEIs are increasingly adopting neo-liberal strategies to attract students in the face of global competition for students, as was introduced in Chapter 1. In other words, this may also be a possible reflection of "an increasing recognition that teaching and learning have been neglected in favour of leaner and meaner" (Biggs & Tang, 2007, p. 1) education institutions, which implies that there is a need for

education institutions to place learning and teaching, and therefore pedagogy, at the heart of their existence and operational strategies.

8.3 Pedagogy and Learning Outcomes in Higher Education

On the basis of the major research findings analysed in Section 7.2, it was inferred in Section 8.2 that the purpose of education is about providing quality student experiences that befit quality student learning to positively impact student learning outcomes. Also, it was highlighted in Section 2.2 that the conditions for effective learning are created through pedagogy, which implies the direct influence that pedagogy has on the quality of student experience in learning. Therefore, due to the eventual link that pedagogy has with student learning and student learning outcomes (Rink, 2001), it is necessary to provide in this section a discourse on pedagogy and its role in higher education, so as to clarify the implications of the major findings of this research from the pedagogical perspective. This discourse on pedagogy is even more important for two reasons which carry pedagogical nuances. Firstly, it was inferable from the major findings of this research that there is agreement among stakeholders of higher education that the core mission of HEIs is in providing a quality learning experience, which is deemed as the value of higher education that stakeholders desire, an idea previously implied in Chapters 2 and 3. Secondly, there is a general positive correlation between the quality of student learning experiences and learning outcomes, as was previously discussed in Sections 7.3.1 and 8.2 respectively.

Pedagogy is concerned with the how of teaching. It is literally referred to as the art and science of teaching the young, a contrast with andragogy, which is concerned with adult learning (Ozuah, 2005; Williams, 2009). Pedagogy is also a multifaceted concept as it involves both learning theories and teaching methodologies, the latter having roots in the

former (Rink, 2001). Nevertheless, a basic definition for pedagogy is "any conscious activity by one person designed to enhance learning in another" (Mortimore, 1999, p. 3). As a result, and also as previously mentioned, pedagogy has a direct influence on the quality of student learning experiences and ultimately the achievement of learning outcomes. As discussed in Section 3.6, learning outcomes refer to the attributes and abilities which students develop as a result of their learning experiences. The pedagogical choices that educators make for a learning activity and in classroom management are vital to learning and have a direct impact on the learning outcomes which are derived through the student learning experience of a learning activity (Williams, 2009). Ultimately, pedagogy still is a fundamentally teacher-centred model where the responsibility rests with the educator to determine learning by the student (Ozuah, 2005). Research on pedagogy has largely been framed to investigate the relationship between both teaching quality and what the educator does, and what the student learns (Astin, 1999; Breunig, 2005; Rink, 2001; Chong & Ho, 2009). This further emphasises the understanding of a direct impact that pedagogy has on student learning, and ultimately on learning outcomes of a learning experience, with pedagogy being central to the quality of a student learning experience that is emphasised in the major findings of this research.

Noting the discussion on the purpose of education in Section 8.2 and the importance of student learning as a core purpose in education, pedagogy and learning theories are often used as the basis for work in higher education (Ashwin, 2006a). Educators have an essential role to play in establishing the direct link between learning theories and student learning, therefore the importance of pedagogic considerations in education (Rink, 2001). Three traditional pedagogical theories exist, namely, subject-matter theory, resource theory and individualised theory (Astin, 1999). These theories involve knowledge about students, the learning environment and the teaching process (Marsh & Willis, 2007). Also, within these theories are assumptions about how students learn (Rink, 2001). The theories assume that the

learner does not know his or her learning needs, that learning needs to be student-centred, that learners need to be extrinsically motivated, and that the prior experience of the learner is irrelevant (Ozuah, 2005). The implication of these theories is student engagement in the learning process, which ultimately determines the quality of student learning experience and hence learning outcomes, both of which were defined in Chapter 4. This realisation that there is a need for student engagement through pedagogic intervention in the learning process is evident in the major findings of this research since student engagement is a nuanced element of a quality student experience.

Central to the pedagogical theories discussed earlier is the quality and quantity of student engagement (Astin, 1999). The pedagogical theories recognise the importance of student engagement in the learning process (Rink, 2001). This recognition of the critical nature of student engagement is relevant since pedagogy is also viewed as a social learning system which involves a system of social interaction (Gergely et al., 2007). Learning theories such as behavioural theory, developmental theory and cognitive theory, which form the foundation for pedagogical theories, also emphasise the engagement of students in the learning process as the basis for learning (Ozuah, 2005; Rink, 2001). The importance of student engagement in the learning process was also emphasised in Section 2.3 in the review of underlying theories of student learning. In that section, it was argued that the style of interaction between students and educator, and the nature of engagement and empowerment of students in critical dialogue with educators in the learning process form the basis for pedagogical approaches with profound positive effects on student learning and student learning outcomes. The implication of these arguments for student engagement in the student learning process is the importance of advancing pedagogical interventions that motivate student engagement in the learning process.

The effectiveness of student engagement in translating learning into outcomes provides a further implication for the research findings on pedagogy, deemed as essential for the translation of educational programs and policies into student achievement and development through learning outcomes (Astin, 1999). The application of pedagogical practices might be found in core academic management processes such as the management of the learning environment, curriculum design, management of student learning, and the devising of effective learning and teaching strategies for student learning. Also, the idea is for pedagogical practices to leverage a defined higher education curriculum to deliver desirable learning experiences for students (Marsh & Willis, 2007). Therefore, pedagogy has a direct implication on what educators do in a learning environment to enhance the quality of student learning, and ultimately the student learning experience, and the value of higher education that stakeholders demand.

With the primacy of pedagogical interventions in academic processes, it is unsurprising that they might appear as important criteria for higher education excellence measured by education quality assurance frameworks such as the EduTrust (Council for Private Education, 2009) in Singapore, and the Quality Code for Higher Education (QAA, 2015) in the United Kingdom. Even the revised AACSB accreditation standards (AACSB, 2016) for business schools, while it is argued that they are motivated by commercial considerations rather than by pedagogical considerations, allow for such education institutions to state that learning and teaching is their primary mission, and contain criteria—although unclear and limited—to improve pedagogic processes (Yunker, 2000; Lowrie & Willmott, 2009). Clearly, the primary mission of HEIs seems to be in the delivery of learning and teaching through effective pedagogy (Yunker, 2000). It is this mission that provides the quality student experience which consequently delivers the desired student learning outcomes. As was also previously discussed in Section 8.2, the purpose of higher education needs to be understood and

delivered through the learning outcomes. This purpose is served through the application of pedagogy in learning and teaching to deliver student learning outcomes. However, as highlighted in Section 2.3, the pedagogical mode of instruction that quality assurance and accreditation systems advocate remains questionable.

The discourse provided in this section highlights the importance of the positive impact that pedagogy has on learning outcomes of students in higher education. The important influence that the quality of student experience has on learning outcomes, as proven by the findings of this research, implies the importance of pedagogy in enabling the former relationship. Also, the cause-and-effect phenomenon between pedagogy and learning outcomes is possible because pedagogic structures are an important element of an effective classroom management plan to enable effective student learning (Williams, 2009). However, while every educator understands that a good learning environment is a place where desirable learning activities are provided for students which they otherwise might not undertake (Marsh & Willis, 2007), HEIs face a challenge to deliver a pedagogy which engages students with educators so that they feel a sense of involvement with the institution they are studying in (Ashwin, 2006b).

One of the reasons for this challenge is the tendency for higher education administrators to over-emphasise operational aspects of managing higher education—for example, accreditation and quality assurance—over pedagogical aspects of higher education. Moreover, the absence of studies concerning the impact of these operational aspects of higher education on curriculum design and learning may be due to either the confidence that higher education administrators have concerning the positive effects of higher education operations on learning, or the discomfort with the unflattering results that such a study might produce (Lowrie & Willmott, 2009). Another reason for the challenge is the sense of entitlement that students may have concerning their higher education experience. This sense of entitlement stems from the 'student-as-customer' perceptions that students may possess, as previously discussed in Section

3.7 (Finney & Finney, 2010). Such feelings of entitlement and a consumeristic culture are "dangerous and certainly not in the long-term interest of the students" (Chonko et al., 2002, p. 278). Such a situation is the result of the marketisation of education, particularly in the higher education sector, commonly compelling education institutions to sell education and provide for market needs instead of focusing on their pedagogic roles (Biggs & Tang, 2007). Despite the challenges, pedagogical practices need to change so that they are focused not on what the educator does but on the student learning experience and the learning environment that HEIs provide towards the student experience (Ashwin, 2006a).

8.4 Challenges and Future Directions for Higher Education

The discourse on the purpose of education and pedagogy in the previous sections of this chapter highlight the importance of considering these aspects in the management of higher education, particularly in relation to the delivery of learning outcomes. Discussions in Chapter 7 highlighted that a major contribution of this research concerns the confirmation that it is contentious to perceive and pursue quality of service from a purely market-oriented perspective, and that there is a need for HEIs to strike a balance between the need for neo-liberal market-oriented operating models and providing a quality learning experience which positively influences learning outcomes. Of practical significance in relation to this major contribution is the need for HEIs to be cautious with their use of service-oriented measurement tools for the management of higher education, and to function as social institutions tasked with the holistic development of students. The findings of this research, revealed in Chapter 6, also implied a strong agreement among the stakeholders of higher education that the fundamental mission of HEIs is to provide quality learning experiences to students.

The discourse in this chapter has so far reinforced these findings and discussions, and also suggested that HEIs should capitalise on the considerations in relation to the purpose of education and pedagogy in the delivery and management of quality learning experiences for students. It is with the above views that this section provides a discussion on further implications in the form of challenges and future directions for higher education in relation to student learning and the holistic development of students.

Firstly, HEIs need to constantly evolve to stay relevant to their purpose in society. As education has always been a reflection of the forces that influence society, education faces the challenge of keeping pace with the changes taking place in the wider world (Holtzhausen & Meyer, 2005; Jarvis et al., 2005). The 21st century is widely viewed as a century of challenge, uncertainty and complexity, due to environmental and technological changes, in which students need to develop the capacity to learn (Aubrey & Riley, 2016; Claxton, 2008). Hence, education should be understood as an essential resource for students to prepare for the future (Claxton, 2008). A notable change, which occurred at the beginning of the 21st century, in the delivery of education is the heavier emphasis on learning rather than on teaching—hence the development of the concept 'learning and teaching' in place of 'teaching and learning' (Ashwin, 2006a). This mode of thinking on education is a congruent reflection of John Dewey's education philosophy that emphasises the importance of placing the learner at the heart of the education system through the use of a learner-centred pedagogy (Aubrey & Riley, 2016; Dewey, 1897), and which resonates well with the notion of providing quality learning experiences to students as the fundamental functional model of HEIs.

However, with the increasing internationalisation and globalisation of higher education, as previously highlighted in Chapters 1 and 3, education institutions are still more concerned with the delivery of curriculum content, assessment results, accreditation and league tables, motivated by their market and economic strategies (Gibbs, 2001; Lowrie & Willmott, 2009).

Furthermore, the increasing neo-liberal view of education as more of a private good than a public good has compelled HEIs to adopt more market-oriented agendas to 'sell' education for market needs rather than for public needs (Biggs & Tang, 2007; Gibbs, 2001). Hence, it is inevitable that these situations provide the elements of a vicious cycle which proliferates a consumeristic culture in education and compels HEIs to be more content-driven and service-driven than learning-driven. It is therefore unsurprising that stakeholders of higher education—that is, HEIs, students and industry—remain nonchalant to the value of learning, and would rather emphasise the transmission of content and assessment (Aubrey & Riley, 2016), as well as for commercially-driven and politically-driven objectives (Gibbs, 2001; Hemsley-Brown & Oplatka, 2006; Mok & Lee, 2003;Yunker, 2000). In order for HEIs to uphold the ethos of a learning attitude in education, it is essential for HEIs to return to the basics of education, which truly is about the inculcation of an interest in learning (Claxton, 2008; Harish, 2011).

Leveraging the arguments in the preceding paragraph, a second challenge that HEIs face is to embark on a perceptual paradigm shift towards learning which forms the basis of the purpose of education, previously discussed in Section 8.2. Biesta (2009) refers to this paradigm shift as the 'learnification' of education, in which the direct recipients of education—students—are redefined as learners, while teaching is redefined as learning. HEIs have an important role to play in helping students to develop their capacities to learn (Claxton, 2007). However, HEIs need to overcome the inertia of perceiving themselves as institutions involved in the mere imparting of knowledge and provision of student services, and evolve into institutions that empower students to learn and to develop values, attitudes and characters for living (Harish, 2011; Aubrey & Riley, 2016). Interestingly, discussions in Chapter 2 highlighted that since the classical era learning has been an essential purpose for HEIs to pursue and sustain.

The reality of the inertia that prevents HEIs from moving beyond a mode of knowledge transfer is in part due to the notion of higher education as a market that provides for the demand for

employment-related skills instead of the development of students in their own rights (Gibbs, 2001). Educators are still ontologically known as 'teachers' tasked with the responsibility of imparting their knowledge and skills to students (Dall'Alba & Barnacle, 2007). This 'teaching' perception of educators is reflected strongly in many research and education policy papers (Biesta, 2015; Gibbons, 1998; Chong & Ho, 2009; Darling-Hammond, 2000; Ingvarson & Rowe, 2007; Kaplan & Owings, 2001) emphasising teaching quality as the sole responsibility of educators, which is commonly perceived as being synonymous with the quality of professional service that educators should provide in a highly commoditised higher education market. The issue with this phenomenon, however, is that HEIs tend to overlook the notion of student involvement in a higher education experience, which is crucial for both the cognitive and affective development of students, and which has positive implications on the student life experience (Astin, 1999; Harper & Quaye, 2009; McInnis, 2004).

Therefore, the real challenge for HEIs is to reconceptualise the notion of learning in higher education into one which is understood as not what the students know, but what students do and are becoming as a result of what they know (Dall'Alba & Barnacle, 2007). Support for this argument has been provided by research findings and discussion in both Chapters 6 and 7 which show a positive correlation between what the students do and experience, and what they become in terms of learning outcomes. With the need to transform the notion of learning in higher education, HEIs need to be able to critically reflect on their existence and purpose with evolving societal developments in the 21st century. It is essential that HEIs reconnect with the question of purpose in higher education (Biesta, 2009).

The need for HEIs to shift towards an emphasis on enabling students to learn for themselves suggests another challenge for HEIs: the need for HEIs to deliver a mode of education that enriches the student life experience and which befits the purposes of a student-centred and learner-centred education through student involvement. The student life experience refers to all

aspects of the experience of a student's engagement with higher education (McInnis, 2004; Baird & Gordon, 2009) which requires student involvement, a concept previously discussed in Section 8.3. Student involvement refers to the "quantity and quality of the physical and psychological energy that the student devotes to the academic experience" (Astin, 1999, p. 518), and has positive impacts on the student's learning success and personal development (Ullah & Wilson, 2007). It is student involvement that facilitates the manifestation of quality in student experiences defined in Section 4.3.7. Hence, through the involvement of students, the student life experience is essential for the quality of a higher education that a student experiences (Harvey & Knight, 1996) due to the positive influence that the former has on the latter, which is measured in terms of the development of the student through the learning outcomes achieved as a result of the higher education experience. This argument supports the idea that the quality of student experience has a positive impact on both the cognitive and affective, hence holistic, development of students, a relationship that was confirmed in the findings of this research in Chapter 6.

Since student involvement is essential for the quality of a student's higher education experience, HEIs can deliver a mode of learning-centred education which enriches the student life experience when students have learning power and are ready and willing to learn (Claxton, 2007). Claxton's theory of learning power (Claxton, 2002) suggests that four aspects of student learning are required to develop a student's capacity to learn, namely, resilience, resourcefulness, reflectiveness and reciprocity. Hence, the challenge for HEIs is to develop in students the disposition to learn which embodies these four aspects of student learning. The idea of expanding students' capacities to learn (Claxton, 2007) eventually does enable HEIs to reconnect with the question of purpose in higher education, which essentially is about learning for and with purpose. Interestingly, the arguments presented here and in the preceding paragraph connect well with the findings and discussions of this research on the positive

connection between a quality learning experience delivered by a HEI and the development of students manifested through learning outcomes of their higher education experience. Measures of learning outcomes in this research embodied Claxton's four aspects of student learning (Claxton, 2002), as previously mentioned. The findings of this research implicitly show that the stakeholders of higher education have expectations for HEIs to provide students with an enriching higher education experience that expands their learning power and disposition to learn.

Another challenge that HEIs face is the ability to manage an attitude of entitlement among students, the result of the perception of students as customers previously discussed in Section 3.7. Even though stakeholders of higher education expect HEIs to provide an enriching student life experience and perceive the positive impact that this could have on the cognitive and affective development of students, HEIs need to be aware that such expectations may breed a sense of entitlement among students. A sense of entitlement among students arises due to both students' perceptions of themselves as customers of a higher education experience, and HEIs subjecting students to treatment as customers or consumers of a higher education service (Finney & Finney, 2010; Singleton-Jackson et al., 2010; Woodall et al., 2014). This sense of entitlement is also attributed to a student's belief that they are entitled to or deserving of something in the higher education experience apart from their own performance or responsibilities in the learning environment (Singleton-Jackson et al., 2010). As a result, students with a sense of entitlement tend to place a greater interest on the outcomes of the higher education experience provided for them rather than on their own involvement needed to achieve the outcomes (Finney & Finney, 2010).

Hence, HEIs are challenged to engage students' involvement in the learning experience while refraining from feeding into a vicious cycle of reinforcing a sense of entitlement among students. HEIs need to acknowledge that the role of students' active involvement with the

learning process is threatened when students are given a sense of entitlement as a result of receiving treatment as customers (George, 2007). While rhetoric in literature seems to attribute the treatment of students as customers to the economic market commoditisation of higher education (Finney & Finney, 2010; Gibbs, 2001; Seidler, 2012; Woodall et al., 2014), HEIs need to be able to manage the phenomenon of student entitlement so as to remain focused on their core existence in enabling students to be involved in enriching learning experiences for their learning development. Even though the findings of this research show that a quality student learning experience provided by HEIs has positive implications for the cognitive and affective development of students, HEIs need to bring forth the awareness that the agency of the student is still necessary for education achievement (Morrow, 1994).

Finally, HEIs need to be cautious of the tendency to focus discussions about education on the measurement and comparison of educational outcomes, which is driven by the motivation for performance efficiency due to the global marketisation of higher education (Biesta, 2009; Gibbs, 2001). Such a tendency is manifested in forms such as the proliferation of accreditation of educational programs that HEIs offer (Harvey, 2004; Lowrie & Willmott, 2009), as well as an emphasis on quality assurance and accountability of education throughput measures such as completion rates of students (Dall'Alba & Barnacle, 2007). For instance, while accreditation may seem to be the appropriate approach for HEIs to provide quality assurance and control over the higher education service experience they provide, the bureaucratic nature of its processes, as previously highlighted in Section 2.3, runs counter to education innovation and pedagogic improvement processes that are necessary for HEIs to embrace (Harvey, 2004) to deliver desirable education outcomes through valued learning experiences. As both the practical contributions of this research and the discourse in this chapter have highlighted that the core purpose of HEIs is in providing quality learning experiences for students, it is essential that HEIs do not over-emphasise performance management through such practices, since doing

so is at the expense of higher learning, which is important to the function of HEIs (Gibbs, 2001). This idea is consistent with the need for HEIs to be cautious with the use of service-oriented measurement tools, as previously discussed in Section 7.3.3.

In conclusion, the challenges that HEIs face, as discussed in this section, propose future directions for HEIs so that they remain true to their purpose of higher learning. The challenges discussed are the result of consumerist pressures typical of a highly marketised higher education environment (Woodall et al., 2014). HEIs need to consider the re-essentialisation of education excellence through the adoption of educational thinking and practices that are learner-centred and progressive, rather than remain with an emphasis on content delivery and assessments (Dall'Alba & Barnacle, 2007; Thomson, 2001).

Chapter 9: Conclusion

9.1 Synthesis of Findings

Against a backdrop comprising the marketisation of higher education as a global phenomenon, the popular adoption of market-driven and service-oriented strategies for operations management and business growth of HEIs, and the increasing international focus on student learning outcomes in higher education, HEIs face a common challenge in striking a balance between the neo-liberal governance models they operate and their traditional academic mission. Hence, this thesis was motivated by the need to explore and understand the impact of service in HEIs on student learning outcomes. In particular, this thesis explores how a neo-liberal market competitive strategy through quality of service, together with the after-effects of student satisfaction and quality of student experience, affect the learning outcomes of students in higher education. The research was conducted in the context of Singapore, which provides a good scope for the research due to the hybrid nature of its higher education system, which bears a mixture of Eastern and Western higher education philosophies and represents a broad range of higher education systems in the Asia-Pacific region.

While the extant literature has continued to explore, investigate and justify the effectiveness of quality of service in higher education, this thesis has adopted a differentiated approach to explore the impact of such market-oriented directions on the traditional purpose of higher education, and in particular the deliverance of quality learning outcomes for students. The findings in this research have revealed how quality of service, with its after-effects of student satisfaction and quality of student experience, impact on learning outcomes of a higher education experience. This was achieved through the development and test of a conceptual model, and the exploration of differences in perspectives among major stakeholders identified in this research, that is, students, staff members of HEIs, and industry.

Literature provided theoretical support for the conceptual model that comprised six hypothesised relationships, H1 to H6. Through the use of the SEM methodology, which showed adequate fit of both the measurement and structural model with the data, it was revealed that quality of student experience had a significant positive influence on student satisfaction, cognitive learning outcomes and affective learning outcomes. Even though there was significant interrelationship between the RATER dimensions, there was no significant positive relationship between quality of service and student satisfaction, and between quality of service and quality of student experience. A significant positive relationship between student satisfaction and learning outcomes cannot be concluded, due to a significant positive influence that student satisfaction has on cognitive learning outcomes, and an insignificant relationship between the former and affective learning outcomes. While student satisfaction may appear to play a mediating presence between quality of student experience and learning outcomes, the investigation of the mediating effect of student satisfaction in this research was deemed inappropriate due to variations in perspectives among stakeholder groups concerning the influence of student satisfaction on learning outcomes.

Differences in perspectives among the stakeholder groups concerning the hypothesised relationships within the conceptual model were also explored. Through the use of a multi-method approach comprising MANOVA, discriminant analysis and SEM, both differences and similarities concerning the hypothesised relationships of the conceptual model were identified. While there was consensus that quality of service has no significant impact on both student satisfaction and quality of student experience, and that student satisfaction is a function of quality of student experience, the role that student satisfaction and quality of student experience play in influencing higher education learning outcomes is stakeholder dependent. Also, within the similarities in path relationships are differences in path estimates. These differences are

reflective of the divergent views that students, staff of HEIs and industry have concerning the learning outcomes as a result of a higher education experience that students are exposed to.

Overall, the major findings from this research provide support for the current state of knowledge in literature as well as new directions in relation to the three research domains of services marketing, quality of service and higher education. In analysing the findings in relation to the literature review, the reality of differences and contradictions in perspectives among stakeholder groups of higher education was highlighted in view of differences in acceptances and falsifications of the research hypotheses among students, the HEI as an organisation, and industry. The mass falsification of the perception of the positive influence that quality of service has on both student satisfaction and quality of student experience, and the acceptance with the positive influence that quality of student experience has on student satisfaction is in antithesis to a common regard for higher education as a service of a commoditised nature. Instead, the provision of quality student experiences was generally prominent as an important aspect of a service encounter in higher education to allow positive student learning outcomes. In view of these major findings, a high-quality student experience in higher education which positively influences cognitive and affective outcomes of students for all stakeholders might be the most universal and consistent definition for a high-quality service provided by a HEI.

9.2 Overall Contribution

Contributions to theory, methodology, policy and practice were derived as a result of the findings from this research. The contribution to theory is situated at the confluence of services marketing and higher education theory. The findings proved the insignificance of neo-liberal market-oriented quality of service strategies in influencing student satisfaction and quality of student experience, and the insignificance of student satisfaction in influencing student learning

outcomes. As such, the implication of these findings is the potential irrelevance concerning the use of market-oriented strategies in the management of higher education. On the other hand, the quality of student experience is an important contributing factor to improving student satisfaction and learning outcomes. These conclusions provide a strong indication that the fundamental mission of HEIs is in providing quality learning experiences, which reflects the value that the stakeholders of higher education demand.

The findings also confirmed the concerns regarding the contentiousness of perceiving quality of service from a purely market-oriented perspective and the challenge that HEIs face in striking a balance between their market-oriented intentions and their fundamental intentions to provide a quality learning experience to students. It also confirmed the divergence of stakeholder perspectives concerning the result of a higher education experience, hence the importance of including the perspectives of various stakeholders in service-oriented higher education studies. More importantly, since the quality of student experience is generally an important influencer of cognitive and affective learning outcomes of higher education, as this research has shown, the purpose of education in general is neither to provide a high-quality service to satisfy students or other stakeholders nor to influence the perception of a student learning experience. Instead, the key theoretical contribution in this thesis is the discovery of the purpose of education as the meaningful provision of quality student experiences that befit quality student learning to positively impact student learning outcomes.

Contributions to methodology were made through the analysis of differences in stakeholder perspectives concerning the hypothesised relationships by the use of a multi-method approach. The multi-method approach, which allowed for the triangulation of analysis for differences, comprised the use of discriminant analysis and SEM as follow-up tests of the MANOVA. The use of MANOVA, discriminant analysis and SEM provided maximum possibilities in this research to identify differences in perspectives among students, staff of HEIs, and industry.

Contributions to policy and practice relate to the implications on the administration of higher education, the significance of conducting the research in the context of Singapore, and the implications of globalisation for learning in higher education. This research highlights the importance for the administration of HEIs to be sensitive to the perspectives of various stakeholders to facilitate a more inclusive understanding, management and improvement of quality and student learning in HEIs. Three major stakeholders exist: students, staff members of HEIs, and industry. As all stakeholders place an emphasis on learning outcomes, HEIs need to portray themselves as being able to deliver this as the value that the stakeholders demand, while at the same time strike a balance with service marketing-oriented activities to satisfy students. In this respect, a key recommendation for HEIs is to stay focused on their core mission of higher education despite facing intense market-oriented competition. HEIs also need to be cautious with the use of service-oriented measurement tools such as SERVQUAL in the management and improvement of higher education, since the findings from this research show that quality of service has no significant association with student satisfaction.

The conduct of this research in the context of Singapore has also made a contribution to policy and practice. Knowledge produced may be used as a guide for administrators of HEIs in Singapore to implement institution-specific policies that are not just service-centric but also experience-centric and learning-centric, so as to provide a holistic learning experience for students. Although this research was directly associated with Singapore, the findings may be generalisable to HEIs both within and beyond Singapore by virtue of the justification that Singapore is representative of an international higher education system due to the international nature of its student enrolment. Hence, Singapore provides a strong basis of comparison for HEIs internationally, including as a useful starting point to study the effects of globalisation on higher education learning outcomes for the refinement of higher education policies in response to globalisation.

In summary, this research has made significant contributions to theory and practice, situated at the confluence of services marketing and higher education. Theoretical norms have been debunked and practical recommendations have been provided for the management and improvement of higher education administration to deliver value in terms of learning outcomes to the relevant stakeholders, especially students as the direct receivers of higher education services.

9.3 Outlook on Future Research

While this research has provided findings and discussions which have produced an understanding of the central research question posed in Section 1.4, future research opportunities, which were elaborated in Section 7.4, are also identifiable. Research in these areas could further contribute to the research conversation situated at the intersection of services marketing and higher education theory and practice. It is proposed that a longitudinal study of perceptions among stakeholders be conducted to explore the effect of time on perceptions and phenomena concerning the hypothesised relationships. This would address the lack of longitudinal evaluation of the quality of a higher education experience in literature. There is also a need for the development of a measurement tool that is centred on the students' experience when evaluating the quality and performance of HEIs, since findings in this research show no significant association between quality of service and student satisfaction. While it was argued that findings in this research may be generalisable with higher education systems beyond Singapore, it would be useful to also conduct comparative studies to further investigate for similarities and differences across countries and higher education systems that might provide interesting findings. The conceptualisation of the value of a higher education that stakeholders demand is also an interesting research opportunity to further explore. This idea

resonates well with the understanding that value is a slippery concept which is difficult to conceptualise and measure (Woodall et al., 2014). Discussions in this thesis have provided an understanding that the value of a higher education that stakeholders demand relates to the quality of learning experiences, and hence outcomes, that HEIs provide. However, by exploring the determinants of this value with the application of the service-dominant logic (Finney & Finney, 2010; Vargo & Lusch, 2004a) and exchange theory (Finney & Finney, 2010), further contributions may be made to an understanding of the service approach in higher education. Finally, systems thinking theories and practice may be applied to further analyse the dynamic behaviour of the interactions between the variables of the conceptual model. This would address the idea that elements of the conceptual model not only form a system but are systems themselves, and hence exhibit systems behaviour worth investigating.

9.4 Future Challenges for Higher Education

Leveraging on a systems thinking approach, the contributions of this research are addressed not only from the service perspective but also from the education and pedagogic perspectives. Doing so was necessary to further solidify the contributions of this research, which are situated at the confluence of services marketing theory and higher education theory. Considerations from both the purpose of education and pedagogic perspectives reinforce the findings and discussions of this research, and suggest that HEIs capitalise on considerations in relation to the purpose of education and pedagogy in the delivery and management of quality learning experiences for students. This is in view of strong agreement among the stakeholders of higher education that the fundamental mission of HEIs is in providing quality learning experiences to students, as was concluded through findings presented in Chapter 5. Nevertheless, future challenges for higher education in relation to student learning and the holistic development of

students were identified as a result of the additional considerations of the purpose of education and pedagogic perspectives.

As there is a challenge for the thinking about education to keep pace with changes taking place in a changing world, particularly in an education landscape which increasingly emphasises collaborative learning through the use of information and communication technologies (ICT) as a change agent for education and learning (Hong & Songan, 2011; Sarkar, 2012), HEIs need to constantly evolve to stay relevant to their purpose in society. Despite growing internationalisation and globalisation of higher education which emphasises content delivery and knowledge acquisition for economic aspirations, it is necessary for HEIs to uphold the ethos of a learning attitude among students as the foundation of education. That said, HEIs also face a challenge of embarking on a perceptual paradigm shift towards deep learning which forms the basis of the purposes of education, as discussed in this research. HEIs need to overcome the inertia of perceiving themselves as institutions involved in the mere imparting of knowledge and provision of student services, and incorporate student involvement in a higher education experience which is essential for both the cognitive and affective development of students. Hence, a key challenge for HEIs would be the extent to which the results of this research could be used to develop innovative learning strategies to improve and enhance student learning experiences and outcomes that deliver value to stakeholders.

Student involvement and student entitlement have also been highlighted as real challenges that HEIs face. The findings of this research implicitly show that the stakeholders of higher education have expectations for HEIs to provide an enriching higher education experience that expands their learning power and disposition to learn. For this to happen, student involvement in the learning experience is necessary since the involvement of students contributes to the student life experience, which positively impacts the quality of a higher education experience. However, with the expectations of HEIs that stakeholders have, HEIs need to manage an

attitude of entitlement among students which threatens the role of students' active involvement with the learning process. HEIs need to be able to manage the phenomenon of student entitlement so as to remain focused on their core existence in enabling students to be involved in an enriching learning experience, and to refrain from feeding into a vicious cycle of reinforcing a sense of entitlement among students.

Finally, it is necessary for HEIs to be cautious of the global drive for performance management in higher education. While necessary for the quality assurance, accountability and accreditation of higher education programs, it is essential that HEIs do not over-emphasise such practices with throughput measures for the management of higher education since doing so is at the expense of motivating higher learning, a core function of HEIs.

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Appendix 1: Questionnaire Items, Scales Used and References

Questionnaire items for survey administered with students:

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Reliability	rel1	Student services are readily available and delivered on time.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)
Reliability	rel2	Staff members are dependable for assistance.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)
Reliability	rel3	Staff members render assistance to students to solve their problems.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012)
Reliability	rel4	Teaching staff are consistent in the way they teach.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006)
Reliability	rel5	Up-to-date communications are provided to students promptly.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012)
Reliability	rel6	Services to students are provided right first time.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012)
Assurance	ass1	Teaching staff are skilful and competent in what they teach.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Duque & Weeks (2010)
Assurance	ass2	Staff members are honest in their interaction with students.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Assurance	ass3	A student feels safe in their interaction with staff members.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Assurance	ass4	The institution inspires confidence in the student.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Assurance	ass5	Staff members are sympathetic and reassuring with students who face problems.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Parasumaran et al. (1988)

Questionnaire items for survey administered with students (continued):

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Tangibles	tan1	Learning resources provided for student learning are up-to-date.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Douglas at al. (2006); Min et al. (2012); Parasumaran et al. (1988)
Tangibles	tan2	Learning resources are visually appealing.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Douglas at al. (2006); Min et al. (2012); Parasumaran et al. (1988)
Tangibles	tan3	The appearance of the physical facilities is in keeping with the type of services provided to students.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Douglas at al. (2006); Parasumaran et al. (1988)
Tangibles	tan4	Learning spaces are conducive for student learning.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Duque & Weeks (2010)
Tangibles	tan5	The learning environment coveys a sense of competence, confidence and professionalism.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006)
Empathy	emp1	Staff members show respect for the feelings, concerns and opinions of students.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006)
Empathy	emp2	Staff members have the students' best interest at heart.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Parasumaran et al. (1988)
Empathy	emp3	Staff members know what the needs of students are.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Empathy	emp4	Operating hours of student resources are convenient for students.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Empathy	emp5	Staff members are friendly and caring.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Parasumaran et al. (1988)
Empathy	emp6	Students are provided individualised attention in their learning process.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)

Questionnaire items for survey administered with students (continued):

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Responsiveness	res1	Prompt feedback on student performance is provided.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006)
Responsiveness	res2	Staff members provide prompt response to students' requests.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)
Responsiveness	res3	Staff members are always willing to assist students.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)
Responsiveness	res4	Staff members are never busy to respond to students' request promptly.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Responsiveness	res5	Teaching staff are always available to respond to students' requests.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Douglas at al. (2006); Parasumaran et al. (1988)
Quality of Student Experience	qoe1	The higher education institution I am attending gives me a feeling that my best interest are being served.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Otto & Ritchie (1995)
Quality of Student Experience	qoe2	The higher education institution I am attending gives me a feeling that rewards gained are consistent with the effort I put into the assessment.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Otto & Ritchie (1995)
Quality of Student Experience	qoe3	The higher education institution I am attending gives me a feeling of enjoyment with the education experience.	1–7	Likert	Strongly disagree – Strongly agree	Arnould & Price (1993); de Rojas & Camarero (2008); Kao et al. (2008); Mano & Oliver (1993); Otto & Ritchie (1995)
Quality of Student Experience	qoe4	I feel involved with the higher education institution I am attending.	1–7	Likert	Strongly disagree – Strongly agree	Kao et al. (2008); Otto & Ritchie (1995); Peterson & Miller (2004)

Questionnaire items for survey administered with students (continued):

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Quality of Student Experience	qoe5	The higher education institution I am attending gives me a feeling of uniqueness of being associated with it.	1–7	Likert	Strongly disagree – Strongly agree	Kao et al. (2008); Otto & Ritchie (1995)
Quality of Student Experience	qoe6	The higher education institution I am attending gives me a feeling of anticipation and being intellectually challenged.	1–7	Likert	Strongly disagree – Strongly agree	de Rojas & Camarero (2008); Otto & Ritchie (1995); Peterson & Miller (2004)
Student satisfaction	ss1	How do you feel about your higher education institution meeting your expectations of a higher education?	1–7	Semantic differential	Very dissatisfied – Very satisfied	Churchill & Surprenant (1982); de Rojas & Camarero (2008); Duque & Weeks (2010); Garbarino & Johnson (1999); Mano & Oliver (1993)
Student satisfaction	ss2	How do you feel about your higher education experience?	1–7	Semantic differential	Very dissatisfied – Very satisfied	de Rojas & Camarero (2008); Mano & Oliver (1993)
Student satisfaction	ss3	How would you rate this higher education institution compared with other higher education institutions on the overall satisfaction?	1–7	Comparative	Much worse – Much better	Garbarino & Johnson (1999); Mano & Oliver (1993)
Cognitive outcomes	cog1	My higher education experience has developed me to solve problems effectively.	1–7	Likert	Strongly disagree – Strongly agree	Duque & Weeks (2010); Frye (1999); Endo & Harpel (1982); NTU (2013)
Cognitive outcomes	cog2	My higher education experience has developed me to communicate effectively.	1–7	Likert	Strongly disagree – Strongly agree	Duque & Weeks (2010); Frye (1999); Endo & Harpel (1982); NTU (2013)

Questionnaire items for survey administered with students (continued):

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Cognitive outcomes	cog3	My higher education has enabled me to develop skills relevant for industry.	1–7	Likert	Strongly disagree – Strongly agree	Duque & Weeks (2010); Frye (1999)
Cognitive outcomes	cog4	I have developed good general knowledge as a result of my higher education experience.	1–7	Likert	Strongly disagree – Strongly agree	Endo & Harpel (1982)
Cognitive outcomes	cog5	I am able to better manage, use and analyse information as a result of my higher education experience.	1–7	Likert	Strongly disagree – Strongly agree	Duque & Weeks (2010)
Affective outcomes	aff1	How would you rate your level of integrity as a result of your higher education experience?	1–7	Likert	Under achieving – Very accomplished	Frye (1999); NTU (2013)
Affective outcomes	aff2	How would you rate your level of resilience as a result of your higher education experience?	1–7	Likert	Under achieving – Very accomplished	Frye (1999); NTU (2013); Tan, 2015
Affective outcomes	aff3	How would you rate your level of social conscience as a result of your higher education experience?	1–7	Likert	Under achieving – Very accomplished	Frye (1999); NTU (2013)
Affective outcomes	aff4	How would you rate your level of self-direction as a result of your higher education experience?	1–7	Likert	Under achieving – Very accomplished	Duque & Weeks (2010); Endo & Harpel (1982); Lee (2015)
Affective outcomes	aff5	How would you rate your level of self-confidence as a result of your higher education experience?	1–7	Likert	Under achieving – Very accomplished	Duque & Weeks (2010); Endo & Harpel (1982)
Affective outcomes	aff6	How would you rate your level of world view as a result of your higher education experience?	1–7	Likert	Under achieving – Very accomplished	Duque & Weeks (2010); Frye (1999); Lee (2015)

Questionnaire items for survey administered with teaching and non-teaching staff in higher education institutions:

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Reliability	rel1	Student services are readily available and delivered on time.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)
Reliability	rel2	Staff members are dependable for assistance.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)
Reliability	rel3	Staff members render assistance to students to solve their problems.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012)
Reliability	rel4	Teaching staff are consistent in the way they teach.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006)
Reliability	rel5	Up-to-date communications are provided to students promptly.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012)
Reliability	rel6	Services to students are provided right first time.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012)
Assurance	ass1	Teaching staff are skilful and competent in what they teach.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Duque & Weeks (2010)
Assurance	ass2	Staff members are honest in their interaction with students.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Assurance	ass3	A student feels safe in their interaction with staff members.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Assurance	ass4	The institution inspires confidence in the student.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Assurance	ass5	Staff members are sympathetic and reassuring with students who face problems.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Parasumaran et al. (1988)
Tangibles	tan1	Learning resources provided for student learning are up-to-date.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Douglas at al. (2006); Min et al. (2012); Parasumaran et al. (1988)

Questionnaire items for survey administered with teaching and non-teaching staff in higher education institutions (continued):

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Tangibles	tan2	Learning resources are visually appealing.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Douglas at al. (2006); Min et al. (2012); Parasumaran et al. (1988)
Tangibles	tan3	The apperance of the physical facilities is in keeping with the type of services provided to students.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Douglas at al. (2006); Parasumaran et al. (1988)
Tangibles	tan4	Learning spaces are conducive for student learning.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Duque & Weeks (2010)
Tangibles	tan5	The learning environment coveys a sense of competence, confidence and professionalism	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006)
Empathy	emp1	Staff members show respect for the feelings, concerns and opinions of students.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006)
Empathy	emp2	Staff members have the students' best interest at heart.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Parasumaran et al. (1988)
Empathy	emp3	Staff members know what the needs of students are.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Empathy	emp4	Operating hours of student resources are convenient for students.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Empathy	emp5	Staff members are friendly and caring.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Parasumaran et al. (1988)
Empathy	emp6	Students are provided individualised attention in their learning process.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)
Responsiveness	res1	Prompt feedback on student performance is provided.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006)
Responsiveness	res2	Staff members provide prompt response to students' requests.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)

Questionnaire items for survey administered with teaching and non-teaching staff in higher education institutions (continued):

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Responsiveness	res3	Staff members are always willing to assist students.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)
Responsiveness	res4	Staff members are never busy to respond to students' request promptly.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Responsiveness	res5	Teaching staff are always available to respond to students' requests.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Douglas at al. (2006); Parasumaran et al. (1988)
Quality of Student Experience	qoe1	Students feel that their best interest are being served by the higher education institution.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Otto & Ritchie (1995)
Quality of Student Experience	qoe2	Students feel that rewards gained are consistent with the effort they put into the assessment.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Otto & Ritchie (1995)
Quality of Student Experience	qoe3	Students feel enjoyment with the education experience.	1–7	Likert	Strongly disagree – Strongly agree	Arnould & Price (1993); de Rojas & Camarero (2008); Kao et al. (2008); Mano & Oliver (1993); Otto & Ritchie (1995)
Quality of Student Experience	qoe4	Students feel involved with the higher education institution they are attending.	1–7	Likert	Strongly disagree – Strongly agree	Kao et al. (2008); Otto & Ritchie (1995); Peterson & Miller (2004)
Quality of Student Experience	qoe5	Students feel a sense of uniqueness of being associated with the higher education institution they are attending.	1–7	Likert	Strongly disagree – Strongly agree	Kao et al. (2008); Otto & Ritchie (1995)
Quality of Student Experience	qoe6	Students have a feeling of anticipation and being intellectually challenged.	1–7	Likert	Strongly disagree – Strongly agree	de Rojas & Camarero (2008); Otto & Ritchie (1995); Peterson & Miller (2004)

Questionnaire items for survey administered with teaching and non-teaching staff in higher education institutions (continued):

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Student satisfaction	ss1	In your opinion, how do students feel about your higher education institution in meeting their expectations of a higher education?	1–7	Semantic differential	Very dissatisfied – Very satisfied	Churchill & Surprenant (1982); de Rojas & Camarero (2008); Duque & Weeks (2010); Garbarino & Johnson (1999); Mano & Oliver (1993)
Student satisfaction	ss2	In your opinion, how do students feel about their higher education experience with the higher education institution you work in?	1–7	Semantic differential	Very dissatisfied – Very satisfied	de Rojas & Camarero (2008); Mano & Oliver (1993)
Student satisfaction	ss3	How would you rate the higher education institution you work in compared with other higher education institutions on the overall satisfaction of these students?	1–7	Comparative	Much worse – Much better	Garbarino & Johnson (1999); Mano & Oliver (1993)
Cognitive outcomes	cog1	Students develop effective problem-solving skills as a result of their experience in the higher education institution.	1–7	Likert	Strongly disagree – Strongly agree	Duque & Weeks (2010); Frye (1999); Endo & Harpel (1982); NTU (2013)
Cognitive outcomes	cog2	Students develop effective communication skills as a result of their experience in the higher education institution.	1–7	Likert	Strongly disagree – Strongly agree	Duque & Weeks (2010); Frye (1999); Endo & Harpel (1982); NTU (2013)
Cognitive outcomes	cog3	Students develop skills relevant for industry as a result of their experience in the higher education institution.	1–7	Likert	Strongly disagree – Strongly agree	Duque & Weeks (2010); Frye (1999)
Cognitive outcomes	cog4	Students develop good general knowledge as a result of their higher education experience in the institution.	1–7	Likert	Strongly disagree – Strongly agree	Endo & Harpel (1982)

Questionnaire items for survey administered with teaching and non-teaching staff in higher education institutions (continued):

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Cognitive outcomes	cog5	Students are able to manage, use and analyse information as a result of their higher education experience in the institution.	1–7	Likert	Strongly disagree – Strongly agree	Duque & Weeks (2010)
Affective outcomes	aff1	How do you rate the integrity of students of the higher education institution you work in?	1–7	Likert	Under achieving – Very accomplished	Frye (1999); NTU (2013)
Affective outcomes	aff2	How do you rate the resilience of students of the higher education institution you work in?	1–7	Likert	Under achieving – Very accomplished	Frye (1999); NTU (2013); Tan, 2015
Affective outcomes	aff3	How do you rate the social conscience of students of the higher education institution you work in?	1–7	Likert	Under achieving – Very accomplished	Frye (1999); NTU (2013)
Affective outcomes	aff4	How do you rate the self-direction of students of the higher education institution you work in?	1–7	Likert	Under achieving – Very accomplished	Duque & Weeks (2010); Endo & Harpel (1982); Lee (2015)
Affective outcomes	aff5	How do you rate the self-confidence of students of the higher education institution you work in?	1–7	Likert	Under achieving – Very accomplished	Duque & Weeks (2010); Endo & Harpel (1982)
Affective outcomes	aff6	How do you rate the world view of students of the higher education institution you work in?	1–7	Likert	Under achieving – Very accomplished	Duque & Weeks (2010); Frye (1999); Lee (2015)

Questionnaire items for survey administered with industry practitioners:

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Reliability	rel1	Student services are readily available and delivered on time.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)
Reliability	rel2	Staff members are dependable for assistance.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)
Reliability	rel3	Staff members render assistance to students to solve their problems.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012)
Reliability	rel4	Teaching staff are consistent in the way they teach.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006)
Reliability	rel5	Up-to-date communications are provided to students promptly.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012)
Reliability	rel6	Services to students are provided right first time.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012)
Assurance	ass1	Teaching staff are skilful and competent in what they teach.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Duque & Weeks (2010)
Assurance	ass2	Staff members are honest in their interaction with students.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Assurance	ass3	A student feels safe in their interaction with staff members.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Assurance	ass4	The institution inspires confidence in the student.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Assurance	ass5	Staff members are sympathetic and reassuring with students who face problems.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Parasumaran et al. (1988)

Questionnaire items for survey administered with industry practitioners (continued):

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Tangibles	tan1	Learning resources provided for student learning are up-to-date.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Douglas at al. (2006); Min et al. (2012); Parasumaran et al. (1988)
Tangibles	tan2	Learning resources are visually appealing.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Douglas at al. (2006); Min et al. (2012); Parasumaran et al. (1988)
Tangibles	tan3	The apperance of the physical facilities is in keeping with the type of services provided to students.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Douglas at al. (2006); Parasumaran et al. (1988)
Tangibles	tan4	Learning spaces are conducive for student learning.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Duque & Weeks (2010)
Tangibles	tan5	The learning environment coveys a sense of competence, confidence and professionalism.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006)
Empathy	emp1	Staff members show respect for the feelings, concerns and opinions of students.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006)
Empathy	emp2	Staff members have the students' best interest at heart.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Parasumaran et al. (1988)
Empathy	emp3	Staff members know what the needs of students are.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Empathy	emp4	Operating hours of student resources are convenient for students.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Empathy	emp5	Staff members are friendly and caring.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Parasumaran et al. (1988)
Empathy	emp6	Students are provided individualised attention in their learning process.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)

Questionnaire items for survey administered with industry practitioners (continued):

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Responsiveness	res1	Prompt feedback on student performance is provided.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006)
Responsiveness	res2	Staff members provide prompt response to students' requests.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)
Responsiveness	res3	Staff members are always willing to assist students.	1–7	Likert	Strongly disagree – Strongly agree	Min et al. (2012); Parasumaran et al. (1988)
Responsiveness	res4	Staff members are never busy to respond to students' request promptly.	1–7	Likert	Strongly disagree – Strongly agree	Parasumaran et al. (1988)
Responsiveness	res5	Teaching staff are always available to respond to students' requests.	1–7	Likert	Strongly disagree – Strongly agree	Ardi et al. (2012); Douglas at al. (2006); Parasumaran et al. (1988)
Quality of Student Experience	qoe1	Students feel that their best interest are being served by the higher education institution.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Otto & Ritchie (1995)
Quality of Student Experience	qoe2	Students feel that rewards gained are consistent with the effort they put into the assessment.	1–7	Likert	Strongly disagree – Strongly agree	Douglas et al. (2006); Otto & Ritchie (1995)
Quality of Student Experience	qoe3	Students feel enjoyment with the education experience.	1–7	Likert	Strongly disagree – Strongly agree	Arnould & Price (1993); de Rojas & Camarero (2008); Kao et al. (2008); Mano & Oliver (1993); Otto & Ritchie (1995)
Quality of Student Experience	qoe4	Students feel involved with the higher education institution they are attending.	1–7	Likert	Strongly disagree – Strongly agree	Kao et al. (2008); Otto & Ritchie (1995); Peterson & Miller (2004)
Quality of Student Experience	qoe5	Students feel a sense of uniqueness of being associated with the higher education institution they are attending.	1–7	Likert	Strongly disagree – Strongly agree	Kao et al. (2008); Otto & Ritchie (1995)

Questionnaire items for survey administered with industry practitioners (continued):

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Quality of Student Experience	qoe6	Students have a feeling of anticipation and being intellectually challenged.	1–7	Likert	Strongly disagree – Strongly agree	de Rojas & Camarero (2008); Otto & Ritchie (1995); Peterson & Miller (2004)
Student satisfaction	ss1	In your opinion, how do students feel about higher education institutions in Singapore in meeting their expectations of a higher education?	1–7	Semantic differential	Very dissatisfied – Very satisfied	Churchill & Surprenant (1982); de Rojas & Camarero (2008); Duque & Weeks (2010); Garbarino & Johnson (1999); Mano & Oliver (1993)
Student satisfaction	ss2	In your opinion, how do students feel about their higher education experience with higher education institutions in Singapore?	1–7	Semantic differential	Very dissatisfied – Very satisfied	de Rojas & Camarero (2008); Mano & Oliver (1993)
Student satisfaction	ss3	How would you rate the higher education institutions in Singapore compared with higher education institutions outside Singapore on the overall satisfaction of these students?	1–7	Comparative	Much worse – Much better	Garbarino & Johnson (1999); Mano & Oliver (1993)
Cognitive outcomes	cog1	Students develop effective problem-solving skills as a result of their experience in a higher education institution in Singapore.	1–7	Likert	Strongly disagree – Strongly agree	Duque & Weeks (2010); Frye (1999); Endo & Harpel (1982); NTU (2013)
Cognitive outcomes	cog2	Students develop effective communication skills as a result of their experience in a higher education institution in Singapore.	1–7	Likert	Strongly disagree – Strongly agree	Duque & Weeks (2010); Frye (1999); Endo & Harpel (1982); NTU (2013)

Questionnaire items for survey administered with industry practitioners (continued):

Variable	Item Code	Questionnaire Item	Scale	Scale Type	Scale Anchor	References
Cognitive outcomes	cog3	Students develop skills relevant for industry as a result of their experience in a higher education institution in Singapore.	1–7	Likert	Strongly disagree – Strongly agree	Duque & Weeks (2010); Frye (1999)
Cognitive outcomes	cog4	Students develop good general knowledge as a result of their experience in a higher education institution in Singapore.	1–7	Likert	Strongly disagree – Strongly agree	Endo & Harpel (1982)
Cognitive outcomes	cog5	Students are able to manage, use and analyse information as a result of their experience in a higher education institution in Singapore.	1–7	Likert	Strongly disagree – Strongly agree	Duque & Weeks (2010)
Affective outcomes	aff1	How do you rate the integrity of students of higher education institutions in Singapore?	1–7	Likert	Under achieving – Very accomplished	Frye (1999); NTU (2013)
Affective outcomes	aff2	How do you rate the resilience of students of higher education institutions in Singapore?	1–7	Likert	Under achieving – Very accomplished	Frye (1999); NTU (2013); Tan, 2015
Affective outcomes	aff3	How do you rate the social conscience of students of higher education institutions in Singapore?	1–7	Likert	Under achieving – Very accomplished	Frye (1999); NTU (2013)
Affective outcomes	aff4	How do you rate the self-direction of students of higher education institutions in Singapore?	1–7	Likert	Under achieving – Very accomplished	Duque & Weeks (2010); Endo & Harpel (1982); Lee (2015)
Affective outcomes	aff5	How do you rate the self-confidence of students of higher education institutions in Singapore?	1–7	Likert	Under achieving – Very accomplished	Duque & Weeks (2010); Endo & Harpel (1982)
Affective outcomes	aff6	How do you rate the world view of students of higher education institutions in Singapore?	1–7	Likert	Under achieving – Very accomplished	Duque & Weeks (2010); Frye (1999); Lee (2015)

Appendix 2: Questionnaires Used in Survey Research

Participant Information Form for PhD Research Project

Researcher

Mr Adrian Tan
PhD Candidate
Faculty of Business, Government & Law
School of Management
University of Canberra, Australia
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Project Aim

This project aims to identify and explain the effect of service quality on higher education outcomes through the testing of a proposed conceptual model. It will also explore the differences in perceptions amongst stakeholders of higher education, with regards to their perceptions of service quality and it effect on higher education outcomes. This study will be conducted within the context of higher education institutions in Singapore.

Benefits of the Project

a) This research will produce a holistic understanding of how service quality affects higher education outcomes since the study will examine how the various dimensions of service quality and the service experience relate with higher education outcomes. The variables of the study are identified from literature, and comparisons will be made between the stakeholders of higher education, namely, students, administrators, educators and industry.

b) This research will benefit stakeholders who are involved in higher education administration and policy making since the study will provide a deeper understanding on the consequence of service quality and the service experience in higher education institutions on higher education outcomes.

c) This project will make a significant contribution to literature and the higher education landscape in Singapore since the study is conducted within the context of Singapore.

d) The international research community will benefit from knowledge produced from a study conducted in Singapore.

e) This research relates strongly to the researchers' interest and industry background as an educator in a higher education institution in Singapore.

General Outline of the Project

Many studies on service quality in higher education have looked into how the various factors of service quality affect student satisfaction. While there is no agreed list of factors that determine service quality, the common aim in these research has been to measure student satisfaction with regards to how higher education institutions deliver service quality through the quality of service. However, the effect of delivering service quality on higher education outcomes of students is under researched. There is also limited research on the quality of the student experience in higher education and its impact on education outcomes. Gaining an understanding of this issue is important since the fundamental focus of higher education institutions is to provide quality learning experiences to students.

Hence, this study will analyse the effect of service quality dimensions and the service experience on higher education outcomes. Data will be collected in Singapore in order to test a model to determine the extent of these relationships. Specifically, this study will establish

1) the relationship between service quality dimensions and the service experience with student satisfaction and higher education outcomes;

2) the interrelationship between service quality dimensions and the service experience;

3) the differences in perceptions among stakeholder of higher education on the effect of service quality on higher education outcomes.

Participant Involvement

Participants who agree to participate in the research will be asked to participate in an online-survey

Participation in the research is completely voluntary and participants may without any penalty, decline to take part or withdraw at any time without providing an explanation, or refuse to answer a question. As the survey is administered as an online questionnaire, completion of the questionnaire shall be taken as an indication of consent to fully participate.

Confidentiality

Participants of this survey are assured that their responses will be kept strictly confidential, and that their responses will remain anonymous. Privacy and confidentiality will be assured at all times. Only the researchers will have access to the individual information provided by respondents.

Data collected through the survey will be presented at an aggregate level without identifying individual respondents. The research outcomes will be reported in a PhD thesis. It may be provided to interested parties and may be presented at conferences and written up for publication. However, in all these reports, the privacy and confidentiality of individuals will be protected.

Data Storage

The information collected will be stored securely on a password protected computer throughout the project and then stored at the University of Canberra for the required five year period after which it will be destroyed according to university protocols.

Ethics Committee Clearance

The project has been approved by the Committee for Ethics in Human Research of the University of Canberra. If you have any queries, you may email to ethics@canberra.edu.au.

Queries and Concerns

Queries or concerns regarding the research can be directed to the researcher, Mr Adrian Tan (PhD candidate, University of Canberra), whose contact details is at the top of this form. The research team is happy to answer any queries.

Consent Statement for Survey Participants

Thank you for your interest in this survey, on the effect of service quality in higher education. By completing the survey, you are assisting us to produce new knowledge on service quality in higher education which can be used to guide higher education administration practices and policies in Singapore.

The data will provide results on how service quality of higher education institutions in Singapore affect the higher education outcomes of its students.

The survey will not take too much of your time and will take 15-20 minutes to complete. If you need assistance when completing the survey or have any related question, please contact Adrian Tan at u3093626@uni.canberra.edu.au.

The survey is completely voluntary, and your response will be kept confidential and anonymous.

The survey will be open between 1 August 2014 and 30 November 2014.

A summary of the research findings can be forwarded to you when published. If you would like to receive a copy of the findings, please include your email address at the end of the survey.

Your email address will not be collected in relation to your data and we confirm that there will be no connection possible that identifies your identity.

Name…………………………………………………………………….……

Email address………………………………………...……………………………

ONLINE QUESTIONNAIRE FOR STUDENTS

Section A

In this section, you need to provide some information about yourself. No attempt will be made to identify you.

1) Gender: o Male   o Female

2) Age: _____

3) I am currently pursuing a:

     o University Undergraduate Degree   o Polytechnic Diploma

     o University Postgraduate Degree   o Other Diploma / Professional Qualification

4) I am currently a:

     o Freshman (1st year student)   o Junior year student (Student in 2nd or 3rd year of studies)

     o Senior year student (Student in final year of studies)

5) Student status: o Domestic   o International

Section B

In this section, please rate your opinions on aspects of service quality in the higher education institution you are associated with as a student.

1. Learning resources provided for student learning are up-to-date.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

2. Learning resources are visually appealing.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

3. The appearance of the physical facilities is in keeping with the type of services provided to students.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

4. Learning spaces are conducive for student learning.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

5. The learning environment conveys a sense of competence, confidence and professionalism.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

6. Student services are readily available and delivered on time.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

7. Staff members are dependable for assistance.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

8. Staff members render assistance to students to solve their problems.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

9. Teaching staff are consistent in the way they teach.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

10. Up-to-date communications are provided to students promptly.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

11. Services to students are provided right first time.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

12. Prompt feedback student performance is provided.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

13. Staff members provide prompt response to students' requests.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

14. Staff members are always willing to assist students.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

15. Staff members are never too busy to respond to students' requests promptly.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

16. Teaching staff are always available to respond to students' requests.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

17. Teaching staff are skilful and competent in what they teach.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

18. Staff members are honest in their interaction with students.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

19. A student feels safe in their interaction with staff members.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

20. The institution inspires confidence in the student.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

21. Staff are sympathetic and reassuring with students who face problems.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

22. Staff members show respect for the feelings, concerns and opinions of students.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

23. Staff members have the student's best interest at heart.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

24. Staff members know what the needs of students are.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

25. Operating hours of student resources are convenient for students.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

26. Staff members are friendly and caring.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

27. Students are provided individualised attention in their learning process.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

Section C

In this section, please rate your opinions on how you feel of your experience in the higher education institution you are associated with as a student.

1. The higher education institution I am attending gives me a feeling that my best interest are being served.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

2. The higher education institution I am attending gives me a feeling that rewards gained are consistent with the effort I put into the assessment.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

3. The higher education institution I am attending gives me a feeling of enjoyment with the education experience.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

4. I feel involved with the higher education institution I am attending.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

5. The higher education institution I am attending gives me a feeling of uniqueness of being associated with it.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

6. The higher education institution I am attending gives me a feeling of anticipation and being intellectually challenged.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

Section D

In this section, please rate your opinion on your satisfaction with the higher education experience you are associate with.

1. How do you feel about your higher education institution meeting your expectations of a higher education?

Very Dissatisfied	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Very Satisfied

2. How do you feel aout your higher education experience?

Very Dissatisfied	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Very Satisfied

3. How would you rate this higher education institution compared with other higher education institutions on the overall satisfaction?

Much Worse	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Much Better

Section E

In this section, please rate your opinion on how you have personally developed as a result of your higher education experience.

1. My higher education experience has developed me to solve problems effectively.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

2. My higher education experience has developed me to communicate effectively.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

3. My higher education has enabled me to develop skills relevant for industry.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

4. I have developed good general knowledge as a result of my higher education experience.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

5. I am able to better manage, use and analyse information as a result of my higher education experience.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

6. How would you rate your level of integrity as a result of your higher education experience?

Under Achieving	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Very Accomplished

7. How would you rate your level of resilience as a result of your higher education experience?

Under Achieving	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Very Accomplished

8. How would you rate your level of social conscience as a result of your higher education experience?

Under Achieving	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Very Accomplished

9. How would you rate your level of self-direction as a result of your higher education experience?

Under Achieving	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Very Accomplished

10. How would you rate your level of self-confidence as a result of your higher education experience?

Under Achieving	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Very Accomplished

11. How would you rate your level of world view as a result of your higher education experience?

Under Achieving	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Very Accomplished

ONLINE QUESTIONNAIRE FOR TEACHING AND NON-TEACHING STAFF OF HIGHER EDUCATION INSTITUTIONS

Section A

In this section, you need to provide some information about yourself. No attempt will be made to identify you.

1) Gender: o Male   o Female

2) Age: _____

3) Highest educational level completed:
- o University Undergraduate Degree
- o Polytechnic Diploma
- o University Postgraduate Degree
- o Other Diploma / Professional Qualification

4) I am working the a higher education institution:
- o as an educator.
- o in administration or administration support.

5) I am working with a:
- o University
- o Polytechnic
- o Private education provider

Section B

In this section, please rate your opinions on aspects of service quality in the higher education institution you are associated with as an educator or administrator.

1. Learning resources provided for student learning are up-to-date.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

2. Learning resources are visually appealing.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

3. The appearance of the physical facilities is in keeping with the type of services provided to students.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

4. Learning spaces are conducive for student learning.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

5. The learning environment conveys a sense of competence, confidence and professionalism.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

6. Student services are readily available and delivered on time.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

7. Staff members are dependable for assistance.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

8. Staff members render assistance to students to solve their problems.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

9. Teaching staff are consistent in the way they teach.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

10. Up-to-date communications are provided to students promptly.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

11. Services to students are provided right first time.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

12. Prompt feedback student performance is provided.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

13. Staff members provide prompt response to students' requests.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

14. Staff members are always willing to assist students.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

15. Staff members are never too busy to respond to students' requests promptly.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

16. Teaching staff are always available to respond to students' requests.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

17. Teaching staff are skilful and competent in what they teach.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

18. Staff members are honest in their interaction with students.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

19. A student feels safe in their interaction with staff members.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

20. The institution inspires confidence in the student.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

21. Staff are sympathetic and reassuring with students who face problems.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

22. Staff members show respect for the feelings, concerns and opinions of students.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

23. Staff members have the student's best interest at heart.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

24. Staff members know what the needs of students are.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

25. Operating hours of student resources are convenient for students.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

26. Staff members are friendly and caring.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

27. Students are provided individualised attention in their learning process.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

Section C

In this section, please rate your opinions on how students feel of their experience in the higher education institution you are associated with as an educator or administrator.

1. Students feel that that their best interest are being served by the higher education institution.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

2. Students feel that rewards gained are consistent with the effort they put into the assessment.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

3. Students feel enjoyment with the education experience.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

4. Students feel involved with the higher education institution they are attending.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

5. Students feel a sense of uniqueness of being associated with the higher education institution they are attending.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

6. Students have a feeling of anticipation and being intellectually challenged.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

Section D

In this section, please rate your opinion on student satisfaction with the higher education institution you are associate with as an educator or administrator.

1. In your opinion, how do students feel about your higher education institution in meeting their expectations of a higher education?

Very Dissatisfied	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Very Satisfied

2. In your opinion, how do students feel about their higher education institution experience with the higher education institution you work in?

Very Dissatisfied	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Very Satisfied

3. How would you rate the higher education institution you work in compared with other higher education institutions on the overall satisfaction of these students?

Much Worse	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Much Better

Section E

In this section, please rate your opinion on how students have developed as a result of their higher education experience with the institution you are associated with as an educator or administrator.

1. Students develop effective problem-solving skills as a result of their experience in the higher education institution.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

2. Students develop effective communication skills as a result of their experience in the higher education institution.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

3. Students develop skills relevant for industry as a result of their experience in the higher education institution.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

4. Students develop good general knowledge as a result of their higher education experience in the institution.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

5. Students are able to manage, use and analyse information as a result of their higher education experience in the institution.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

6. How do you rate the integrity of students of the higher education institution you work in?

Under Achieving	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Very Accomplished

7. How do you rate the resilience of students of the higher education institution you work in?

Under Achieving	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Very Accomplished

8. How do you rate the social conscience of students of the higher education institution you work in?

Under Achieving	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Very Accomplished

9. How do you rate the self-direction of students of the higher education institution you work in?

Under Achieving	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Very Accomplished

10. How do you rate the self-confidence of students of the higher education institution you work in?

Under Achieving	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Very Accomplished

11. How do you rate the world view of students of the higher education institution you work in?

Under Achieving	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Very Accomplished

ONLINE QUESTIONNAIRE FOR INDUSTRY PRACTITIONERS

Section A

In this section, you need to provide some information about yourself. No attempt will be made to identify you.

1) Gender: o Male   o Female

2) Age: _____

3) Highest educational level completed:

- o University Undergraduate Degree
- o Polytechnic Diploma
- o University Postgraduate Degree
- o Other Diploma / Professional Qualification

Section B

In this section, please rate your opinions on aspects of service quality in higher education institutions in Singapore.

1. Learning resources provided for student learning are up-to-date.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

2. Learning resources are visually appealing.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

3. The appearance of the physical facilities is in keeping with the type of services provided to students.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

4. Learning spaces are conducive for student learning.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

5. The learning environment conveys a sense of competence, confidence and professionalism.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

6. Student services are readily available and delivered on time.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

7. Staff members are dependable for assistance.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

8. Staff members render assistance to students to solve their problems.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

9. Teaching staff are consistent in the way they teach.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

10. Up-to-date communications are provided to students promptly.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

11. Services to students are provided right first time.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

12. Prompt feedback student performance is provided.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

13. Staff members provide prompt response to students' requests.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

14. Staff members are always willing to assist students.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

15. Staff members are never too busy to respond to students' requests promptly.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

16. Teaching staff are always available to respond to students' requests.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

17. Teaching staff are skilful and competent in what they teach.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

18. Staff members are honest in their interaction with students.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

19. A student feels safe in their interaction with staff members.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

20. The institution inspires confidence in the student.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

21. Staff are sympathetic and reassuring with students who face problems.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

22. Staff members show respect for the feelings, concerns and opinions of students.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

23. Staff members have the student's best interest at heart.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

24. Staff members know what the needs of students are.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

25. Operating hours of student resources are convenient for students.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

26. Staff members are friendly and caring.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

27. Students are provided individualised attention in their learning process.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

Section C

In this section, please rate your opinions on how students feel of their experience in higher education institutions in Singapore.

1. Students feel that that their best interest are being served by the higher education institution.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

2. Students feel that rewards gained are consistent with the effort they put into the assessment.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

3. Students feel enjoyment with the education experience.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

4. Students feel that they are bring involved with the higher education institution they are studying in.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

5. Students feel a sense of uniqueness of being associated with the higher education institution they are studying in.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

6. Students have a feeling of being educated and intellectually challenged.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

Section D

In this section, please rate your opinion on student satisfaction with higher education institutions in Singapore.

1. In your opinion, how do students feel about higher education institutions in Singapore in meeting their expectations of a higher education?

Very Dissatisfied	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Very Satisfied

2. In your opinion, how do students feel about their higher education experience with higher education institutions in Singapore?

Very Dissatisfied	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Very Satisfied

3. How would you rate the higher education institutions in Singapore compared with higher education institutions outside Singapore on the overall satisfaction of these students?

Much Worse	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Much Better

Section E

In this section, please rate your opinion on how students have developed as a result of their higher education experience with higher education institutions in Singapore.

1. Students develop effective problem-solving skills as a result of their experience in a higher education institution in Singapore.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

2. Students develop effective communication skills as a result of their experience in a higher education institution in Singapore.

Strongly Disagree	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Strongly Agree

3. Students develop skills relevant for industry as a result of their experience in a higher education institution in Singapore.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

4. Students develop good general knowledge as a result of their experience in a higher education institution in Singapore.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

5. Students are able to manage, use and analyse information as a result of their experience in a higher education institution in Singapore.

Strongly Disagree	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Strongly Agree

6. How do you rate the integrity of students of higher education institutions in Singapore?

Under Achieving	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Very Accomplished

7. How do you rate the resilience ofstudents of higher education institutions in Singapore?

Under Achieving	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Very Accomplished

8. How do you rate the social conscience of students of higher education institutions in Singapore?

Under Achieving	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Very Accomplished

9. How do you rate the self-direction of students of higher education institutions in Singapore?

Under Achieving	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	Very Accomplished

10. How do you rate the self-confidence of students of higher education institutions in Singapore?

Under Achieving	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Very Accomplished

11. How do you rate the world view of students of higher education institutions in Singapore?

Under Achieving	o 1	o 2	o 3	o 4	o 5	o 6	o 7	Very Accomplished

Appendix 3: Descriptive Statistics for Questionnaire Items

Variable	Item code	Item description	Mean	Median	Mode	Minimum	Maximum	Standard Deviation	Skewness	Kurtosis
Reliability	rel1	Student services are readily available and delivered on time.	5.37	6	6	1	7	1.230	−0.829	0.736
Reliability	rel2	Staff members are dependable for assistance.	5.16	6	4	1	7	1.390	−0.389	-0.582
Reliability	rel3	Staff members render assistance to students to solve their problems.	5.48	6	6	1	7	1.237	−0.774	0.467
Reliability	rel4	Teaching staff are consistent in the way they teach.	5.15	5	6	1	7	1.330	−0.867	0.613
Reliability	rel5	Up-to-date communications are provided to students promptly.	5.39	6	6	1	7	1.162	−0.746	0.842
Reliability	rel6	Services to students are provided right first time.	5.17	5	6	1	7	1.152	−0.580	0.647
Assurance	ass1	Teaching staff are skilful and competent in what they teach.	5.44	6	6	1	7	1.224	−1.015	1.456
Assurance	ass2	Staff members are honest in their interaction with students.	5.41	6	6	1	7	1.261	−0.790	0.779
Assurance	ass3	A student feels safe in their interaction with staff members.	5.38	6	6	1	7	1.246	−0.810	1.068
Assurance	ass4	The institution inspires confidence in the student.	5.34	6	6	1	7	1.205	−0.809	1.001
Assurance	ass5	Staff members are sympathetic and reassuring with students who face problems.	5.34	5	6	1	7	1.212	−0.629	0.462
Tangibles	tan1	Learning resources provided for student learning are up-to-date.	5.58	6	6	1	7	1.165	−1.133	1.943

Variable	Item code	Item description	Mean	Median	Mode	Minimum	Maximum	Standard Deviation	Skewness	Kurtosis
Tangibles	tan2	Learning resources are visually appealing.	5.19	5	6	1	7	1.229	−0.840	0.576
Tangibles	tan3	The apperance of the physical facilities is in keeping with the type of services provided to students.	5.36	6	6	1	7	1.227	−0.939	0.932
Tangibles	tan4	Learning spaces are conducive for student learning.	5.45	6	6	1	7	1.243	−0.879	0.768
Tangibles	tan5	The learning environment coveys a sense of competence, confidence and professionalism.	5.41	6	6	1	7	1.213	−0.859	0.926
Empathy	emp1	Staff members show respect for the feelings, concerns and opinions of students.	5.31	6	6	1	7	1.260	−0.842	0.899
Empathy	emp2	Staff members have the students' best interest at heart.	5.38	6	6	1	7	1.293	−0.605	0.037
Empathy	emp3	Staff members know what the needs of students are.	5.03	5	6	1	7	1.237	−0.481	0.131
Empathy	emp4	Operating hours of student resources are convenient for students.	5.26	5	6	1	7	1.317	−0.777	0.543
Empathy	emp5	Staff members are friendly and caring.	5.45	6	6	1	7	1.174	−0.811	0.960
Empathy	emp6	Students are provided individualised attention in their learning process.	4.90	5	5	1	7	1.371	−0.892	0.637
Responsiveness	res1	Prompt feedback on student performance is provided.	5.11	5	5	1	7	1.354	−0.632	0.242
Responsiveness	res2	Staff members provide prompt response to students' requests.	5.27	5	6	1	7	1.220	−0.667	0.674
Responsiveness	res3	Staff members are always willing to assist students.	5.45	6	6	1	7	1.273	−0.972	1.538
Responsiveness	res4	Staff members are never busy to respond to students' request promptly.	5.09	5	6	1	7	1.270	−0.562	0.185

Variable	Item code	Item description	Mean	Median	Mode	Minimum	Maximum	Standard Deviation	Skewness	Kurtosis
Responsiveness	res5	Teaching staff are always available to respond to students' requests.	5.11	5	5	1	7	1.317	−0.667	0.378
Quality of Student Experience	qoe1	Students feel that that their best interest are being served by the higher education institution.	5.19	5	6	1	7	1.186	−0.930	1.349
Quality of Student Experience	qoe2	Students feel that rewards gained are consistent with the effort they put into the assessment.	5.19	5	6	1	7	1.190	−0.681	0.449
Quality of Student Experience	qoe3	Students feel enjoyment with the education experience.	5.11	5	6	1	7	1.267	−0.751	0.692
Quality of Student Experience	qoe4	Students feel involved with the higher education institution they are attending.	5.09	5	6	1	7	1.281	−0.782	0.801
Quality of Student Experience	qoe5	Students feel a sense of uniqueness of being associated with the higher education institution they are attending.	5.06	5	6	1	7	1.299	−0.755	0.732
Quality of Student Experience	qoe6	Students have a feeling of anticipation and being intellectually challenged.	5.17	5	6	1	7	1.184	−0.683	0.454
Student satisfaction	ss1	Students feelings about the higher education institution in meeting their expectations of a higher education.	5.28	6	6	1	7	1.139	−0.886	1.093
Student satisfaction	ss2	Students feelings about their higher education experience.	5.29	6	6	1	7	1.133	−0.911	1.024
Student satisfaction	ss3	Rating of the higher education institution compared with other higher education institutions on the overall satisfaction.	5.11	5	6	1	7	1.219	−0.317	-0.386
Cognitive outcomes	cog1	Students develop effective problem-solving skills as a result of their experience in the higher education institution.	5.31	5	6	1	7	1.140	−0.695	0.603

Variable	Item code	Item description	Mean	Median	Mode	Minimum	Maximum	Standard Deviation	Skewness	Kurtosis
Cognitive outcomes	cog2	Students develop effective communication skills as a result of their experience in the higher education institution.	5.32	5	5	1	7	1.197	−0.883	1.245
Cognitive outcomes	cog3	Students develop skills relevant for industry as a result of their experience in the higher education institution.	5.32	5.5	6	1	7	1.177	−0.781	0.774
Cognitive outcomes	cog4	Students develop good general knowledge as a result of their experience in the higher education institution.	5.3	5	6	1	7	1.180	−0.730	0.607
Cognitive outcomes	cog5	Students are able to manage, use and analyse information as a result of their experience in the higher education institution.	5.32	5	6	1	7	1.134	−0.937	1.535
Affective outcomes	aff1	Integrity of students.	5.28	5.5	6	1	7	1.045	−0.804	1.000
Affective outcomes	aff2	Resilience of students.	5.14	5	6	1	7	1.139	−0.879	1.232
Affective outcomes	aff3	Social conscience of students.	5.05	5	6	1	7	1.202	−0.840	0.751
Affective outcomes	aff4	Self-direction of students.	5.06	5	6	1	7	1.182	−0.861	0.615
Affective outcomes	aff5	Self-confidence of students.	5.14	5	6	1	7	1.121	−0.799	0.734
Affective outcomes	aff6	World view of students.	5.08	5	6	1	7	1.228	−0.807	0.933

Appendix 4: The Measurement Model
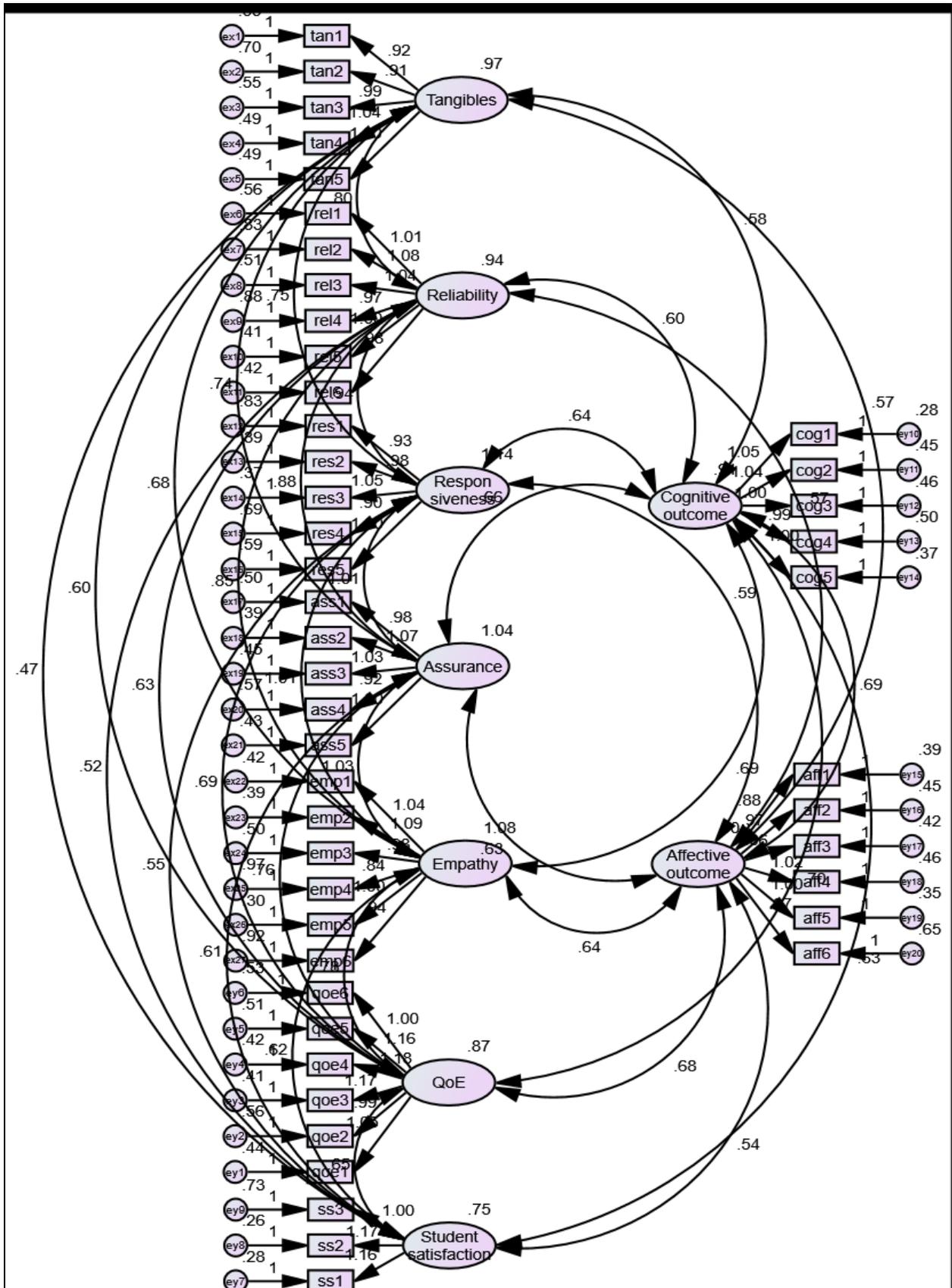
Appendix 5: The Structural Model
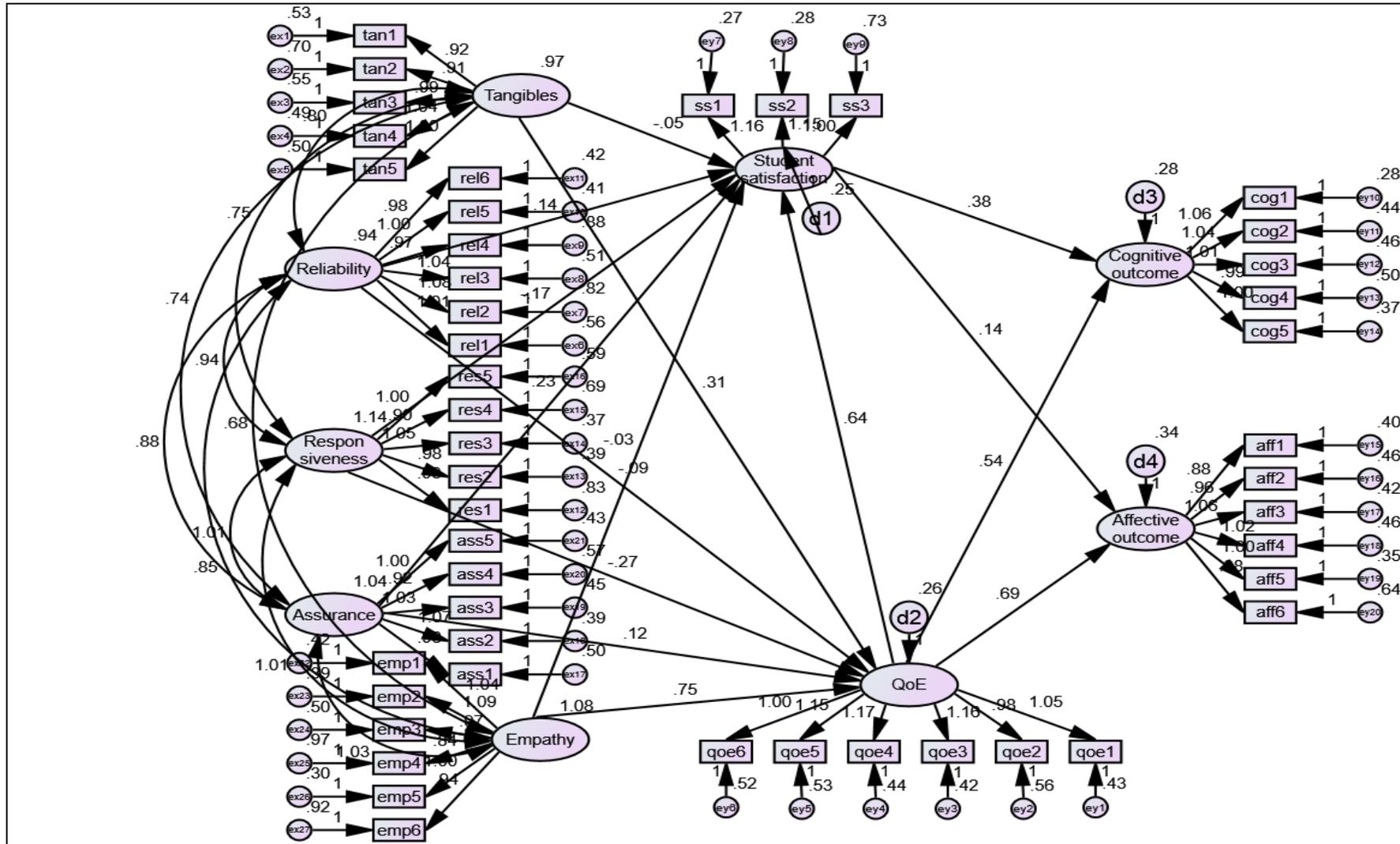
Appendix 6: Discriminant Analysis Structure Matrix

Variables	Function	
	1	2
tan3	.232*	.138
tan1	.193*	.089
tan5	.189*	.089
tan4	.161*	.039
aff6	−.075*	−.030
emp6	−.064	.503*
res1	.081	.461*
cog3	.098	.457*
emp3	.020	.405*
emp2	.221	.378*
rel3	.305	.368*
cog2	.021	.360*
res2	.177	.357*
emp1	.163	.351*
ass2	.167	.340*
ass5	.228	.337*
emp5	.214	.329*
cog1	.021	.328*
qoe2	.024	.321*
qoe1	.079	.319*
emp4	.229	.316*
rel2	.230	.314*
aff3	−.231	.312*
ass3	.221	.303*
ass1	.210	.300*
res5	.089	.299*
res3	.223	.292*
rel6	.043	.285*
qoe4	.126	.284*
res4	.032	.268*
cog5	−.042	.267*
rel5	.201	.266*
tan2	.127	.257*
rel1	.243	.256*
ss1	.089	.254*
qoe5	.155	.253*

Variables	Function	
	1	2
qoe3	.060	.236[*]
cog4	.055	.235[*]
aff5	−.034	.229[*]
ass4	.221	.227[*]
aff1	−.063	.224[*]
aff4	−.161	.211[*]
ss2	.122	.197[*]
rel4	−.022	.194[*]
aff2	−.084	.189[*]
ss3	−.059	.183[*]
qoe6	.054	.108[*]

Pooled within-groups correlations between discriminating variables and standardised canonical discriminant functions. Variables ordered by absolute size of correlation within function.

*. Largest absolute correlation between each variable and any discriminant function.

Appendix 7: Standardised Canonical Discriminant Function Coefficients

Variables	Function	
	1	2
tan1	.184	−.221
tan2	−.349	.278
tan3	.165	−.037
tan4	−.167	−.499
tan5	.147	−.143
rel1	.210	.093
rel2	.137	.228
rel3	.431	.221
rel4	−.451	−.118
rel5	.320	.049
rel6	−.458	−.298
res1	−.267	.383
res2	−.060	−.084
res3	.034	−.218
res4	−.260	.058
res5	−.034	.055
ass1	.330	.211
ass2	−.124	−.048
ass3	−.132	−.076
ass4	.597	−.098
ass5	.138	.207
emp1	−.052	−.252
emp2	.279	.269
emp3	−.420	.065
emp4	.434	.155
emp5	.288	−.039
emp6	−.275	.463
qoe1	.145	.107
qoe2	−.162	.241
qoe3	.198	−.296
qoe4	.109	.094
qoe5	.316	.104
qoe6	−.326	−.613
ss1	.063	.211

Variables	Function	
	1	2
ss2	.024	−.197
ss3	−.398	−.071
cog1	−.208	.212
cog2	.043	.020
cog3	.563	.286
cog4	.196	−.171
cog5	−.567	.051
aff1	−.163	−.093
aff2	.115	−.020
aff3	−.652	.331
aff4	−.050	.245
aff5	−.022	.211
aff6	.150	−.642

Appendix 8: Path Estimates of Structural Model and Test of Hypotheses for Stakeholder Groups

Students:

Hypo-thesis	Standardised Path Estimate	Path Estimate (Unstandardised)	t-value	p-value	Signifi-cant?	Is the Hypothesis Falsified or Not Falsified?
H1	–0.503 (tan→ss)	–0.476 (tan→ss)	–0.744	0.457	No	Falsified
	–1.083 (res→ss)	–0.985 (res→ss)	–1.093	0.275	No	
	0.909 (rel→ss)	0.859 (rel→ss)	0.858	0.391	No	
	0.396 (ass→ss)	0.368 (ass→ss)	0.623	0.533	No	
	0.425 (emp→ss)	0.400 (emp→ss)	0.694	0.546	No	
H2	0.012 (tan→qoe)	0.013 (tan→qoe)	0.028	0.978	No	Falsified
	–0.310 (res→qoe)	–0.309 (res→qoe)	–0.492	0.623	No	
	0.006 (rel→qoe)	0.006 (rel→qoe)	0.008	0.993	No	
	–.218 (ass→qoe)	–0.222 (ass→qoe)	–0.486	0.627	No	
	1.395 (emp→qoe)	1.44 (emp→qoe)	3.784	<0.001	Yes	
H3	0.657 (qoe→ss)	0.599 (qoe→ss)	2.360	0.018	Yes	Not falsified
H4	0.809 (ss→cog)	0.772 (ss→cog)	5.795	<0.001	Yes	Falsified
	0.053 (ss→aff)	0.054 (ss→aff)	0.451	0.652	No	
H5	0.101 (qoe→cog)	0.088 (qoe→cog)	0.836	0.403	No	Falsified
	0.792 (qoe→aff)	0.739 (qoe→aff)	6.332	<0.001	Yes	
H6	0.939 (tan↔rel)	0849 (tan↔rel)	6.926	<0.001	Yes	Not falsified
	0.809 (tan↔res)	0.760 (tan↔res)	6.262	<0.001	Yes	
	0.814 (tan↔ass)	0.748 (tan↔ass)	6.232	<0.001	Yes	
	0.811 (tan↔emp)	0.736 (tan↔emp)	6.432	<0.001	Yes	
	0.925 (rel↔res)	0.869 (rel↔res)	6.792	<0.001	Yes	
	0.880 (rel↔ass)	0.809 (rel↔ass)	6.583	<0.001	Yes	
	0.848 (rel↔emp)	0.770 (rel↔emp)	6.710	<0.001	Yes	
	0.954 (res↔ass)	0.912 (res↔ass)	6.611	<0.001	Yes	
	0.919 (res↔emp)	0.867 (res↔emp)	6.752	<0.001	Yes	

Hypo-thesis	Standardised Path Estimate	Path Estimate (Unstandardised)	t-value	p-value	Signifi-cant?	Is the Hypothesis Falsified or Not Falsified?
	0.961 (ass↔emp)	0.887 (ass↔emp)	6.817	<0.001	Yes	

Staff of HEIs:

Hypo-thesis	Standardised Path Estimate	Path Estimate (Unstandardised)	t-value	p-value	Signifi-cant?	Is the Hypothesis Falsified or Not Falsified?
H1	0.000 (tan→ss)	0.000 (tan→ss)	−0.001	0.999	No	Falsified
	0.143 (res→ss)	0.107 (res→ss)	0.579	0.562	No	
	−0.242 (rel→ss)	−0.187 (rel→ss)	−0.738	0.460	No	
	0.349 (ass→ss)	0.291 (ass→ss)	0.409	0.683	No	
	−0.374 (emp→ss)	−0.31 (emp→ss)	−0.597	0.550	No	
H2	0.219 (tan→qoe)	0.172 (tan→qoe)	1.128	0.259	No	Falsified
	−0.120 (res→qoe)	−0.106 (res→qoe)	−0.438	0.661	No	
	−0.095 (rel→qoe)	−0.086 (rel→qoe)	−0.263	0.793	No	
	0.862 (ass→qoe)	0.845 (ass→qoe)	0.901	0.367	No	
	−0.040 (emp→qoe)	−0.039 (emp→qoe)	−0.056	0.955	No	
H3	0.915 (qoe→ss)	0.779 (qoe→ss)	5.509	<0.001	Yes	Not falsified
H4	−0.168 (ss→cog)	−0.224 (ss→cog)	−1.205	0.228	No	Falsified
	−0.065 (ss→aff)	−0.077 (ss→aff)	−0.426	0.670	No	
H5	1.009 (qoe→cog)	1.147 (qoe→cog)	6.232	<0.001	Yes	Not falsified
	0.830 (qoe→aff)	0.839 (qoe→aff)	4.807	<0.001	Yes	
H6	0.782 (tan↔rel)	0.784 (tan↔rel)	9.860	<0.001	Yes	Not falsified
	0.640 (tan↔res)	0.661 (tan↔res)	8.970	<0.001	Yes	
	0.685 (tan↔ass)	0.636 (tan↔ass)	9.268	<0.001	Yes	
	0.537 (tan↔emp)	0.502 (tan↔emp)	8.887	<0.001	Yes	
	0.898 (rel↔res)	0.800 (rel↔res)	10.303	<0.001	Yes	

Hypo-thesis	Standardised Path Estimate	Path Estimate (Unstandardised)	t-value	p-value	Signifi-cant?	Is the Hypothesis Falsified or Not Falsified?
	0.881 (rel↔ass)	0.706 (rel↔ass)	10.394	<0.001	Yes	
	0.790 (rel↔emp)	0.636 (rel↔emp)	10.391	<0.001	Yes	
	0.889 (res↔ass)	0.734 (res↔ass)	10.445	<0.001	Yes	
	0.849 (res↔emp)	0.705 (res↔emp)	10.590	<0.001	Yes	
	0.957 (ass↔emp)	0.715 (ass↔emp)	11.172	<0.001	Yes	

Industry:

Hypo-thesis	Standardised Path Estimate	Path Estimate (Unstandardised)	t-value	p-value	Signifi-cant?	Is the Hypothesis Falsified or Not Falsified?
H1	0.055 (tan→ss)	0.058 (tan→ss)	0.241	0.809	No	Falsified
	–0.201 (res→ss)	–0.16 (res→ss)	–0.587	0.557	No	
	0.107 (rel→ss)	0.114 (rel→ss)	0.423	0.672	No	
	0.140 (ass→ss)	0.128 (ass→ss)	0.059	0.953	No	
	0.286 (emp→ss)	0.231 (emp→ss)	0.123	0.902	No	
H2	0.404 (tan→qoe)	0.456 (tan→qoe)	1.777	0.075	Yes	Falsified
	–0.636 (res→qoe)	–0.539 (res→qoe)	–1.933	0.053	No	
	0.117 (rel→qoe)	0.133 (rel→qoe)	0.449	0.654	No	
	0.520 (ass→qoe)	0.508 (ass→qoe)	0.211	0.833	No	
	0.429 (emp→qoe)	0.371 (emp→qoe)	0.179	0.858	No	
H3	0.446 (qoe→ss)	0.418 (qoe→ss)	2.595	0.009	Yes	Not falsified
H4	0.291 (ss→cog)	0.312 (ss→cog)	2.211	0.027	Yes	Not falsified
	0.303 (ss→aff)	0.34 (ss→aff)	2.335	0.020	Yes	
H5	0.555 (qoe→cog)	0.557 (qoe→cog)	3.935	<0.001	Yes	Not falsified
	0.556 (qoe→aff)	0.585 (qoe→aff)	4.085	<0.001	Yes	
H6	0.731 (tan↔rel)	0.580 (tan↔rel)	4.154	<0.001	Yes	Not falsified
	0.619 (tan↔res)	0.658 (tan↔res)	3.913	<0.001	Yes	

Hypo-thesis	Standardised Path Estimate	Path Estimate (Unstandardised)	t-value	p-value	Signifi-cant?	Is the Hypothesis Falsified or Not Falsified?
	0.613 (tan↔ass)	0.566 (tan↔ass)	3.912	<0.001	Yes	
	0.577 (tan↔emp)	0.602 (tan↔emp)	3.820	<0.001	Yes	
	0.859 (rel↔res)	0.909 (rel↔res)	4.898	<0.001	Yes	
	0.845 (rel↔ass)	0.777 (rel↔ass)	4.894	<0.001	Yes	
	0.837 (rel↔emp)	0.870 (rel↔emp)	4.970	<0.001	Yes	
	0.914 (res↔ass)	1.126 (res↔ass)	5.325	<0.001	Yes	
	0.911(res↔emp)	1.268 (res↔emp)	5.440	<0.001	Yes	
	0.991 (ass↔emp)	1.197 (ass↔emp)	5.696	<0.001	Yes	