The antecedents of Student Loyalty

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Submitted October 2009

Dissertation submitted to the University of Leicester in partial fulfilment of the requirements for the degree of Master of Business Administration

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Acknowledgments

This study would not have been possible without the help of many people; foremost amongst these are my wife, Victoria, and my son, Pip, who both provided unending encouragement and support during my long studies. I would also like to thank my nieces, Laura and Nicole, and my cousin Angela who helped me to gain adequate survey responses. Lastly I would like to thank Dr Nurdilek Diazel for her encouragement and advice throughout the dissertation process.

Abstract

Increased competition in the Higher Education (HE) market (http://www.timesonline.co.uk/tol/comment/columnists/guest_contributors/article5792514.ece) combined with funding issues (http://www.guardian.co.uk/education/2008/dec/12/oxford-university-funding-credit-crunch) has increased the importance of student loyalty to HE institutions in the UK. This increased importance is because loyal students are posited to be more likely to finish their course allowing the institution to collect full fees, are more likely to recommend the institution to potential students therefore helping recruitment and are more likely to assist after graduation either financially or in other ways[1] (Hennig-Thurau, Langer, Hanson 2001). This paper develops a causal model of student loyalty which can be used to inform operations. Based upon a detailed literature review a model was developed which included satisfaction as a mediator and involvement, part-time employment and loyalty propensity as moderators. This study uses non SERVQUAL measures of service quality, a combined attitudinal and behavioural loyalty construct and it includes moderating factors which have not previously been modelled in the student loyalty literature. Furthermore it uses the satisfiers, disatisfiers, criticals and neutrals typology (Vargo, Nagao, He, Morgan 2007) to classify the relationships of service quality with satisfaction, a typology which has not been previously utilised to analyse student loyalty within a quantitative framework. The study confirms that the relationship between perceived service quality (PSQ) and loyalty is mediated by satisfaction, that teaching perceived service quality (TPSQ) is a critical with both high

[1] Such as help with research, or the recruitment of graduates

and low service quality effecting satisfaction and that administrative perceived service quality (APSQ) is a dissatisfier only effecting satisfaction when low service quality is received. It also confirms that the relationship between APSQ and satisfaction is moderated by whether the student works part-time, a demographic which has increased greatly in recent years (Navarro, Iglesias, Torres 2006), and by the level of student involvement, and that the relationship between satisfaction and loyalty is moderated by loyalty propensity, a personality trait which explains why some satisfied customers do not remain loyal.

Chapter One - Introduction

The aim of this chapter is to introduce the student loyalty concept and to illustrate the research's importance in reference to gaps in the literature. The chapter also outlines the dissertation's structure and introduces the next chapter.

Background

It has been realised that student loyalty is important to the success of universities (Helgesen, Nesset 2007). This realisation has been caused by the discovery that increasing student loyalty is one way that universities can cope with the reduction of government funding which has led to universities facing financial difficulties (Helgesen, Nesset 2007) (http://www.guardian.co.uk/education/2009/feb/12/bankrupt-universities-tuition-fees) and the increased competition caused by the removal of 'entry barriers'(Lynch 2003:149) which had previously prevented polytechnics competing efficiently with universities (http://www.telegraph.co.uk/news/uknews/1558896/Former-polytechnics-not-in-top-50-universities.html)[2]. This increased choice combined with the introduction of tuition fees has transformed 'students into consumers and professors into service providers' (Wurst, Smarkola, Gaffney 2008:1768) with students being less likely to be 'passive recipients of whatever kind of service the state provides' (Douglas, McClelland, Davies 2007:20) (http://www.guardian.co.uk/education/2008/nov/05/protest-tuition-fees), this increases the likelihood

[2] Students have a choice of over 100 HE institutions (Angell, Heffernan, Megicks 2008:236)

of complaining behaviour. Improving student loyalty can potentially help universities cope with these financial pressures as loyal students are less likely to drop out allowing the university to gain full fees and because loyal students act as an unofficial recruitment channel via advocacy and contribute financially and non financially after graduation (Hennig-Thurau, Langer, Hanson 2001).

This study seeks to uncover student loyalty's antecedents in a UK context. The research is important because most loyalty studies have focussed on business to business or business to consumer markets however differences exist between these markets and HE, these include the central role of the service in the life of the student and the high degree of motivation and effort needed by the student to implement the service therefore the transferability of findings from the commercial to the educational sphere is questionable (Hennig-Thurau, Langer, Hanson 2001). Despite growing importance, research into the causes of student loyalty is 'scarce' (Nesset, Helgesen 2009:328) with 'no generally accepted...model' (Hennig-Thurau, Langer, Hanson 2001:333) existing; this study aims to contribute to model development. Additionally most studies of student loyalty have not been UK based (Hennig-Thurau, Langer, Hanson 2001, Nesset, Helgesen 2007, Nesset, Helgesen 2009, Rojas-Méndez, Vasquez-Parraga, Kara, Cerda-Urrutia 2009) and many surveyed only students from one faculty, usually business (Nesset, Helgesen 2009, Nesset, Helgesen 2007) therefore these studies may not be applicable to the UK or to a wider student population due to cultural differences between countries and differences between students who study different subjects. Hofstede (2008) has classified the cultures of countries across a number of dimensions; these dimensions potentially affect antecedents of loyalty such

as service quality. For example, in countries with high uncertainty avoidance students want to be told the correct answers, whilst in countries with low uncertainty avoidance students want good discussions, these factors influence what is perceived as good service quality which is argued by this study to be a key antecedent to loyalty. Similarly there are differences between students studying different topics with students studying practical subjects potentially being more career focussed than arts students (http://news.bbc.co.uk/1/hi/education/6633141.stm) and therefore factors such as applicability of teaching to a work context may be more important to these students. This study addresses this by utilising a cross section of UK students at the end of their first year.

The majority of research into student loyalty has defined loyalty in terms of student retention (Lin, Tsai 2008) however retention may be the result of 'exit barriers' (Lynch 2003:477) rather than loyalty. This study uses a new approach utilising a combined attitudinal and behavioural loyalty construct which focuses on advocacy and behavioural intentions after graduation as measures of the loyalty of continuing students rather than a simple retention measure.

Research Objectives

The aim of the dissertation is to research the antecedents of student loyalty. It develops a model of student loyalty's antecedents from the literature and then empirically tests it utilising inferential statistical analysis of quantitative questionnaire data. In doing so it will answer the central question of:-

- What are the antecedents of student loyalty?

And the sub questions of:-

- What effect does teaching perceived service quality (TPSQ) have on student loyalty?
- What effect does administrative perceived service quality (APSQ) have on student loyalty?
- What effect does facilities perceived service quality (FPSQ) have on student loyalty?
- Does satisfaction mediate the perceived service quality loyalty relationship?
- Does involvement moderate the relationship between perceived service quality and satisfaction?
- Does loyalty propensity moderate the relationship between satisfaction and loyalty?

The dissertation is split into five chapters, these chapters and their purpose are shown in Figure 1 :-

Chapter	Chapter Name	Description of Chapter contents
1	Introduction	Introduces the dissertation and explains research objectives
2	Literature review	Reviews the literature explaining the themes in previous research and how previous research relates to the current study
3	Research Aim and Methodology	Explains the methodology chosen and why it was chosen over alternatives
4	Research Findings and Data Analysis	The data collected will be analysed to test the model developed
5	Conclusions	Concludes the research, explains the findings and the implications for further research

Figure 1 Dissertation Structure

Chapter Overview

This chapter explained the dissertation's purpose and context. The next chapter reviews the literature and develops the conceptual model for research.

Chapter Two - Literature Review

Introduction

This chapter reviews the literature relating to student loyalty. Its purpose is to ensure that the dissertation is built upon the findings of others (Saunders, Lewis, Thornhill 2003), to ensure its 'concepts, themes and arguments...are robust' (Fisher 2007:78), to refine research questions, to provide recommendations for areas to research (Saunders, Lewis, Thornhill 2003) and to identify unsolved problems (Remenyi, Williams, Money, Swartz 1998). In doing so the literature review allows this dissertation to take a 'deductive approach' (Saunders, Lewis, Thornhill 2003:44) developing a model from the literature review and then testing it with empirical data.

Although the dissertation is a study of student loyalty, this concept is linked to a number of different concepts each with substantive literatures therefore this chapter will firstly outline which literatures were studied and why, it then reviews the literatures relating to each concept, explains how they are interlinked and outlines their importance.

Scope of the Literature Review

Figure 2 shows the literatures that are potentially useful in answering the research questions and it identifies that overlaps exist between these literatures; additionally student loyalty is a subset of the larger loyalty literature[3].

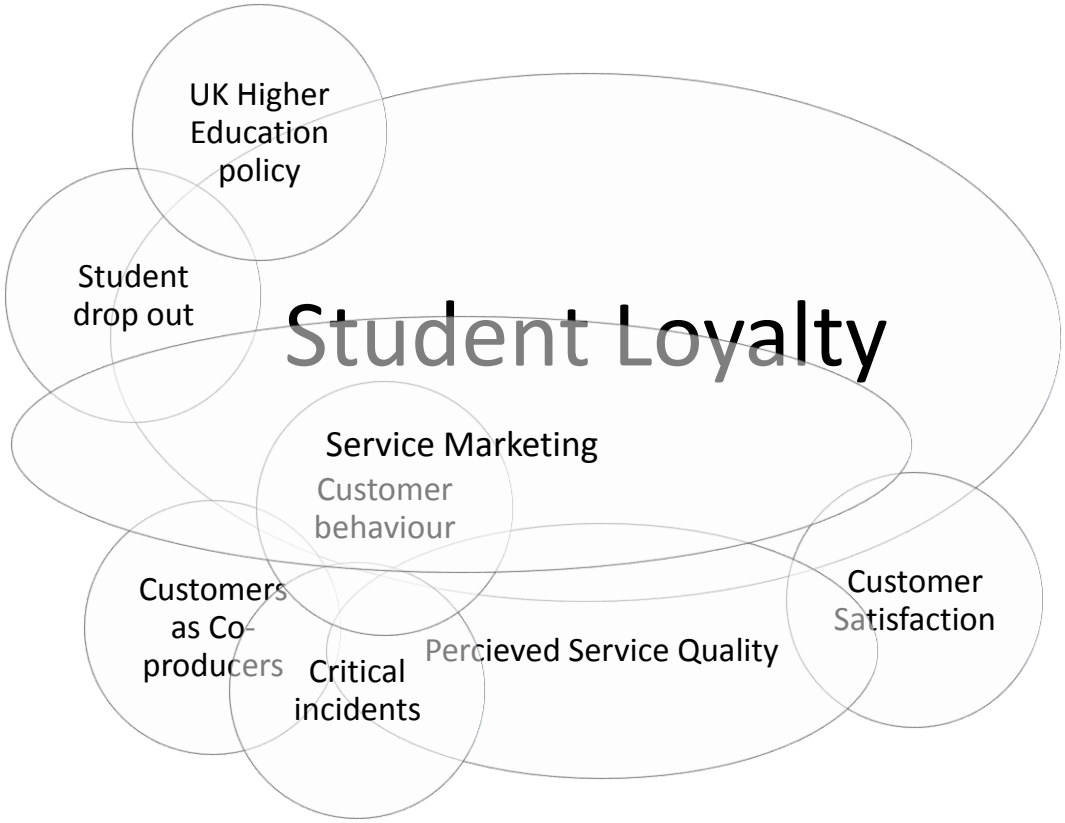


Figure 2 Literatures relating to student loyalty

Due to timescales it was not possible to consider all relevant literatures therefore only the most pertinent literatures were reviewed. The literature relating to loyalty's

[3] Diagram is not drawn to scale and overlaps are illustrative only

antecedents is substantial with it being possible to categorise studies into three approaches 'quality/value/satisfaction, relationship quality and relationship benefits' (Han, Kwortnik, Wang 2008:22). This study will focus on the first approach due to findings that 'customer satisfaction is most appropriate for business-to-consumer situations whereas trust or commitment are...appropriate for business-to-business situations' (Gupta, Zeithaml 2006:31), however it excludes value as although it has been argued that customers purchase based on value rather quality (Seth, Deshmukh, Vrat 2005) the pathway from 'quality to value may be tautological as well as causal because quality is related to value by definition' (Johnson, Gustafsson, Andreassen, Lervik, Cha 2001:229) and values 'definition is so broad and vague that the construct is almost impossible to measure' (Zeithaml, Gupta 2005:4).

Even with the limited scope, the literature was still extensive therefore to enable the efficient use of time a strategy was developed to quickly identify and review only the most pertinent articles (Saunders, Lewis, Thornhill 2003). Firstly relevant articles in peer reviewed journals were located by the use of keyword searches within Google Scholar (http://scholar.google.co.uk), this identified a small student loyalty literature and substantial literatures for service quality, satisfaction and loyalty. Secondly all articles on loyalty, satisfaction and service quality in the educational context were assessed. Finally the most important articles for satisfaction, loyalty and service quality were identified by the number of times cited[4](Saunders, Lewis, Thornhill 2003), the articles that had cited them and the quality of the journal[5], additionally the most recent

[4] Google Scholar identifies the No. of times an article has been cited

[5] Journal quality was assessed by utilising a league Table of journals available from the Association of Business Schools (Harvey, Morris, Kelly 2008) with the majority of articles coming from 3*+ journals

articles in each area were assessed. This strategy allowed the identification of the most influential articles (through citation), the articles of the highest quality (by journal quality and citation) and the most recent ideas (by publication date), this meant the dissertation was based on the most influential and recent research. The quality of the article was then assessed by establishing its providence, the writing precision of the author(s), the quality of references and the evidence used to support the conclusions (Fisher 2007), whilst any themes within the literature were identified. This chapter now reviews the literature relating to loyalty, satisfaction, service quality and involvement.

Loyalty

Loyalty is a 'major theme in marketing research' (Bodet 2008:156), with research increasing dramatically in the last decade (Han, Kwortnik, Wang 2008). This increase is due to findings that customer acquisition is more expensive than retention (Reicheld 1996), that up to 85% of satisfied customers defect (Oliver 1999), that customer loyalty directly affects profitability (Reicheld 1996) and that in the HE context loyal students will positively contribute to service quality through active participation (Navarro, Iglesias, Torres 2006). However, loyalty is 'the most ...stretched...(and) debated concept in the domain of customer behaviour...(with it being used as a)...convenient...summary construct for...responses to...satisfaction' (Soone 2006:8) including repurchase behaviour, repurchase intentions and advocacy (Douglas, McClelland, Davies 2007) furthermore no consensus exists on its measurement (Cooil, Keiningham , Aksoy , Hsu 2007). The majority of loyalty research has focussed on

tangible products, with service loyalty remaining under-researched (Dick,Basu 1994). This is a significant gap in the literature as services, such as HE, account for a large proportion of developed countries' GDP (Oliver, Rust, Varki 1997)[6], furthermore services have qualities which make them distinctive from goods therefore discussions of loyalty in services such as HE must consider how the intangibility, heterogeneity, inseparability and perishibility of services (Strauss 2005) affect loyalty.

Loyalty has been defined as:-

'1) the biased behavioural response 2) expressed over time by 3) some decision-making unit 4) with respect to one or more alternative brands out of a set of brands and 5) is a function of evaluative...process'

(Jacoby, Chestnut 1978 cited in Mellens, Dekimpe, Steenkamp 1996:509)

Three schools of loyalty research exist (Bandyopadhyay, Martell 2007) each addressing part or all of this definition. These schools are the behavioural school which addresses part 1 of this definition, the attitudinal school which addresses part 5 of the definition and the combined loyalty school which addresses all of the definition.

Behavioural School

Behavioural school researchers take a 'stochastic view...(arguing) little decision making occurs prior to purchase, thus behaviour precedes the development of attitude' (Bennett 2001:25). They concentrate on actual behaviour or behavioural intentions and define loyalty in behavioural terms. This lack of analysis in the purchasing decision

[6] 74% for the USA (Oliver, Rust, Varki 1997:311)

may be displayed by continuing students as, although a great deal of thought may be exhibited when choosing the HE institution, they may make their repurchase decision out of habit.

The behavioural school have utilised several behavioural measures to operationalise loyalty depending on the context of the study, for example, the length of time the individual has been a customer has been used (East, Sinclair, Gendall 2000) or when several brands have existed in a category, the share of the customer's wallet has been used (East, Grendall, Hammond, Lomax 2005). Such behavioural measures have a number of advantages in that they are based on actual purchases which directly link into profitability, they are deliberate and collected over time and are therefore unlikely to be 'incidental' and they are easier to collect than attitudinal data (Mellens, Dekimpe, Steenkamp 1996:512). However, the behavioural view has been criticised as it cannot differentiate between 'true (and) spurious loyalty' (Bandyopadhyay, Martell 2007:37) since customers who appear loyal may only repurchase for 'spurious reasons' (Bandyopadhyay, Martell 2007:37) such as convenience with Oliver (1999:35) concluding that it is unwise to 'infer loyalty from repeat purchase'. Within HE such spurious reasons could include feelings of failure due to dropping out, economic reasons such as sunk costs (Dick 1995) which encourage students to continue to prevent wasting previously spent money and switching costs (Porter 2004) which prevent students from changing institutions such as relocation costs and additional tuition fees. Consequently the measures of the behavioural school may count spuriously loyal customers as truly loyal and whilst past purchases are an accurate description of historic behaviour they may not be the best indicator of future

behaviour especially under changed conditions such as graduation (Mellens, Dekimpe, Steenkamp 1996), moreover the behavioural school makes 'no attempt to understand the factors underlying...(behaviour only showing the)...static outcome' (Dick,Basu 1994:100) and not explaining the development of loyalty over the relationship.

Attitudinal Loyalty

The attitudinal school argues that repurchase behaviours are the result of customer attitudes viewing loyalty as 'an attitudinal predisposition consisting of commitment to the brand and an intention to purchase the brand' (Russell-Bennett, McColl-Kennedy, Coote 2007:1254). Those who follow this approach explain repurchasing in terms of the 'attitudes, values and beliefs' (Bennett 2001:29) of the consumer. The attitudinal perspective measures loyalty by the use of proxies all of which 'can be considered as predispositions and...as...function(s) of psychological processes' (Rundle-Theile 2005:334) and views purchasing as the result of 'reasoned action where attitudes are formed prior to behaviour occurring' (Carrillat, Jaramillo, Mulki 2009:97) therefore this perspective argues that students who display behavioural loyalty do so because they have strong attitudinal loyalty.

Despite significant research into attitudinal loyalty no consistent measurement approach has developed making it difficult to compare the results of different studies. Measurement techniques can be separated into 'stated purchase-intention /preference measures ...(and) commitment measures' (Mellens, Dekimpe, Steenkamp 1996:516). Stated purchase-intention/preference measures such as those used by Bloemer, deRuyter, Wetzels (1999) have a long history with their first use being by

Guest (1942) who asked individuals 'which brand do you prefer?' (Mellens, Dekimpe, Steenkamp 1996:516). These measures are easy to collect and interpret, however they only indicate tendencies and don't take into account situational factors such as the need to purchase, as students are unlikely to repurchase and they have only experienced one brand these are inappropriate to this study. Jacoby and Chestnut's (1978) definition of loyalty includes a level of commitment to the brand for which researchers have used 'direct ratings' (Mellens, Dekimpe, Steenkamp 1996:517) and advocacy (Kuenzel, Krolikowska 2008 Mellens, Dekimpe, Steenkamp 1996) to operationalise with Mellens, Dekimpe, Steenkamp (1996:517) arguing that these commitment based measures are superior to stated intentions/preference as the commitment–behaviour link is 'stronger'.

Traditionally attitudinal research focused on the cognitive emphasising 'the role of mental processes in building loyalty' (Bennett, Rundle-Thiele 2002:194) but recent research has argued that 'attitudes are comprised of both affective (such as satisfaction) and cognitive (such as appraisal of performance) components' (Bennett, Hartel, McColl-Kennedy 2005:98), whilst Mellens, Dekimpe, and Steenkamp (1996) and Bennett (2002) have argued that loyalty is partly a personality trait, and 'based on inner psychological characteristics that exert relatively universal effects on attitudes and behaviour, fairly independent of the environmental situation' (Odekerken-Schroder, Wulf, Schumacher 2003:177) thus a customer's propensity to be loyal may be part of the loyalty equation, a view which is supported by Odekerken-Schroder, Wulf, Schumacher's (2003:177) concept of 'relationship proneness' which they define

as ‘ a consumer’s relatively stable and conscious tendency to engage in relationships’. Mellens, Dekimpe, and Steenkamp (1996) have argued that:-

- the individual’s propensity to be loyal;
- the individual’s attitude towards purchasing a brand;

should be combined as a measure of attitudinal loyalty, this has been challenged by Bennett, Rundle-Thiele (2002:203) whose research showed a lack of correlation between the two leading them to argue that they are separate constructs and that their aggregation reduces the ‘efficacy of the explanation’. The attitudinal view of loyalty has been criticised as it ignores situational constraints that prevent purchase (Bennett 2001), because customers may have strong attitudes to multiple competing brands and because consumers may rationalise non-loyal choices and describe evaluations which did not in reality happen when questioned (Mellens, Dekimpe, Steenkamp 1996). Furthermore, ‘as a general rule...attitudes are poor predictors of behaviour’ (Ajzen, Cote 2008:298) this is because most behaviours have multiple causes therefore attitudes have low explanatory power when explaining a single event but have more power when explaining relationships such as the relationship between a student and a university. The problems with an attitudinal view of loyalty have led Mellens, Dekimpe, Steenkamp (1996:514) to argue that ‘the validity of attitudinal loyalty measures depends on the strength of the attitudinal-behaviour relationship’ with this link being stronger when behaviour is aggregated, as in the proposed model.

Combined Loyalty

Criticisms of one-dimensional approaches led to conceptualisations which combine attitudes and behaviour in either an 'additive or interaction expression' (East, Grendall, Hammond, Lomax 2005:10) with Dick and Basu (1994:99) defining loyalty as 'the strength of the relationship between an individual's relative attitude and repeat patronage'. Dick and Basu (1994) argued that a favourable attitude and repeat purchase behaviour were needed to define loyalty and that attitudinal and behavioural loyalty are linked (Figure 3). Their model allowed customers to be classified into four groups based on their level of attitudinal loyalty and their repeat patronage, allowing the differentiation of the truly loyal and the spuriously loyal.

		Repeat Patronage	
		High	Low
Attitudinal strength	High	Loyalty	Latent Loyalty
	Low	Spurious loyalty	No loyalty

Figure 3 The Loyalty model of Dick and Basu (1994:101)

However Dick and Basu (1994) provided no empirical evidence for their theory and an empirical test showed that it 'is of limited value, particularly in predicting phenomena such as recommendation' (Bandyopadhyay, Martell 2007:36), whilst other studies have found little support for combining attitudinal and behavioural loyalty as one

construct due to low correlations between the two (East, Grendall, Hammond, Lomax 2005), whilst the measurement of loyalty as a single construct, even if the construct such as that of Dick and Basu (1994) includes an attitudinal and a behavioural perspective, reduces explanatory power as it does not allow the effects of behaviour and attitudes on each other to be assessed (Davis-Sramek,Mentzer,Stank 2008), furthermore the model cannot be applied to this study as it uses repeat purchase as a measure and students are unlikely to repurchase.

Loyalty Conclusion

Although general agreement exists that loyalty is two dimensional (Dick, Basu 1994, Mellens, Steenkamp, Dekimpe 1996) it has been treated as one dimensional in most studies with researchers taking either attitudinal or behavioural perspectives (Bennett 2001). Bennett, Rundle-Theile (2002) offer pragmatic advice to those seeking to measure loyalty arguing that the decision to measure loyalty as either a behaviour or an attitude depends on the circumstances involved so if the time period between purchases is long, such as in HE, behavioural data is meaningless and attitudinal measures should be utilised.

As this study focuses on continuing students rather than those who have dropped out it seeks to predict loyalty as represented by advocacy and the behavioural intention to remain involved with the university after graduation, student retention is not used as a measure of loyalty as its use would have meant that a longitudinal design would be needed and this was not possible within the timescales, furthermore retention may be due to spurious reasons. As a measure of loyalty advocacy has a number of strengths

in that to recommend the institution students must believe that it is better than alternatives and must have a high affective preference for the institution (Oliver 1999) whilst Reichheld (2003) has claimed that advocacy is so important that it is the 'only performance indicator a company needs' (Gupta, Zeithaml 2006:8). Advocacy has been defined as 'as informal, person-to-person communication about a brand, product, organisation, or service that occurs between a non-commercial communicator and a receiver' (Anderson 1998 cited in Keong 2006:12). Advocacy has been found to be increasing due to the rise of social networking and to have a greater influence on potential customers than other forms of communication with its influence being greatest in service contexts due to intangibility making the assessment of quality difficult (Keong 2006). Harrison-Walker (2001) identified two aspects of advocacy in her study of hair salons and veterinarian surgeries, 'praise' which relates to the quality of the advocacy and 'activity' which relates to the frequency of the advocacy, this study therefore uses an operationalisation advocacy which combines praise and activity additively (Keong 2006). This study also includes loyalty propensity as a moderator of the satisfaction loyalty relationship. This means that a student's loyalty propensity affects the size and or direction of the relationship between satisfaction and loyalty (Hayes, Matthews 2009). The inclusion of moderating variables in the model is important because the effect of one variable on another is not 'independent of situational, contextual, or individual-difference factors' (Hayes, Matthews 2009:924) and furthermore we gain a greater understanding of the effect of a variable on another variable if we understand the limits to that effect (Hayes, Matthews 2009) with it being posited that students with high loyalty propensity will be more loyal at any given level of satisfaction (Bennett, Rundle-Thiele 2002).

The measures of loyalty utilised in this study could be interpreted as either behavioural or attitudinal as both advocacy and behavioural intentions have been used as measures of behavioural (Kuenzel, Ewa Krolikowska 2008) and attitudinal loyalty (Rundle-Theile 2003) whilst advocacy has also been modelled as a dimension of loyalty (Bloemer, deRuyter, Wetzels 1999). Due to difficulties in defining if the measures used are behavioural or attitudinal this study will treat the measures additively developing a combined loyalty measure. Such an approach has support in the student loyalty literature with Hennig-Thurau, Langer, Hanson (2001), Yu, Lee (2008), Helgesen, Nesset (2007), and Helgesen, Nesset (2009) all taking this approach, however this approach does not allow the link between attitudes and behaviours to be investigated. Due to loyalty's importance it is vital to understand its antecedents to enable effective management, a number of different antecedents to student loyalty have been considered in the literature however this study concentrates on satisfaction and service quality which have 'been recognised as the main antecedents of...loyalty' (Tontini, Silveira 2007:482), it will also examine customer involvement which this study argues plays a key role in student loyalty as students have the main role in implementing the service, these constructs are reviewed in the next sections.

Satisfaction

Satisfaction is a 'general concept applicable to different levels of analysis' (Hanson, Sand 2008:234) with it being applied to individual transactions and long term relationships both during and post service (Oliver, Swann 1989 cited Giese, Cote 2000:5); its importance has been shown by the development of national satisfaction

indices in many countries[7](Ogikubo, Schvaneveldt, Enkawa 2009 Eshghi, Roy, Ganguli 2008), however 'from a managerial standpoint it only matters to the extent that it effects behavioural intentions' (Oliver, Rust, Varki 1997:312) with satisfaction being shown to have a positive impact on behavioural loyalty in commercial (Anderson, Sullivan 1993 Cronin, Brady, Hult 2000) and educational contexts (Helgesen Nesset 2007). However, findings that up to 85% of satisfied customers defect (Oliver 1999:33) and that many satisfied students would not recommend their institution (Douglas, McClelland, Davies 2008) have led to satisfaction research moving from 'king' (Oliver 1999:33) to being a constituent of loyalty research. This paper argues that satisfaction is a key antecedent to loyalty (Oliver, Rust, Varki 1997) within HE, a link which has been shown previously in commercial settings (Zeithaml 1996 Oliver 1999 cited in Yang, Peterson 2004) and in HE (Nesset, Helgenson 2009, Nesset, Helgenson 2007, Rojas-Méndez, Vasquez-Parraga, Kara, Cerda-Urrutia 2009) furthermore it argues that satisfaction mediates the relationship between PSQ and loyalty. A mediator is a variable that 'represents the generative mechanism through which the...independent variable (PSQ) is able to influence the dependent variable (loyalty)' (Baron, Kenny 1986:1173) and explains how 'external physical events take on internal psychological significance' (Baron, Kenny 1986:1176). Satisfaction has been shown to perform this function in the commercial context by Caruana (2002) and this study will extend this finding to the educational context.

Despite significant research satisfaction studies interpret satisfaction in multiple ways, for example the disconfirmation of expectations model were customers compare their

[7] Sweden and the USA

experiences against their expectations, the needs fulfilment definition were customers purchase a service to fill a need and if the need is filled they are satisfied and the equity theory of satisfaction in which customers are satisfied if they perceive that they have been treated fairly (Keong 2006). This leads to difficulty comparing results of studies. Satisfaction research is divided into studies which analyse satisfaction as a transaction specific phenomenon (Oliver 1993) and those which analyse it cumulatively (Anderson, Fornell, Lehmann 1994). 'Early satisfaction research' (Yang, Peterson 2004:803) saw satisfaction as a 'post choice evaluative judgement' (Bodet 2008:157) of specific service episodes, such as a lecture. However, recent research (Yang, Peterson 2004) has focussed on cumulative satisfaction which is an aggregation of individual satisfaction judgements with Athiyaman (1997) defining educational satisfaction as being a function of classes completed to that time. The growth in interest in cumulative satisfaction is because people base decisions on relationships not a single transaction, therefore this study focuses on cumulative satisfaction within HE, however whilst Athiyaman (1997) focussed only on satisfaction with class this study will model satisfaction with university including APSQ, FPSQ and TPSQ as antecedents.

Satisfaction theories are further divided into process theories which are based on disconfirmation of expectations and define satisfaction as 'the consumers response to the evaluation of the perceived discrepancy between...expectations...and ... performance' (Tse, Wilton cited in Yi 1989:1) and outcome theories which argue that 'satisfaction is an end-state that does not always rely on expectations being met' (Bennett 2001:6). The outcome school has grown in popularity in recent years arguing that disconfirmation may not be present in all situations, however the disconfirmation

of expectations model remains the 'dominant framework for explaining customer satisfaction' (Philips, Baumgartner 2002:243). It explains satisfaction as the result of a comparison of expectations and perceptions where judgements occur in 'a series of well defined steps' (Philips, Baumgartner 2002:244). Firstly customers form expectations of the service that they will receive; secondly the consumer evaluates performance of the service against their expectations and makes a judgement. Experiences that are better than expected result in positive disconfirmation and lead to high levels of satisfaction, experiences that are as good as expected result in confirmation of expectations and lead to satisfaction whilst experiences that are worse than expected result in negative disconfirmation and lead to dissatisfaction (Oliver, Rust, Varki 1997). The disconfirmation model has its roots in applied and social psychology and has theoretical support from 'adaption level theory...(which argues that people perceive) stimuli only in relation to an adapted standard' (Yi 1989:20), and it has received empirical support from studies such as Oliver (1980),and Spreng, Mackenzie, Olshavsky (1996).

Despite its popularity the disconfirmation of expectations model has a number of theoretical issues. The expectations concept can be interpreted multiple ways (Spreng, MacKenzie, Olshavsky 1996) with predictive expectations, desires and norms all being utilised (Zeithaml, Gupta 2007); this has led to a number of different comparison standards being suggested such as minimum standards (Zeithaml, Berry, Parasuraman 1993) and performance expectations (Fornell, Johnson, Anderson, Cha, Bryant 1996), leading to difficulty comparing results especially as many studies fail to define their interpretation of satisfaction (Giese, Cote 2000). Furthermore in situations where a customer may have low expectations and these expectations are met or bettered the

customer may not be satisfied just surprised (Tse, Wilson 1988), similarly if high expectations are held then a failure to them may not lead to dissatisfaction. The disconfirmation of expectations model also suffers from a lack of predictive validity as people's expectations change as they gain more experience of the service, this is a significant problem in this study as a student's expectations constantly change therefore their expectations at the end of the first year will be significantly different from their original expectations as a result of each service episode and influence from 'planned communications...(from the college and)...unplanned communications' from friends (Gronroos 2004:105).

There is general agreement that satisfaction is a 'response to an evaluative judgement' (Giese, Cote 2000:3) however disagreement exists over whether it is 'an emotional or cognitive response' (Giese, Cote 2000:1). The disconfirmation model sees satisfaction as 'primarily a cognitive process' (Philips, Baumgartner 2002:244) with consumers forming expectation and performance opinions based upon functional attributes however recent research has concentrated on the 'emotional' (Giese, Cote 2000:1) with Giese, Cote (2000) finding that 73% of those they interviewed described satisfaction in affective terms, this led to them defining satisfaction as a 'summary affective response of varying intensity' (Giese, Cote 2000:2). Furthermore student satisfaction has been subdivided into a 'psychological wellness type of satisfaction' (Wiers-Jenssen, Stensaker, Grogaard 2002:185) which relates to the students emotional wellbeing and past experience, 'job type satisfaction' relating to the students aspirations and hopes and a 'consumer type of satisfaction which represents factors that the students face in their daily life' (Wiers-Jenssen, Stensaker, Grogaard 2002:185), this study focuses on student consumer satisfaction and the inputs that the

university can manipulate to increase satisfaction defining satisfaction as emotional response to ‘a student’s...evaluation of...(their)...outcomes and experiences with education and campus life’ (Elliot, Shin 2002 cited in Helgesen, Nesset 2007:44).

Satisfaction Conclusion

This paper studies student consumer satisfaction during purchase rather than post purchase (Oliver, Swann 1989 cited Giese, Cote 2000:5) and views satisfaction as an outcome rather than a process with students developing their affective satisfaction response partly by the cognitive assessment of service quality which is reviewed in the next section. It also posits that student satisfaction positively relates to student loyalty a relationship found in the HE context by Helgesen, Nesset (2007) with satisfaction mediating the quality-loyalty relationship. The study follows the example of Eshghi, Roy, Ganguli (2008) and operationalises satisfaction as a multi-dimensional scale as the complex nature of the construct means that it cannot be captured utilising a single item scale, furthermore multi-item scales also tend to be less volatile and more reliable than single measures (Litwin 1995).

Service Quality

HE institutions are service firms, they have ‘no products, only interactive processes’ (Palmer 2005:12), the service marketing perspective defines services ‘by means of the goods/service dichotomy’ (Evardson, Gustafsonn, Roos 2005:108) so services are intangible in that they cannot be touched with education being one of the most intangible services (Palmer 2005:24), heterogeneous as each service exchange differs

in some respect, inseparable in that production and consumption occur at the same time, this means that the 'consumption of a service is a process consumption rather than an outcome consumption' (Gronroos 2004:100) with students perceiving production, for example a lecture, as part of the product, and perishable as services cannot be stored for future use (Palmer 2005). These factors have a significant effect on service quality and its measurement. In terms of measurement intangibility is the most important feature as it means that 'internally'(Bolton, Drew 1994:1) generated measurements of service quality used for physical goods such as defect counts cannot be used leading to a reliance on 'externally' generated (Bolton, Drew 1994:1) 'customer perceptions' (Rust, Chung 2006:570) to assess quality, however many universities rely on insiders such as EQUIS (http://www.efmd.org/index.php/component/efmd/?cmsid=040929rpku) to review quality rather than the students themselves (Sanders, Stevens, Malcolm, Coats 2000).

'Service quality is an elusive...abstract construct' (Cronin, Taylor 1992:55) which is difficult to define and to measure and although 'there seems to be a broad consensus that service quality is an attitude of overall judgement about service superiority' (Abdullah 2006:33) disagreements exist over its exact nature with Gronroos (1984) and Parasuramam, Zeithaml, Berry (1988) arguing that service quality is the result of the comparison of expectations and perceptions of a service a definition that Parasuramam, Zeithaml, Berry (1988) operationalised with their SERVQUAL instrument, in contrast Cronin and Taylor (1992) have argued that 'if service quality is similar to an attitude...its operisation...(is) better represented by an attitude like representation' such as customer perceptions with SERVPERF (Cronin, Brady 2002:19)

operationalising of this definition, whilst Teas (1993) argued that PSQ is a comparison between perceptions and ideal standards (Abdullah 2006). Within education service quality is a 'complex and multifaceted concept and a single appropriate definition is lacking' (Voss, Gruber, Szmigin 2007:950) with all customers such as students, employers and the government having different views of what comprises quality (Voss, Gruber, Szmigin 2007, Quinn, Lemay, Larsen, Johnson 2009), as this study focuses on students it develops a student view of service quality, however treating students as customers is controversial as it places academics in the position of a service provider potentially causing difficulties if they award poor marks (Angell, Heffernan, Megicks 2008) therefore much rests on academic integrity, this has led to some arguing that students should be treated as the product rather than the customer (Patton, Patton 2006). Many would argue that the service that a university provides to its students is education with much of the research concentrating on teaching quality (Oldfield, Baron 2000, Athiyaman 1997) however, as many students live away from home almost all aspects of their life are connected to their university (Angell, Heffernan, Megicks 2008, Hennig-Thurau, Langer, Hanson 2001). This means that student loyalty may be affected by the PSQ of non educational areas such as administration and facilities therefore this dissertation contributes to the literature by including administrative and facility PSQ in the model.

PSQ is a 'subjective customer evaluation' of the service received (Pakdil, Aydin 2007:231). It is generally recognised that service quality is a multi-dimensional construct however different studies have proposed different numbers of dimensions (Seth, Deshmukh, Vrat 2005). A large number of service quality models exist with Seth,

Deshmukh, Vrat (2005) reviewing nineteen such models, however academics have generally utilised either the 'Nordic...or...American Perspectives'(s) of service quality (Brady, Cronin 2001:34). Nordic school academics such as Gronroos (1984) define 'the dimensions of service quality in global terms' (Brady, Cronin 2001:34) the technical which refers to 'what is delivered to customers' and is assessed after delivery (Asubonteng, McCleary,Swan 1996:62) and the functional which refers to how the service is delivered and is assessed during delivery (Asubonteng, McCleary,Swan 1996) with functional aspects being the most important as often customers are unable to judge technical qualities (Chao 2009). This inability to judge technical qualities is evident within education as students lack the expertise to tell if the technical qualities of their teaching are of a high standard, furthermore the technical quality of a university education reveals itself slowly, potentially many years after graduation this 'causes...(students)...to focus on functional service quality' (Alves Raposo 2007:573). The dominant model of service quality, SERVQUAL, comes from the American school (Brady, Cronin 2001) and is based on Parasuramam, Zeithaml, Berry's (1985) exploratory research into service quality; this research focused on functional aspects of service quality and developed ten dimensions of service quality which were later purified into five (Figure 5). Parasuramam, Zeithaml, Berry (1988) argued that SERVQUAL could be applied to any context (Tontini, Silveira 2007) with this instrument being used to measure service quality in industries such as health (Carman 1990), banking (Cronin, Taylor 1994) and restaurants (Bojanic, Rosen 1994) and in cultures such as the USA China and the UK (Ladhari 2008). Parasuramam, Zeithaml, Berry (1988) argued that PSQ is a function of a number of gaps between expectations and perceptions/actuality with the result of these gaps being PSQ (gap 5) (Figure 4), with the authors developing the SERVQUAL questionnaire to measure this gap. SERVQUAL

measures the difference between expectations (E) and perceptions (P) across the five dimensions by a bank of questions which capture expectations and a bank of reworded questions used to capture perceptions. Each item is measured by Likert scales, the items are then summed and the difference taken to give the level of PSQ (Gap 5) so that when:-

1) E > P - the customers perceived quality does not meet expectations
2) E = P – Perceived Quality meets customer expectations
3) E < P – Perceived Quality exceeds customer expectations

Equation 1 SERVQUAL service Quality Calculations

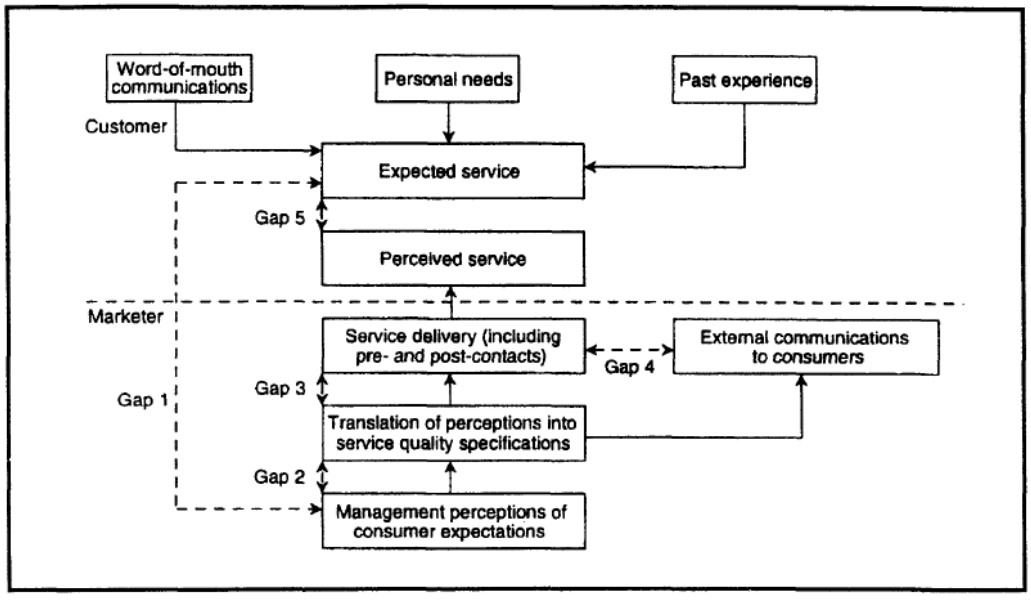


Figure 4 The Gap Model of Service Quality (Grant 2003:94)

Original SERVQUAL Dimensions	Modified SERVQUAL Dimensions	Definitions
Tangibles Reliability Responsiveness	Tangibles Reliability Responsiveness	Appearance of physical facilities, equipment, personnel,aerialsnd communication ma Ability to perform the promised service dependably and accurately Willingness to help customers and provide prompt service
Competence Courtesy Credibility Security	Assurance	Knowledge and courtesy of employees and their ability to convey trust and confidence
Access Communications Understanding the customer	Empathy	Caring, individualized attention the firm provides its customers

Figure 5 The purification of the original SERVQUAL scale -(Zeithaml, Parasurama, Berry 1988:25) (Baker 2001:548)

Although Parasuramam, Zeithaml, Berry (1988) do not equate SERVQUAL to satisfaction their model has been extended so if P ≥ E then a customer's expectations have either been confirmed or positively disconfirmed and the customer is satisfied, and if E < P then expectations have been negatively disconfirmed leading to dissatisfaction, this interpretation means that Gap 5 is both a measure of satisfaction and service quality (Grant 2003, Petruzzellis, D'Uggento, Romanazzi 2006). However, Parasuramam, Zeithaml, Berry (1988) state that their gap model is 'similar' but different (Teas 1993:19) to the satisfaction disconfirmation paradigm and do not suggest that satisfaction is the result of E ≥ P. The similarity in definition and measurement between PSQ and satisfaction questions whether they are the same construct (Iacobucci, Ostrom, Grayson 1995). If satisfaction and PSQ are distinct they should be treated separately however if not they should be 'considered as one construct' (Iacobucci,Ostrom, Grayson 1995:294) therefore this dissertation must decide if they are separate constructs and adjust the model accordingly.

Two constructs are unique if they have separate nomological positions, and empirical research identifies that PSQ and satisfaction have different positions with experience of the product not being necessary to judge quality but being necessary for satisfaction (Iacobucci,Ostrom, Grayson 1995), furthermore satisfaction has been found to be an affective and cognitive response whilst service quality is cognitive (Iacobucci, Ostrom, Grayson 1995). We can also distinguish whether they are separate concepts by deciding if they can be 'conceptualised as orthogonal' (Iacobucci,Ostrom, Grayson 1995:279) in that circumstances exist for a service to be considered high quality and result in either satisfaction or dissatisfaction, such circumstances have been discovered with findings that sometimes customers are satisfied despite a failure to meet expectations (Spreng, Mackenzie, Olshavsky 1996, Bennett 2001). Therefore despite definitions and conceptualisations of quality and satisfaction being similar they are separate constructs, with this study interpreting satisfaction as an emotion which has PSQ as its cognitive antecedent.

Criticisms of SERVQUAL

Despite widespread use and its development using 'Churchill's (1979)...generally accepted psychometric procedures' (Caruana,Ewing, Ramaseshan 2000:57) and findings that it has 'good reliability and validity' (Parasuramam, Zeithaml, Berry 1988:30) the SERVQUAL instrument has been criticised on methodological, theoretical and empirical grounds with Parasuramam, Zeithaml, Berry either rebutting these criticisms or refining SERVQUAL in response, these criticisms need to be reviewed before the decision on which PSQ measurement system to use is undertaken.

Methodological criticisms

Methodologically SERVQUAL has been criticised because it requires the calculation of difference scores which involve 'the subtraction of one measure from another to create a measure of a distinct construct' (Peter, Churchill, Brown 1993:655). Difference scores have been criticised in the service quality (Teas 1993,1994) and psychometric literatures due to problems with 'reliability, discriminate validity, spurious correlations and variance restriction' (Peter, Churchill, Brown 1993:655), with the reliability of the difference score reducing with the reliability of its components (Peter, Churchill, Brown 1993), whilst as the correlation between components becomes higher 'the reliability of the difference score decreases' (Peter, Churchill, Brown 1993:658). SERVQUAL experiences this problem as expectations and perceptions 'can be expected to be correlated...as the only operational difference...is the perspective the respondent is asked to take' (Peter, Churchill, Brown 1993:655) with studies of the SERVQUAL difference score finding that it was 'highly correlated with one of the components'[8] (Peter, Churchill, Brown 1993:660) this makes it difficult to argue that they are separate constructs and damages discriminate validity (Cronin,Taylor 1992 Van Dyke, Prybutok,Kappelman 1999:3), furthermore Buttle (1996) has argued that the high correlations between the five dimensions of SERVQUAL mean that significant overlaps exist between the dimensions. The lack of discriminate validity leads to problems of spurious correlations as correlations between difference scores and variables may be 'artefact(s)' (Peter, Churchill, Brown 1993:660) of relationships between components and other variables therefore the difference score may provide no additional information compared to the information given by its components. This has been

[8] with Brown, Churchill, Peter (1993) finding a correlation of .79 between the componants

shown in the service quality literature as the perceptions component has outperformed the difference score in predicting overall quality with Cronin and Taylor (1992) finding that their perceptions only measurement had higher adjusted R^2 scores across four industries than SERVQUAL.

The methodology of using difference scores means SERVQUAL suffers from variance restriction (Caruana,Ewing, Ramaseshan 2000), this occurs when 'one of the components used to create a difference score is one for which more is always better' (Peter, Churchill, Brown 1993:660) for example it is unlikely that a tutor could have too much knowledge therefore students who believe their tutor lacks knowledge 'have a wider potential range on difference scores...(than those holding the opposing view leading to a) systematic restriction in variance scores' (Peter, Churchill, Brown 1993:660). Such variance restriction was illustrated by Brown, Churchill, Peter (1993:136) who found 'that subjects checked one of the top two positions on 79% of the expectation items' this causes problems using statistical analysis such as regression which depend upon 'constant variance of the dependent variable' (Peter, Churchill, Brown 1993:660).

The formula used to calculate the difference scores means that the same score can be achieved six ways, for example to make a score of -1 expectations could equal any value between 1 and 6 and perceptions could equal any value between 2 and 7[9], it seems unlikely that a score of -1 measures the same thing regardless of how it's constructed (Teas 1993, 1994) therefore damaging validity. An additional problem is

[9] For example Perceptions = 1 Expectations = 2 or Perceptions = 2 Expectations = 3

that SERVQUAL captures expectations post service and concurrently with perceptions this leads to the contamination of expectation scores by 'self justification', subsequent experience, and 'faulty recollections' (Sapford 2007:82), this damages the validity of SERVQUAL as it is not measuring what it purports to measure. This is a particular problem within HE as many students only have 'fuzzy expectations' (Gronroos 2000:89) and do not know what university entails before attending (Joseph, Joseph 1997) so by asking respondents about their expectations post entry SERVQUAL forces students into developing clarity of expectations which they did not have before entering the college (Caruana,Ewing, Ramaseshan 2000) and leads to expectations being highly influenced by the service received. Additionally as education is a transformational process expectations are constantly changing as 'information not present in the enrolment decision' (Wetzel, O'toole, Peterson 1999:45) becomes available, however for 'a disconfirmation based measurement to function correctly expectations must remain constant' (Joseph, Joseph 1997:2). This problem was shown by an American university which used SERVQUAL to assess service quality and found that expectations decreased throughout the students' time at the university (Quinn, Lemay, Larsen, Johnson 2009), according to SERVQUAL this would lead to higher PSQ when in fact students expectations had been lowered by poor performance. Therefore despite the argument that defining exactly what a customer expects may be the most 'crucial step in defining and delivering high service quality' (Pakdil, Aydin 2007:230) within the educational context this may not be as a relevant due to expectation vagueness and the transformational nature of education, furthermore studies by Cronin, Taylor (1992), and Brady, Cronin (2002) have shown that performance only measures outperform the SERVQUAL making the collection of expectations superfluous.

Theoretical Criticisms

The interpretation of the expectations construct has generated 'considerable debate' (Caruana,Ewing, Ramaseshan 2000:58) as 'it is...unclear what...(it)...represents (Teas 1993:29). It is argued that respondents may interpret the expectations questions differently (Teas 1993:18) this led to Parasuramam, Zeithaml, Berry adopting both the 'classic attitudinal ideal point' and 'feasible ideal point interpretations' in their mixed SERVQUAL model (Caruana,Ewing, Ramaseshan 2000) however this does not resolve the 'ambiguity' (Teas 1994:135) as respondents can still interpret expectations in multiple ways with Teas (1993) arguing that a 'considerable portion of the variance in SERVQUAL is a result of measurement error introduced by respondents' varying interpretation of the expectations construct' (Caruana,Ewing, Ramaseshan 2000:58) this reduces reliability making conclusions unsafe. Furthermore the 'the notion of subtraction contained in the SERVQUAL model has no equivalent in psychological function' (Ekinci, Riley 1998 cited Ladhari 2008) with little evidence existing to support the idea that customers assess quality in terms of perceptions – expectations, this has led to claims that perception only measures are more valid measurements of service quality (Ladhari 2008).

Empirical Criticisms

Empirical criticisms of SERVQUAL have centred on claims that SERVQUAL can be used across all service environments (Parasuraman, Berry, Zeithaml 1988, 1991 Parasuraman, Zeithaml Berry 1994). Empirical studies have refuted this claim finding

that the 'number of dimensions and stability of items (vary) across....industries' (Caruana,Ewing, Ramaseshan 2000:59) with the 'vast majority of studies report(ing) a number other than five' (Nyeck, Marales, Ladhari, Pons 2002:102)[10], with Joseph and Joseph (1997) finding that the SERVQUAL dimensions are inappropriate for the education sector, this has led to Babakus and Boller (1992) concluding that 'service quality is a simple unidimensional construct in some contexts but a complex multidimensional construct in others' (Ladhari 2008:68) with the number of dimensions depending on the service performed and the country studied (Ladhari 2008). This lack of stability across industries effects the reliability of SERVQUAL as it requires the averaging of scores across dimensions therefore a high expectations and low perceptions score in one dimension could be cancelled out by a low expectations and high perceptions score in another dimension, such a scoring method 'is only appropriate if all the items in that dimension are interchangeable' (Van Dyke, Prybutok,Kappelman 1999:4), the empirical evidence shows this is not the case for SERVQUAL.

Service Quality Conclusions

Despite widespread criticism SERVQUAL still appeals to 'academics and practitioners' (Caruana,Ewing, Ramaseshan 2000:57) with many studies failing 'to concern themselves with the validation of the measurement tool' (Nyeck, Marales, Ladhari, Pons 2002:106),for example a review of 60 SERVQUAL studies found that 44.3% included no information on convergent validity, 54.1% on discriminate validity and 83.6% on predictive validity (Nyeck, Marales, Ladhari, Pons 2002:105). Despite its

[10] 'at least thirty industry-specific scales of service quality being published' (Ladhari 2008:65)

widespread use this study does not utilise the SERVQUAL instrument, as regardless of 'strong theoretical support for the general notion that customer assessments of stimuli...occur relative to some norm' (Parasuraman, Zeithaml, Berry 1994:112) doubts relating to its theoretical base, its methodology and its empirical support have led to a decision to use a perceptions only measure of service quality, such measures have been found to 'explain more of the variation in service quality than gap measures' and perform better in terms of both construct validity and operational efficacy (Caruana,Ewing, Ramaseshan 2000:59, Abdullah 2006:32). However, unlike Cronin and Taylor (1992) this study does not use the SERVQUAL dimensions as discrepancies across industries mean it is more appropriate to develop measures for the specific service environment (Chao 2009) and because the large number of questions hinders response rates (Cronin, Brady, Hult 2000) therefore this study develops perceptions only measures of service quality based upon Gronroos (1984) which capture service quality across two dimensions the technical and the functional and models its relationship with service quality and loyalty.

Although Bitner (1990) found that satisfaction is an antecedent to service quality, most research has indicated the opposite relationship (Spreng, Mackoy 1996, Cronin, Taylor 1992, Athiyaman 1997), with tests of the strength of the relationship between service quality and satisfaction having mixed results with discovered correlations ranging from 0.80 to 0.20 (Carrillat, Jaramillo, Mulki 2009:95). The difference in correlation strengths found in previous studies may be due to these studies concentrating on simple linear relationships, however this study models more complicated relationships between variables using the concept of 'zones of tolerance' (Ziethaml, Bitner, Gremler 2005:36).

A zone of tolerance is the 'extent to which customers recognise and accept....variation' in service quality with more important factors having narrower zones (Ziethaml, Bitner, Gremler 2005:36) (Figure 6). Zones of tolerance have been used to develop a number of taxonomies of antecedents to satisfaction such as two factor theory (DeSheilds, Kara, Kaynak 2005) which divides antecedents into satisfiers which are conditions that if present will satisfy customers and hygiene factors which are 'conditions that (customers) have come to expect as ordinary' (Vargo, Nagao, He, Morgan 2007:2) and whose presence will not satisfy customers but whose absence will lead to dissatisfaction. This paper uses the more nuanced satisfiers, dissatisfiers, neutrals and criticals taxonomy which argues that some antecedents:-

'increase satisfaction when present, but do not increase dissatisfaction when absent (satisfiers), some factors increase dissatisfaction when absent but do not increase satisfaction when present (dissatisfiers), (whilst) some impact both satisfaction and dissatisfaction (criticals)'

(Vargo, Nagao, He, Morgan 2007:1) (Figure 6).

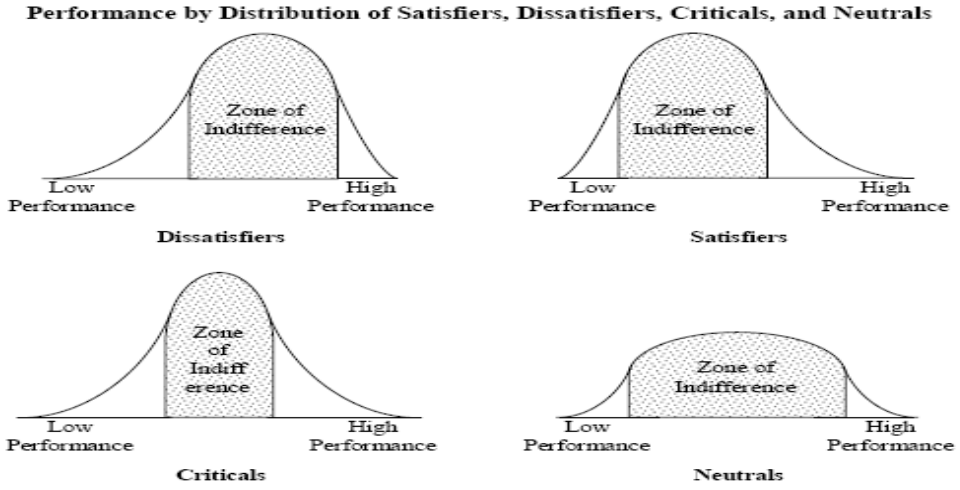


Figure 6 Performance by distribution of satisfiers, disatisfiers and neutrals - Cadotte and Turgeon (1988) cited (Vargo, Nagao, He, Morgan 2007:5)

This study applies this taxonomy to the three operational areas within universities identified in the literature, these are teaching services, administrative services and facilities (Yu,Lee 2008:8, Douglas, McClelland, Davies 2008:21). The service quality of teaching services focuses on teaching staff, due to inseparability the production and consumption of teaching are simultaneous therefore 'contact personnel not only deliver service but also are part of the delivery of the service' (Chao 2009:95). The study of TPSQ has support in the literature with the findings that 'the behaviours and attitudes of customer contact personnel primarily determine the customers' perception of service quality' (Voss, Gruber, Szmigin 2007:950) and within the educational literature with the finding that the 'instructional quality of the lecturer is the main influence' on the PSQ of specific modules (Voss, Gruber, Szmigin 2007:950). This study argues that TPSQ is a critical as it is the core product as perceived by the student 'without which there is no chance to play the game of market participation' (Vargo, Nagao, He, Morgan 2007:6) and it is an expressive factor which elicits positive and negative feeling and it fulfils the 'intrinsic' (Vargo, Nagao, He, Morgan 2007:7) need of the student, education. Administration refers to all non academic services provided by the university, the effect of administrative service quality on satisfaction has limited support with most studies ignoring this construct (Athiyaman 1997), whilst others have argued that it is a hygiene factor only influencing satisfaction in areas of service breakdown (DeSheilds, Kara, Kaynak 2005), this study proposes that APSQ is a dissatisfier as it is part of the expected product and therefore its presence will not lead to satisfaction but its absence will cause dissatisfaction, and it is an instrumental factor in that it is a 'means to a set of ends' (Vargo, Nagao, He, Morgan 2007:3) as the

purpose of administration is to support TPSQ. Facilities PSQ focuses on the buildings of the university and as such it includes the library, lecture theatres and housing. This is posited to be a satisfier as good facilities are part of the augmented product and therefore the customers perceive this as a "nice to have" rather than a essential however as competition rises this will eventually become part of the expected product and become a dissatisfier.

Customer Involvement

Service inseparability means that the customer is present during production this means that employee actions are often perceived as more 'important than the core service' (Sierra, Heiser, McQuitty 2009:111) however employees are only 'half of the service exchange dyad' (Sierra, Heiser, McQuitty 2009:111) with customers contributing to service quality by active participation. Customer participation is 'the degree to which the customer is involved in producing and delivering the service' (Babholkar 1990:484 cited Bendapudi, Leone 2003:14) this varies across services and across customers, with the degree of customer involvement needed for success varying across services (Sierra, Heiser, McQuitty 2009:111) from 'firm production' where the firm creates the service to 'customer production' where the customer produces the service (Bendapudi, Leone 2003:15) with education being at the high end of the continuum (Figure 7), 'consequently, the customer contributes directly to the quality of the service delivered, and to his/her (dis)satisfaction' (Brochado 2009:175) with students providing mental inputs, through studying, physical inputs, through participation and emotional inputs (Kotzé, Plessis 2003).The importance of involvement in student loyalty has been found in a number of studies with Nettles and

Johnson (1987) finding that student socialisation into the university is correlated with retention (Kramer 1994:4) and Zhang, Han, Gao (2008) finding that involvement influences perceptions of quality and satisfaction, this has led to advice that students should be 'actively managed to ensure their participation facilitates the education service encounter and the desired outcomes' (Mills, Morris (1986) cited Kotzé, Plessis 2003:186).

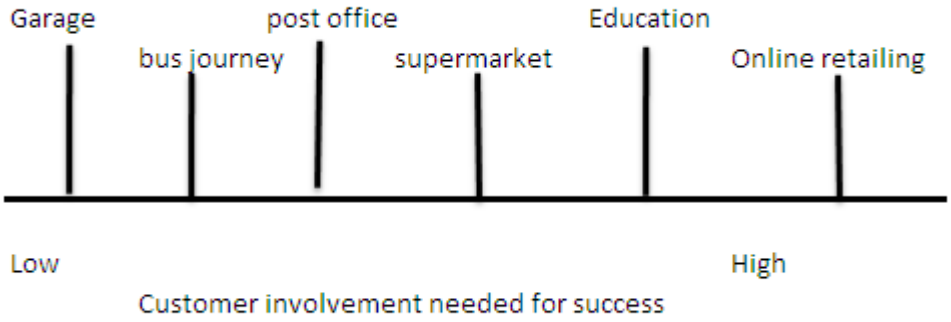


Figure 7 The Level of customer involvement needed for success

Involvement Conclusion

Some studies have examined students as co-producers of teaching (Kotzé, Plessis 2003), however as this study sees the service as the entire university experience its involvement construct involves measures of class and university participation. As students are free to determine the amount of time spent studying, their class input (Suhre, Janson, Harskamp 2006) and involvement in university life, involvement may affect service quality directly (Sierra, Heiser, McQuitty 2009:111) and the level of involvement may moderate the relationship between PSQ and satisfaction (Russell-Bennett, McColl-Kennedy, Coote 2007:1255) with those who are more involved taking more responsibility for their experience and due to self justification being more

satisfied at any given level of PSQ, if such hypotheses are proven then 'competing on service quality requires firms to extend their view of productive resources...to include customers' (Bettencourt 1997:384).

Chapter Summary

This chapter reviewed the literature relating to loyalty, satisfaction, service quality and involvement and related it to the student context. It has developed a model of the antecedents to student loyalty which includes satisfaction as a mediator of the relationship between PSQ and loyalty and involvement as a moderator of the PSQ satisfaction relationship and loyalty propensity as a moderator of the satisfaction loyalty relationship, this model is shown in Figure 8 and the hypotheses to be tested are shown in Figure 9.

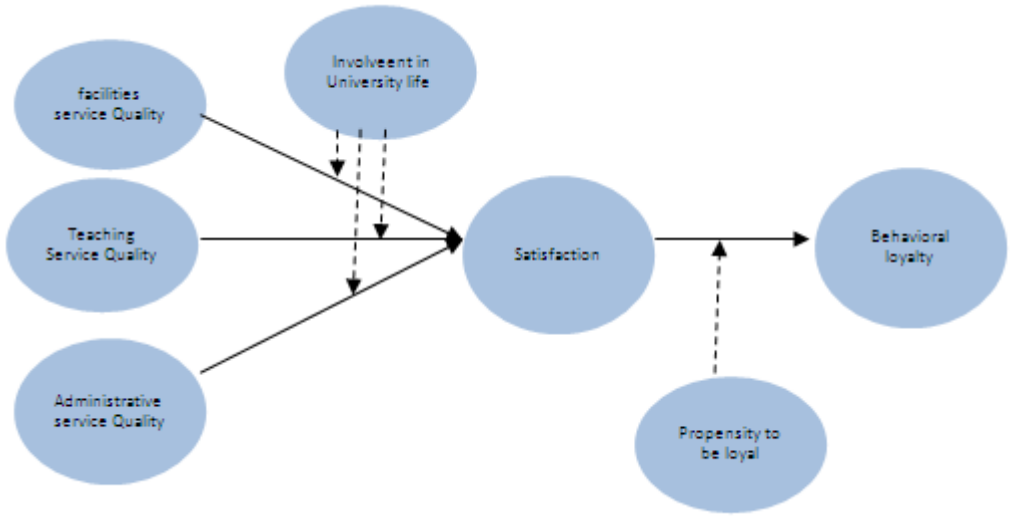


Figure 8 Proposed Student Loyalty Model

- H1 –Student involvement directly effects TPSQ, and APSQ

- H2 –FPSQ acts as a satisfier in its relationship with satisfaction
- H3 –TPSQ acts as a critical in its relationship with satisfaction
- H4 – APSQ acts as a dissatisfier in its relationship with satisfaction
- H5a – Satisfaction mediates the relationship between APSQ and behavioural loyalty
- H5b – Satisfaction mediates the relationship between TPSQ and behavioural loyalty
- H6 – Satisfaction is significantly associated with loyalty
- H7a - Student involvement moderates the relationship between TPSQ and Satisfaction
- H7b - Student involvement moderates the relationship between APSQ and Satisfaction
- H8 – Loyalty and loyalty propensity are separate constructs
- H9 – Loyalty propensity moderates the relationship between satisfaction and loyalty

Figure 9 Hypotheses to be tested

The next chapter will outline the research philosophy, and the methods of collecting and analysing data.

Chapter Three - Research Aim and Methodology

Introduction

This chapter justifies the methodology utilised to answer the research questions, as such this chapter describes the deductive testing of a causal model with the study aiming to test rather than to create theory (Remenyi, Williams, Money, Swartz 1998).

According to Saunders, Lewis, Thornhill (2003) (Figure 10) the research process can be seen as a series of layers with the choice of philosophy being the first layer, followed by the choice of research approach, the research strategy, the time horizons and data collection, this chapter will discuss each of these subjects in order to justify the methodology.

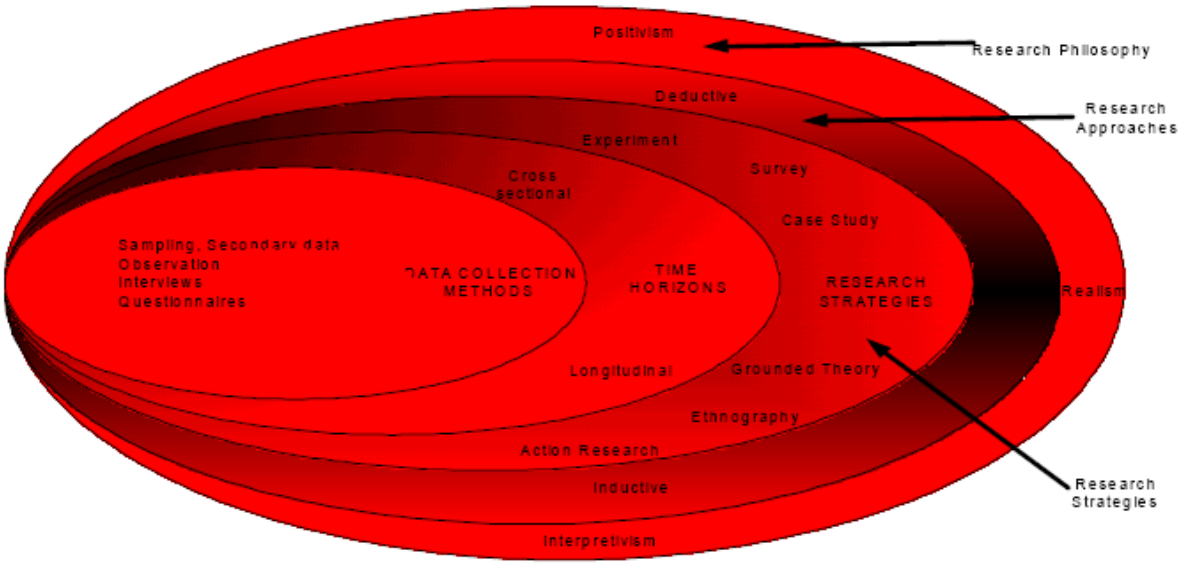


Figure 10 The Research Onion (Saunders, Lewis, Thornhill 2003:83)

Research Philosophy

Research 'operates within a...set of assumptions about the nature of society' (Remenyi, Williams, Money, Swartz 1998:23) with disagreements existing between philosophies over epistemology, which is 'what is(or should be) regarded as acceptable knowledge in a discipline' (Bryman, Bell 2003:13). Two extremes of philosophy exist, positivism and phenomenology. Positivism is based on an ontological assumption that 'reality is external and objective' (Easterby-Smith, Thorpe, Lowe 2002:28) and an epistemological assumption that knowledge is only significant if it is 'based on observations of the external reality' (Easterby-Smith, Thorpe, Lowe 2002:28). Researchers who follow this approach should be independent from the observation, value free and the research should look for causal explanations (Easterby-Smith, Thorpe, Lowe 2002). Phenomenology believes that 'reality is socially constructed' (Fisher 2007:21) and created by people 'rather than objective social factors' (Easterby-Smith, Thorpe, Lowe 2002:30) therefore reality is not something that "is" it is something that groups form which is influenced by their values, the interpretation of others and the 'compromises between the two' (Fisher 2007:21). This study uses a realist approach which shares some features of positivism believing in a 'reality that is separate from our descriptions of it' (Bryman, Bell 2003:11) and it aims to be scientific in accurately measuring constructs and relationships, although unlike positivism it argues that it is not possible to be truly objective and subjects like loyalty cannot be measured in the same way as 'physical processes...but...worthwhile attempts' (Fisher 2007:18) can be made. The use of a realist approach means the research is able to 'economically' (Easterby-Smith, Thorpe, Lowe 2002:45) describe large samples of people and relationships between variables but it cannot describe why these

relationships exist (Easterby-Smith, Thorpe, Lowe 2002) therefore this study uses arguments from the literature and deduction to explain findings.

Research Approach

This dissertation uses a deductive approach (Fisher 2007) in that a set of hypotheses and a model were developed from the literature review and the research tests and modifies this model. This is distinct from the grounded research of Glaser and Strauss (1967) which 'allows theory to develop out of the material, rather than being forced out...by...a predetermined idea' (Fisher 2007:123). A deductive approach was selected as grounded theory was developed in areas where data was plentiful meaning that its adaption to management research were data is scarce requires large amendments (Easterby-Smith, Thorpe, Lowe 2002), because it is impossible for a researcher to have no preconceptions meaning that a true grounded approach is not possible (Easterby-Smith, Thorpe, Lowe 2002), because the literature provides significant guidance on subject matter, because the extant theories are strong (Remenyi, Williams, Money, Swartz 1998) and because the time restraints mean that grounded research is difficult to undertake.

Research Strategy and Time Horizons

A number of research strategies exist including experiments, surveys and case studies. This study utilises a quantitative survey based approach with a fixed choice questionnaire being used to capture the data. The choice of this strategy was due to

budget constraints which made a large scale interview process impossible, the skill of the researcher (Remenyi, Williams, Money, Swartz 1998), the need to collect a cost effective large sample to allow generalisation to the population (Remenyi, Williams, Money, Swartz 1998) and the study's concentration on attitudes such as satisfaction which 'cannot be easily observed' (Remenyi, Williams, Money, Swartz 1998:150) meaning that a survey is the most appropriate method to capture them (Neuman 1997 cited Bennett 2001:96), whilst potential damage caused to students meant that an experimental approach where service quality was manipulated in order to ascertain the effect on satisfaction and loyalty was not possible. The study uses a cross sectional rather than a longitudinal design due to time and budget constraints, this is a limitation as loyalty, satisfaction and PSQ are dynamic, changing as new information becomes available and a longitudinal design would have allowed the study to investigate how student loyalty changes through university and beyond.

Data Collection

The relevant population for this study is all undergraduates who have just completed their first year at a UK university, however time and budget constraints meant that a decision was made to survey students from only one university, this means that findings can only be tentatively generalised to other UK universities as students may select universities for factors which affect the antecedents to loyalty, for example students who attend Loughborough University (http://www.lboro.ac.uk/), a university

famous for its sporting prowess[11], may consider sporting facilities and coaching more important to satisfaction and loyalty than students at other universities . Even within one institution it is not possible to survey the entire population therefore a sampling approach is necessary. The purpose of sampling is to gain a representative result for the population without surveying the entire population (Fisher 2007). As a sample only selects a proportion of the population it cannot be 'guaranteed to be representative' (Fisher 2007:189) however if the sample is randomly selected in that everyone in the population has an 'equal, non zero chance of selection' (Sapford 2007:63) it is possible to calculate the possibility that any finding could have occurred by chance therefore guiding decisions on generalisability. Most studies generalise findings if the finding has either a less than 5% chance of occurring by chance ($p>0.05$) or less than 1% chance of occurring by chance ($p>0.01$) (Sapford 2007). These strict guidelines reduce the possibility of Type II errors were a hypothesis is accepted as true when it is false but increases the potential of Type I errors were a true hypothesis is rejected (Remenyi, Williams, Money, Swartz 1998).

The calculation of the probability of error and therefore the generalisability of findings partly depends on sample size. The selection of the appropriate sample size is 'complex' (Remenyi, Williams, Money, Swartz 1998:195) with it depending on factors such as population variability, costs, time, accuracy needed and the 'confidence with which generalisations to the population are made' (Remenyi, Williams, Money, Swartz 1998:195). According to the sample size calculator in Fisher (2007) assuming a 5% margin of error for the population of 5000 students 357 responses would be

[11] On the 4th of September the Loughborough University Website three stories on the home page related to Loughborough students representing England in various sports http://www.lboro.ac.uk/

necessary, however a response rate of 60% for a questionnaire is 'good' (Grove 2006:647); assuming a good response almost 500 questionnaires would need to be distributed making cost and time prohibitive[12]. This study therefore follows the advice of Sapford (2007) that 20 respondents are needed for each independent variable or category and as this study proposes to study TPSQ, APSQ, FPSQ at high and low levels of involvement a sample size of 120 (20x3x2) is needed. This large sample size and the failure to gain access to student email addresses which would have significantly reduced survey distribution costs led the researcher to investigate the use of non random sampling. A number of non random techniques were assessed such as the possibility of putting an invitation post on social networking sites for current students however this posed several problems damaging validity, firstly it is not possible to tell if respondents meet the criteria for this study in that they could be current students, alumni or have no connection to the university, secondly it is difficult to prevent multiple responses by the same person, and finally social networking groups potentially suffer from self selection bias as it is possible that only those who are loyal to their university will be members of groups based on allegiance (Wright 2005).

The problems with selecting the sampling frame via a social networking site led to the decision to use snowball sampling, where convenience respondents complete the questionnaire and then forward the questionnaire to other respondents who fit the criteria. Snowball sampling is used when a population is 'hidden' (Heckathorn 1997:174) as access could not be gained the students can be interpreted as such. This approach allowed the researcher to gain adequate responses but it led to problems

[12] If the survey used a postal questionnaire the costs would be 500 x £0.39 to issue the survey, 500 x £0.39 to return the survey, 1000 envelopes x £0.03 whilst the paper would have cost £10 therefore the total financial cost would have been £895

which damage the validity of the study. This is because the sample is based on cooperative students who maybe outliers in terms of their cooperation (Heckathorn 1997), the sample may be biased by students protecting their friends from having to complete the questionnaire and studies of information cascades amongst students have shown that groups of friends are likely to share similar opinions on subjects such as loyalty (Lin, Tsai, 2008) therefore the initial snowball respondents may have a large effect on overall results.

The use of non random sampling is a weakness of this study as it is not possible to use 'statistical means of estimating error' (Sapford 2007:90). However 'non probability methods can...yield acceptable approximations to random samples' (Sapford 2007:86) and to assist this respondents were given clear guidelines on the types of people who should be surveyed meaning that the survey controls for foreseen problems but unlike random sampling it cannot control for sources of 'variance that have not been considered' (Sapford 2007:88). Despite these problems Sapford (2007:90) recommends that estimates of sampling error are still used to assess generisability as although not accurate 'they are better than nothing and a statistical test....is better as a decision principle than...asserting that...differences look large enough to be interesting' therefore this study will use $p<0.05$ as a guide for rejecting the null hypothesis as this gives an acceptable chance of type I errors whilst minimising type II errors. All findings however will need confirming by further study, and just because a difference is statistically significant it does not mean that it is important or meaningful therefore the researchers view, the literature and measures of effect size will be used to identify importance.

The link to the web questionnaire was distributed by email with the initial respondents forwarding the link to relevant contacts' email addresses. The use of email to distribute the questionnaire had a number of advantages as it reduced printing and distribution costs, time spent as data is already in an electronic format (Kaplowitz, Hadlock,Levine 2004), it also meant that students could quickly forward the link to the next respondents. Additionally web questionnaires are convenient for students as they can be completed when they have the time and in any location[13], this convenience factor helped to gain an adequate response rate, furthermore unlike other approaches such as telephone surveys, web surveys do not introduce 'social desirability... (and)...interviewer bias' (Saunders, Lewis, Thornhill 2003:480) as the researcher is not present. However web questionnaires have been criticised as not all people have web access or skills leading to sample bias fortunately this is not a major problem as the university provides web training and access for all students. The use of a web questionnaire had some limitations as it reduced control as the questionnaire could be completed by anyone and there is a reliance on the 'reading skill of the respondent' (Bennett 2001:96), however due to their level of education students should have less difficulty in understanding the questions than the general populace and the clear instructions should dissuade non-relevant people from completing it. Furthermore despite the convenience of a web-based survey encouraging adequate responses the approaches that are beneficial for improving response rates within postal surveys such as personalisation and follow up postings were not possible (Kaplowitz, Hadlock,Levine

[13] Due to mobile internet

2004) as the sampling technique meant respondents were anonymous, this also meant that it was not possible to estimate non-response bias.

Questionnaire Design

A questionnaire was utilised to collect the data as the literature provides strong guidance on the types of answers that are likely therefore allowing the questionnaire to use the fixed coding of responses; because there is no 'ambiguity' on the purpose of the research (Remenyi, Williams, Money, Swartz 1998:151) and because the research is seeking to identify the relationships between existing variables rather than developing new ideas and discovering new relationships (Fisher 2007).

The large number of responses needed meant that the questionnaire needed to be designed in such a way as to encourage response. This was achieved by including a short introductory page designed to encourage participation by explaining the purpose of the research and how to complete the survey (Easterby-Smith, Thorpe, Lowe 2002), the survey was kept short to reduce the time demands on respondents, it was given a 'sequential structure...(allowing those surveyed to) follow its themes as they develop' (Fisher 2007:192) therefore keeping their interest, it was designed to make it impossible to skip questions which reduced missing data problems and it utilised fixed responses which meant that respondents did not need to write long answers to each question further reducing time demands and avoiding researcher difficulty in coding answers. The questionnaire utilised five point Likert scales to collect responses as they are commonly used in the literature, they are simple to understand, they allow respondents to 'express finer differences in judgement... (and select a) neutral

midpoint' (Sapford 2007:227) furthermore they allow complex statistical analysis, however they do not allow respondents the same level of differentiation between responses as longer Likert scales but longer scales increase uncertainty meaning the questionnaire takes longer to complete and therefore their use was discounted.

The questionnaire (Appendix 1) consists of 10 parts with it using multidimensional scales to capture all of the constructs whilst also capturing demographic information concerning age, part-time work and gender. Demographic Information was used to assess if a representative sample had been collected and if 'differing demographic characteristics respond in a similar manner' (Fisher 2007:193) to each variable. The questions used for the constructs were adapted from the literature (Easterby-Smith, Thorpe, Lowe 2002) to make them appropriate to the educational context with the questions concerning loyalty being adapted from Yu, Lee (2008), and from Hennig-Thurau, Langer, Hanson (2001), loyalty propensity from Bennett (2001), satisfaction from Eshghi, Roy and Ganguli (2008), involvement from Hennig-Thurau, Langer, Hanson (2001), and PSQ from Lin, Tsai (2008). The adaption of questions from the literature helps to maximise validity, which is the extent that the survey actually measures what it purports to measure, and reliability, which is a measure of how 'trustworthy' (Sapford 2007:15) measurements are. Validity is improved because the constructs and their questions have been peer reviewed helping to assure face validity which is an assessment of whether the questions "look like" they measure the construct they are supposed to measure and content validity which is an expert assessment of whether the question measures the construct it is meant to measure (Litwin 1995:34), this is because the peer review process 'ensure(s) that it includes everything it should and does not include anything it shouldn't' (Litwin 1995: 35).

However, reliability was assessed in different contexts, utilising different samples, therefore questions may not be reliable for this context or sample thus psychometrics will be used to determine reliability. Reliability is assessed in three forms test-retest, alternative form and internal consistency (Litwin 1995). Test re-test reliability refers to how stable respondents to the questionnaire are in their answers and it involves conducting the survey twice with the same group of respondents and then calculating the correlation coefficient between the two at global and individual levels[14][15]. This study does not examine test-retest reliability due to the 'practice effect' (Bird, Papadopoulou, Ricciardelli, Rossor, Cipolotti 2003:407) which means respondents may use answers from their previous attempt whilst the anonymous nature of the respondents and the timescale makes a re-test impossible, furthermore due to worries about the length of the questionnaire alternative form tests were not performed. This study therefore only tests for internal reliability, this was assessed using Cronbachs' Alpha which is a measure of 'how well different items measure the same issue' (Litwin 1995:21), with scores above 0.60 being acceptable for exploratory studies (Ladhari 2008:77). The assessment of internal reliability is especially important as this study utilises multi-item scales to measure constructs such as satisfaction, such scales 'give richer and more reliable' results (Litwin 1995:21) as they are able to capture more components of a construct and allow a greater level of variation in scoring. However with multi-item scales a question which has strong face and content validity could be measuring a different construct to other questions that purport to measure that construct or be interpreted differently by respondents therefore each construct will be tested and those that do not reach 0.6 will be assessed to see if they can reach an

[14] Intraobserver reliability
[15] Correlations coefficients above 0.7 considered to represent good test-retest results (Litwin 1995: 8)

acceptable level by removing a question, if not that construct will be excluded from the analysis (Fisher 2007).

Questionnaire Piloting

The questionnaire was piloted on a convenience sample of ten students to 'detect possible shortcomings' in design and administration (Remenyi, Williams, Money, Swartz 1998:151). It was found to take 20 minutes to complete and the clarity of instructions, all questions and the covering page was found to be acceptable.

Ethics

All research raises ethical questions however this research has been conducted in a way that minimises ethical issues. The researcher did not conduct the research in his own institution therefore avoiding putting students in difficult situations if they wished to criticise the university, respondents were informed of the purpose of the research (Remenyi, Williams, Money, Swartz 1998), the data was collected anomalously therefore responses cannot be used against the respondent, no attempts were made to distort the data (Remenyi, Williams, Money, Swartz 1998) and the data will not be used to harm either university staff or students as a group.

Statistical Analysis

The literature review allowed the development of a model of the student loyalty process, this model includes various hypotheses which are 'statement(s) or

prediction(s) of what you expect to find' (Miller, Acton, Fullerton, Maltby 2002:116), these hypotheses (Figure 9) will be tested by inferential statistical analysis. The information collected is ordinal in nature, using a strict interpretation of statistical appropriateness this means that non parametric statistics should be used to test the model as the distance between 'values cannot be presumed equal' (Jamieson 2004:38). However this study treats the data collected as interval data and uses more powerful parametric statistics to analyse responses due to findings that treating Likert data as interval data is 'tenable' when multiple item scales and 5 point Likert scales are used as these mean that large potential variations exist between respondent scores (Remenyi, Williams, Money, Swartz 1998:155).

Before conducting statistical analysis the data will be checked to make sure that it does not have any problems which invalidate the use of statistics which are based parametric assumptions, this will be done via the use of scattergraphs to check for curvilinear relationships and the Kolmogorov-Smirnov test to check that the variables follow the normal distribution, if such assumptions are broken non parametric statistics will be used. Descriptive statistics will then be generated to gain a greater understanding of the data, to understand if a representative sample has been gained whilst differences between the mean scores on variables for groups based on gender, age and part-time work will be investigated utilising either the T-Test or Anova analysis to assess if group membership effects PSQ, satisfaction and loyalty.

The proposed model includes both mediator and moderator variables with this study proposing that satisfaction mediates the relationships between service quality and

loyalty and that loyalty propensity and involvement act as moderators. The presence of mediating variables will be investigated utilising the methods described in Baron and Kenny (1986). The Baron Kenny (1986) method utilises multiple regression to establish mediation. Multiple regression seeks to predict an outcome from several predictors by using the 'method of least squares' (Field 2000:103) to draw a straight line which 'results in the least amount of difference between the observed data points and the line' (Field 2000:104). The Baron Kenny (1986) method involves a number of separate tests:-

1) Establish that the independent variable, the mediator and the dependent variable are all associated.
2) Establish that the independent and the dependent variables are associated by testing path c (Figure 11)
3) Establish that the Independent and the mediator variables are associated by testing path a (Figure 12)
4) Establish that the mediator and the dependent variables are associated by testing path b whilst controlling for the independent variable (Figure 12). Controlling for the independent variable is important as any correlation between the mediator and the dependent variable may be because both are caused by the independent variable (Kenny, Kashy, Bolger 1998)
5) Establish whether mediation exists by testing the effect of the independent variable on the dependent variable whilst controlling for the mediator (path c')

If satisfaction completely mediates PSQ then c' will be zero, if c' shows a significant reduction compared to c then satisfaction partially mediates the relationship. The

difference in coefficients c' and c can be shown to equal the 'effect of X on M times the effect of M on Y' (Kenny, Kashy, Bolger 1998:260) or ab (Figure 12). Mediation can therefore be shown by the result of c-c' or by testing that both a and b do not equal zero, however a single test is recommended with the Sobel test[16] being the most common (http://davidakenny.net/cm/mediate.htm) (Shrout, Bolger, 2002). This study uses the Sobel test as a 'significance test for the indirect effect of the independent variable on the dependent variable via the mediator' (Baron, Kenny 1986:1177), the Sobel test tests the null hypothesis of no difference between the total effect (c) and the indirect effect (c') and if the 'Sobel test is statistically significant...(it) conclude(s) that the indirect effect is significantly different from zero'

(http://209.85.229.132/search?q=cache:m7ljPL66oEkJ:davidakenny.net/dtt/mediate.htm+percentage+mediation+baron,+kenny&cd=1&hl=en&ct=clnk&gl=uk).

Figure 11 The Unmediated Model (http://davidakenny.net/cm/mediate.htm)

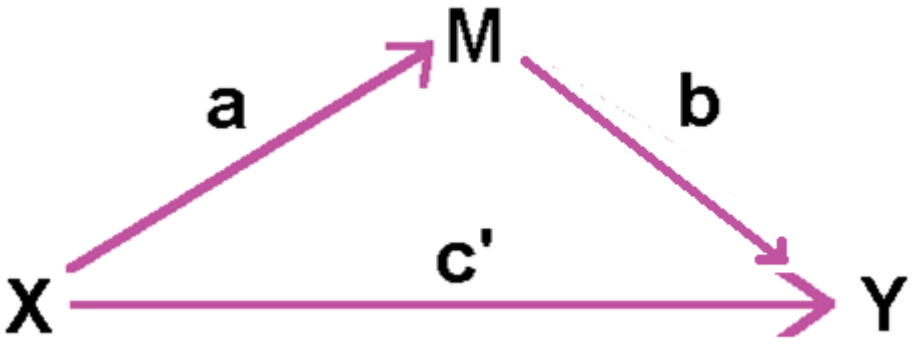


Figure 12 The mediated model (http://davidakenny.net/cm/mediate.htm)

[16] 't = a*b/SQRT(b2*sa2 + a2*sb2): a=raw (unstandardized) regression coefficient for the association between IV and mediator: sa=standard error of a: b=raw coefficient for the association between the mediator and the DV (when the IV is also a predictor of the DV): sb=standard error of b' (Yu, Kim 2008:13)

This paper posits that the relationships between service quality and satisfaction are moderated by the level of involvement and that the relationship between satisfaction and loyalty is moderated by loyalty propensity, additionally demographic factors may moderate relationships. 'Within a correlation analysis framework, a moderator is a third variable that affects the zero-order correlation between two other variables' (Baron, Kenny 1986:1174) it therefore affects the size and or direction of a relationship between two other variables (Hayes, Matthews 2009:924). 'Historically...(moderation has been examined by)...breaking...continuous variables into categories' (Cohen, Cohen, West, Aiken 2003:256) and then using Anova to examine interactions between them at various levels, however Cohen, Cohen, West, Aiken (2003:256) 'strongly recommend against this strategy (as it) decreases the measured relationships between the variables', it reduces the data analysed and it lowers the power for detecting 'true non zero effects' , and it can lead to the reporting of spurious effects which...(do not exist)...for the whole population'. A further advantage of regression analysis is that it provides information on effect size and the proportion of the effect accounted for by variables whilst Anova analysis only provides information on the size of the difference between the means which 'although informative (does not provide) standardised effect size measures' (Cohen, Cohen, West, Aiken 2003:5). Therefore this study will use the regression based 'pick-a-point' (Hayes, Matthews 2009:924) approach to measure moderation this is where 'representative values of the moderator are selected' and then the effect of the moderator at the selected values is assessed using regression analysis, with this study following the recommendations of Aiken,West (1991) and selecting the mean and +1/-1 standard deviations as representative values, these values will then be plotted and if the lines are parallel no interaction exists, if they are

not ‘there is an interaction, since the regression of Y on X is changing as a function of Z’ (Cohen, Cohen, West, Aiken 2003:268). However before conducting this analysis the values of all variables will be centred to reduce multicollinearity which ‘can lead to technical problems in estimating regression coefficients’ where interactions occur (Aiken, West 1991:32).

The development of a regression model is not enough to support a causation or mediation claim with this study following the guidance of Cohen, Cohen, West, Aiken (2003:63) and only claiming support for its causal framework if four conditions are met:-

- ‘Temporal precedence’ in that X precedes Y
- A causal mechanism can be posited
- A change in X is accompanied by a change in Y
- The effect of X on Y can be ‘isolated from the effect of other variables on Y’

Chapter summary

This chapter has described the research philosophy, the sampling techniques and the hypotheses to be tested as well as justifying the statistical tests that will be utilised. Chapter four describes the results of the statistical tests that were undertaken to examine the model developed through the literature review.

Chapter Four: Research Findings and Data Analysis

Introduction

This chapter seeks to answer the research questions and test the developed hypotheses. The findings of the study are presented under the four major headings of Data Collection, Reliability and Statistical Appropriateness, Descriptive Statistics and Antecedents to Student Loyalty.

Data Collection

The data was collected over a period of 4 weeks and 136 responses were received. Two responses suffered from missing data. Including responses with missing data can significantly influence conclusions by affecting the results of statistical analysis[17] and by 'introducing ambiguity into the inferences that can be drawn' (http://www.lshtm.ac.uk/msu/missingdata/guidelines.pdf). The missing values occurred for questions that appeared late in the survey, we can therefore assume that the respondent gave up due to boredom and the data is missing completely at random as it 'does not depend on observed or unobserved measurements' (http://www.lshtm.ac.uk/msu/missingdata/jargon_web/node4.html) for other questions. Missing data was identified by the use of a code in SPSS[18] (Janssens, Wijnen, Pelsmacker, Kenhove 2008), this allowed the exclusion of responses with missing data on a listwise basis if they would affect output. The data was checked for outliers which are cases

[17] For example the mean of 10 and 10 is 10 however the mean if a missing value is included is (10+10+0)/3 = 6.66

[18] The code 99 was used to identify missing responses

which have 'exceptionally high or low values' (Janssens, Wijnen, Pelsmacker, Kenhove 2008:141), which may be a sign of data entry error (Hinton, Brownlow, McMurray, Cozens 2008) and as such they can affect the analysis to a great extent. Outliers were identified by computing standard scores for each variable and this showed that a number of variables had scores of +/-2 standard deviations (SD's) with no variables having scores of +/-3 SD's, however it was decided that such outliers may 'provide valuable information that must...be included in the model' (Janssens, Wijnen, Pelsmacker, Kenhove 2008:141) and therefore no outliers were excluded.

Reliability and Statistics Appropriateness

The questionnaire used multi-item scales to measure all constructs (Appendix 1), when using multi-item scales it is important that each question in the scale is measuring the same construct, this was assessed by the calculation of Cronbach's Alpha (Sapford 2007) (Appendix 3). Table 1 shows the Cronbach Alpha score for each construct, it identifies that most have good internal reliability; however the FPSQ construct did not prove reliable and could not be improved by removing items therefore it was excluded from the analysis. FPSQ's poor internal reliability is potentially because it measured facilities across multiple areas of the university operation (housing, social and teaching) which are separately managed within the university and students may not perceive them as being part of the same service.

Construct	Number of Items	Cronbach's Alph	Comment
Combined Loyalty	7	0.813	Good internal reliability
Loyalty Propensit	3	0.8	Good internal reliability
Satisfaction	3	0.859	Good internal reliability
AdminPSQ	3	0.885	Good internal reliability
Teach PSQ	5	0.902	Good internal reliability
Involvement	3	0.659	Acceptable internal reliability
Facilities	4	0.437	Poor Internal reliability construct removed

Table 1 Cronbach Alpha scores for all constructs

Before conducting statistical analysis it is important to assess if the techniques proposed are appropriate for the data collected. This study intends to use parametric statistics; these assume the normal distribution and the use of these statistics with variables which do not follow the normal distribution can lead to Type I and II errors (Hinton, Brownlow, McMurray, Cozens 2008). To assess if variables follow the normal distribution the Kolmogorov-Smirnov test was used, this compares the actual distribution of scores with the normal distribution (Hinton, Brownlow, McMurray, Cozens 2008) (Table 2) by testing the null hypothesis that variables are not normally distributed with significance scores > 0.05 signifying a normal distribution. The test shows that only loyalty propensity is normally distributed, this could have a significant effect on this dissertation as it could mean that non-parametric tests must be used. However Leech, Caplovich, Barrett, Morgan (2004) have argued that as long as the skewness of the distribution is in the range of -1 to +1 then parametric tests are appropriate, Table 3 shows that all variables are within this range showing that parametric statistics are suitable.

One-Sample Kolmogorov-Smirnov Test

		parttime	Satisfaction	Lpropensity	AdminPSQ	TeachPSQ	Involvement	combined loyalty
N		134	135	135	135	135	134	136
Normal Parameters [a,b]	Mean	3.27	10.7407	8.6963	10.5704	19.0296	10.9179	21.0662
	Std. Deviation	1.436	2.48567	2.38864	2.68367	3.68932	2.38746	4.36858
Most Extreme Differences	Absolute	.269	.168	.102	.229	.196	.160	.120
	Positive	.147	.104	.102	.127	.104	.094	.067
	Negative	-.269	-.168	-.084	-.229	-.196	-.160	-.120
Kolmogorov-Smirnov Z		3.118	1.950	1.184	2.659	2.281	1.851	1.395
Asymp. Sig. (2-tailed)		.000	.001	.121	.000	.000	.002	.041

a. Test distribution is Normal.

b. Calculated from data.

Table 2 One Sample Kolmogorov-Smirnov test

Descriptive Statistics

	N	Skewness	
	Statistic	Statistic	Std. Error
Satisfaction	135	-.323	.209
parttime	134	-.422	.209
Lpropensity	135	-.037	.209
AdminPSQ	135	-.657	.209
TeachPSQ	135	-.875	.209
Involvement	134	-.302	.209
combinedloyalty	136	-.665	.208
Valid N (listwise)	134		

Table 3 Skewness statistics for all variables

Descriptive Statistics

To gain an understanding of the variables and the relationships between them descriptive statistics and correlation analysis was undertaken. The descriptive statistics are shown in Table 4 which shows that the university has high scores for most of the variables hence the negative skewness statistics, whilst the standard deviation indicates a wide variation in scoring. To begin the analysis of the relationships between variables a correlation matrix was generated (Table 5), this analysis provides guidance on profitable areas of investigation and confirms that no multicollineaty exist as the

highest correlation is 0.555 (Hinton, Brownlow, McMurray, Cozens 2008). The correlation analysis provides support to Rundle-Theile's (2002) claim that loyalty and loyalty propensity are different constructs as they are only moderately correlated ($r=0.497$, $N=135$, $p<0.01$) therefore confirming hypothesis H8, furthermore it identifies that significant correlations exist between the key constructs service quality, satisfaction and loyalty with these correlations becoming weaker as the proposed relationship becomes more distant, for example TPSQ has a moderately strong correlation with satisfaction ($r=0.555$, $N=135$, $P<0.01$) but a weaker correlation with loyalty ($r=0.262$, $N=135$, $P<0.01$).

	N	Range	Minimum	Maximum	Mean	Std.	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Satisfaction	135	9.00	6.00	15.00	10.7407	2.48567	6.179	-.323	.209	-.698	.414
parttime	134	4	1	5	3.27	1.436	2.063	-.422	.209	-1.241	.416
Lpropensity	135	11.00	3.00	14.00	8.6963	2.38864	5.706	-.037	.209	-.192	.414
AdminPSQ	135	11.00	4.00	15.00	10.5704	2.68367	7.202	-.657	.209	-.396	.414
TeachPSQ	135	17.00	8.00	25.00	19.0296	3.68932	13.611	-.875	.209	.670	.414
Involvement	134	11.00	4.00	15.00	10.9179	2.38746	5.700	-.302	.209	-.318	.416
combinedloyalty	136	22.00	8.00	30.00	21.0662	4.36858	19.084	-.665	.208	1.307	.413
Valid N (listwise)	134										

Table 4 Descriptive statistics for non demographic statistics

		parttime	Satisfaction	Lpropensity	AdminPSQ	TeachPSQ	Involvement	combined loyalty
parttime	Pearson Correlation	1	-.278**	-.192*	-.205*	-.076	-.311**	.000
	Sig. (2-tailed)		.001	.026	.018	.384	.000	.997
	N	134	134	134	134	134	134	134
Satisfaction	Pearson Correlation	-.278**	1	.288**	.541**	.555**	.361**	.556**
	Sig. (2-tailed)	.001		.001	.000	.000	.000	.000
	N	134	135	135	135	135	134	135
Lpropensity	Pearson Correlation	-.192*	.288**	1	.285**	.054	.176*	.497**
	Sig. (2-tailed)	.026	.001		.001	.531	.041	.000
	N	134	135	135	135	135	134	135
AdminPSQ	Pearson Correlation	-.205*	.541**	.285**	1	.273**	.326**	.387**
	Sig. (2-tailed)	.018	.000	.001		.001	.000	.000
	N	134	135	135	135	135	134	135
TeachPSQ	Pearson Correlation	-.076	.555**	.054	.273**	1	.128	.262**
	Sig. (2-tailed)	.384	.000	.531	.001		.141	.002
	N	134	135	135	135	135	134	135
Involvement	Pearson Correlation	-.311**	.361**	.176*	.326**	.128	1	.390**
	Sig. (2-tailed)	.000	.000	.041	.000	.141		.000
	N	134	134	134	134	134	134	134
combinedloyalty	Pearson Correlation	.000	.556**	.497**	.387**	.262**	.390**	1
	Sig. (2-tailed)	.997	.000	.000	.000	.002	.000	
	N	134	135	135	135	135	134	136

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 5 Correlations between all constructs

Before conducting the main analysis the demographics for the sample were analysed to assess whether a representative sample had been achieved and whether demographic or group memberships influence the antecedents to loyalty. This analysis showed that the study had a bias towards females (Table 6) potentially as a result of the initial snowball respondents being female.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	female	76	55.9	56.7	56.7
	Male	58	42.6	43.3	100.0
	Total	134	98.5	100.0	
Missing	99	2	1.5		
Total		136	100.0		

Table 6 Table showing gender of respondents

If the genders respond in different ways to PSQ the higher number of women in the sample may bias results therefore descriptive statistics for each constructs were generated for each gender (Appendix 2, Table 27), these show that differences exist between the genders in terms of the mean, median and standard deviation for each construct, however the independent t-test (Hinton, Brownlow, McMurray, Cozens 2008) found that the differences in mean scores were not significant (Table 7) therefore the gender imbalance does not cause any issues as the genders have similar attitudes towards university.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
parttime	Equal variances assumed	1.722	.192	-.070	132	.944	-.018	.251	-.515	.479
	Equal variances not assumed			-.071	127.502	.943	-.018	.248	-.509	.474
Satisfaction	Equal variances assumed	.453	.502	-.798	132	.427	-.34710	.43519	-1.20794	.51375
	Equal variances not assumed			-.791	118.724	.431	-.34710	.43887	-1.21612	.52193
Lpropensity	Equal variances assumed	.458	.500	-.435	132	.664	-.18103	.41628	-1.00449	.64242
	Equal variances not assumed			-.432	119.438	.667	-.18103	.41922	-1.01110	.64903
AdminPSQ	Equal variances assumed	.000	.996	.164	132	.870	.07713	.47089	-.85433	1.00860
	Equal variances not assumed			.164	124.095	.870	.07713	.46955	-.85224	1.00650
TeachPSQ	Equal variances assumed	.426	.515	.006	132	.995	.00408	.64741	-1.27655	1.28472
	Equal variances not assumed			.006	115.183	.995	.00408	.65725	-1.29778	1.30595
Involvement	Equal variances assumed	.193	.661	-.527	132	.599	-.22005	.41740	-1.04571	.60560
	Equal variances not assumed			-.523	119.173	.602	-.22005	.42056	-1.05279	.61268
combinedloyalty	Equal variances assumed	.242	.624	-.964	132	.337	-.73956	.76742	-2.25759	.77846
	Equal variances not assumed			-.951	116.387	.343	-.73956	.77736	-2.27916	.80003

Table 7 Independent T-Test examining the differences for each construct between the genders

The study examined undergraduates at the end of their first year, as such it collected details on 'traditional and mature students' (http://www.timeshighereducation.co.uk/story.asp?storyCode=109156&sectioncode=26) (Figure 13). Mature students may perceive service quality differently to 'traditional' undergraduates due to greater life experience, higher level of outside commitment (http://maturestudents.today.com/2009/01/18/juggling-mature-student-style/) or due to 'having different motivations and needs than traditional students' (Navarro, Iglesias, Torres 2006:506) therefore one-way ANOVA was used to assess if respondent age effects any of the variables by checking the 'significance level of the difference...between (the) means' (Janssens, Wijnen, Pelsmacker, Kenhove 2008:71) for each age group.

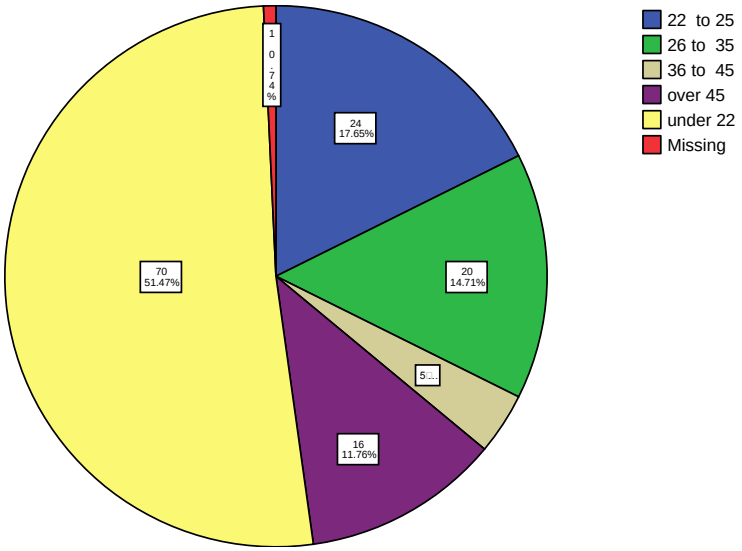


Figure 13 Pie chart showing age Profile of Respondents

		Sum of Squares	df	Mean Square	F	Sig.
parttime	Between Groups	35.602	4	8.901	4.810	.001
	Within Groups	238.726	129	1.851		
	Total	274.328	133			
Satisfaction	Between Groups	115.984	4	28.996	5.295	.001
	Within Groups	711.942	130	5.476		
	Total	827.926	134			
Lpropensity	Between Groups	60.242	4	15.060	2.780	.030
	Within Groups	704.307	130	5.418		
	Total	764.548	134			
AdminPSQ	Between Groups	156.923	4	39.231	6.311	.000
	Within Groups	808.158	130	6.217		
	Total	965.081	134			
TeachPSQ	Between Groups	288.896	4	72.224	6.117	.000
	Within Groups	1534.986	130	11.808		
	Total	1823.881	134			
Involvement	Between Groups	191.645	4	47.911	10.911	.000
	Within Groups	566.452	129	4.391		
	Total	758.097	133			
combinedloyalty	Between Groups	535.550	4	133.888	8.533	.000
	Within Groups	2039.709	130	15.690		
	Total	2575.259	134			

Table 8 Anova analysis of the difference between age groupings for the constructs

The Anova analysis (Table 8) identifies that significant differences exists between the age groups on all constructs ($p<0.05$), however it does not show which age groups cause this significant difference therefore post-hoc tests were undertaken[19]. Table 9 summarises the results of the Anova analysis and the post hoc tests, with the full results being shown in Appendix 5, Table 43. This shows that under 22's are less likely to undertake part-time work and also perceive a higher standard of APSQ than other groups, these results are potentially due to these students being financially supported by family meaning that they are less likely to complete part-time work and due to less financial and time pressure are less likely to need the help of administration, however they also perceive a lower standard of TPSQ potentially because they are unused to working on their own and they may struggle with the style of working used in the university, therefore age grouping has a direct effect on APSQ and TPSQ.

Construct	Group causing the difference	Comment
Part time work	Under 22	Under 22s less likely to undertake parttime work
Satisfaction	22 to 26	this group tends to be more satisfied
Loyalty	Over 46	This group is less loyal than the under 26's
AdminPSQ	22 to 26	This group percieves a higher standard of PSQ
Teach PSQ	Under 22	This group percieves a lower standard of PSQ
Involvement	under 22 and over 46	Under 22s are significantly more involved,whilst over 46s are significantly less involved

Table 9 Summary of the posthoc tests for age groupings

The questionnaire collected data on the amount of part-time employment the respondent perceived they undertook whilst at university in order to test if this had any significant effect on any variables, this is important because increasing student debt means that more students are employed part-time with 52.6% of respondents indicating that they did some part-time work (Table 10), a figure which is similar to the

[19] Tukey test was undertaken for involvement which had equal 'error variance for the dependent variable' (Janssens, Wijnen, Pelsmacker, Kenhove 2008:76) whilst Dunnett C was used for the other constructs which did not have equal 'error variance for the dependent variable' (Janssens, Wijnen, Pelsmacker, Kenhove 2008:76)

proportions of previous studies (Baron, Anastasiadou 2009). A number of studies have investigated the relationship between part-time work and academic performance with Manthei and Gilmore (2005) finding that working part-time reduced time for study and Jogaratnam and Buchanan (2004) finding that students who worked part time were more likely to suffer from stress (Baron, Anastasiadou 2009). Therefore students who work part-time are likely to have less time to commit to their study and are less able to be highly involved thus due to the co-creation of the service it is possible that such students will perceive a lower level of TPSQ and APSQ and this will effect satisfaction, this can be shown by the correlation analysis which shows that part-time employment has a negative significant correlation with all constructs except loyalty therefore the more part-time work that is undertaken the lower the scores on other constructs (Table 5). The relationship between part-time work and the other variables was further investigated by the generation of descriptive statistics for each construct for each level of part time work, these identified that those that do the most part-time work have the lowest mean scores for most constructs (Appendix 4, Table 42) therefore one-way Anova analysis and the Tukey and Dunnet C tests were used to assess if these differences are significant (Table 11).

Answer	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	25	18.38	18.66	18.66
Disagree	20	14.71	14.93	33.58
Neutral	12	8.82	8.96	42.54
Agree	48	35.29	35.82	78.36
Strongly Agree	29	21.32	21.64	100.00
Total	134	98.53	100.00	
Missing	2	1.47		
	136	100.00		

Table 10 The amount of part-time work undertaken by respondents

		Sum of Squares	df	Mean Square	F	Sig.
AdminPSQ	Between Groups	113.626	4	28.407	4.314	0.003
	Within Groups	849.396	129	6.584		
	Total	963.022	133			
TeachPSQ	Between Groups	236.514	4	59.129	4.817	0.001
	Within Groups	1,583.456	129	12.275		
	Total	1,819.970	133			
Involvement	Between Groups	84.450	4	21.113	4.043	0.004
	Within Groups	673.647	129	5.222		
	Total	758.097	133			
Satisfaction	Between Groups	74.530	4	18.633	3.197	0.015
	Within Groups	751.798	129	5.828		
	Total	826.328	133			
combinedloyalty	Between Groups	58.530	4	14.633	0.750	0.560
	Within Groups	2,516.723	129	19.509		
	Total	2,575.254	133			

Table 11 Anova analysis of the effect of the level of part time work on different constructs

The results show that respondents who strongly agree to the statement that they do part-time work have lower TPSQ, APSQ, and satisfaction than other groups and less involvement however caution should be taken as not all of the comparisons between the groups proved significant at the 0.05 level (Appendix 6, Table 49) with significant differences being found between the no part-time work group (group 1)and the high part time work group (group 5) for APSQ, satisfaction and involvement[20] and between most groups for TPSQ (groups 1 and 2 and groups 2,3 and 4) therefore we can conclude that those who work part-time perceive lower levels of service quality, with this potentially being due to these students not having the time to co-create the product.

[20] The link between part-time work and involvement is partly tautological as by definition those who work part-time will be less involved with the university

As education is a co-created product those who are more involved in university life should perceive higher levels of TPSQ and APSQ (Zhang, Han, Gao 2008), this is because a large proportion of the effort in implementing education is in the hands of the students. A t-test was used to test this possibility with it comparing the mean TPSQ and APSQ scores for those that displayed high and low involvement[21]. The t-test for TPSQ showed that no significant differences ($p>0.05$) exist between high and low involvement groups in the perceptions they hold of TPSQ (mean difference -1.10) (Table 13) therefore hypothesis H1a can be rejected however the difference between the groups proved significant for the APSQ construct ($p<0.01$) with the less involved having lower mean scores than the highly involved therefore confirming H1b. The finding that the highly involved do not perceive higher levels of TPSQ may be because the involvement construct only partly captures involvement in class with it concentrating on social involvement. The difference in the APSQ scores for the high and low involvement groups can be explained by the needs of students as those who are less involved in university life may need to rely more on university assistance, they are therefore more likely to come into contact with administrative staff, to rate it a low level and to give it a higher level of importance.

	invrec1	N	Mean	Std. Deviation	Std. Error Mean
TeachPSQ	1.00	69	18.4783	3.48783	.41989
	2.00	65	19.5846	3.85638	.47832

Table 12 Comparison of TPSQ for highly and lowly involved students

[21] Groups where based upon the 50th percentile

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
TeachPSQ	Equal variances assumed	.319	.573	-1.743	132	.084	-1.10635	.63456	-2.36158	.14887
	Equal variances not assumed			-1.738	128.707	.085	-1.10635	.63647	-2.36566	.15295

Table 13 T-test Comparing TPSQ mean scores for the highly and lowly involved students

	invrec1	N	Mean	Std. Deviation	Std. Error Mean
AdminPSQ	1.00	69	9.7681	2.85505	.34371
	2.00	65	11.4000	2.23467	.27718

Table 14 Comparison of APSQ mean scores for the highly and lowly involved students

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
AdminPSQ	Equal variances assumed	14.563	.000	-3.669	132	.000	-1.63188	.44475	-2.51164	-.75213
	Equal variances not assumed			-3.696	127.783	.000	-1.63188	.44155	-2.50557	-.75820

Table 15 T-test Comparing APSQ mean scores for the highly and lowly involved students

This section has explored the data and discovered a number of relationships between variables, the next section will explore these relationships further using the Baron, Kenny (1986) methodology.

Antecedents of Student Loyalty Model

Mediating Relationships

The literature review posits that satisfaction mediates the relationship between PSQ and loyalty. Mediation occurs when 'the causal effect of an independent variable is transmitted by a mediator' (Preacher, Rucker, Hays 2007:168). If satisfaction is a mediator, APSQ and TPSQ should significantly affect satisfaction, satisfaction should significantly affect loyalty, and TPSQ and APSQ should have a significant effect on loyalty but this effect should be decreased or removed by controlling for satisfaction (Preacher, Rucker, Hays 2007). If the association between PSQ and loyalty disappears completely when satisfaction is controlled for then complete mediation has occurred, if it is only reduced then partial mediation has occurred (Baron, Kenny 1986). The relationships between PSQ, satisfaction and loyalty will be investigated at different levels of the predictor, as this will allow the identification of whether different levels of PSQ have different relationships with the mediator and the dependent variables, this is important as it has been argued that APSQ is a dissatisfier only effecting satisfaction when respondents have had a negative experience, whilst TPSQ is a critical effecting satisfaction at high and low levels.

As the Baron, Kenny (1986) methodology utilises linear regression, it is important that the data is checked for qualities that violate the assumptions of regression. Key amongst these is no variables suffer from multicollineaty which is where 'two or more independent predictors are highly correlated with each other' (Hinton, Brownlow, McMurray, Cozens 2008:323) and therefore may be measuring the same thing, that

the relationships are linear and that the variables meet the parametric assumptions. As no variables have correlations above 0.8 multicollineaty is not a problem (Hinton, Brownlow, McMurray, Cozens 2008), whilst the literatures supports linear relationships amongst the variables, the scattergraphs that were generated and the previous tests of parametric assumptions confirm the appropriateness of the Baron, Kenny (1986) method.

This study now discusses how, or if, satisfaction mediates the relationship between PSQ and loyalty before discussing the effects of the proposed moderators on the relationships between PSQ and satisfaction and between satisfaction and loyalty. The study develops regression equations for each scenario. Such equations allow the prediction of the level of loyalty that a student will display if the user knows the respondents satisfaction and PSQ responses.

Administrative Perceived Service Quality – Satisfaction – Loyalty

This study argues that APSQ is a dissatisfier only affecting satisfaction in circumstances where the student perceives a poor level of service, this section assesses if:-

- Satisfaction mediates the relationship between APSQ and loyalty
- If APSQ is a dissatisfier only effecting satisfaction in incidents of low PSQ

The Baron Kenny (1986) method outlines four tests that a relationship must pass to establish mediation the first two steps require that the independent variable, the mediator and the dependent variable are all correlated. This is shown in Table 16 which controls for the effect of TPSQ and finds that APSQ is correlated with loyalty

(r=0.340, df=132, p<0.01) and with satisfaction (r=0.487, df=132,p<0.01) and satisfaction is correlated with loyalty (r=0.511, df=132, p<0.01)(Table 16).

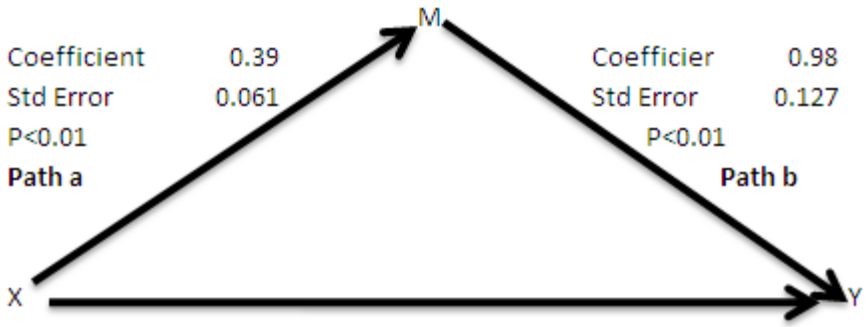
Control Variables			combined loyalty	Satisfaction	AdminPSQ
TeachPSQ	combinedloyalty	Correlation	1.000	.511	.340
		Significance (2-tailed)	.	.000	.000
		df	0	132	132
	Satisfaction	Correlation	.511	1.000	.487
		Significance (2-tailed)	.000	.	.000
		df	132	0	132
	AdminPSQ	Correlation	.340	.487	1.000
		Significance (2-tailed)	.000	.000	.
		df	132	132	0

Table 16 Correlations between Loyalty, APSQ and satisfaction controlling for TPSQ

As the variables are correlated the first criteria of Baron Kenny (1986) were achieved therefore linear regression analysis was used to understand the relationships between the focal independent variable, APSQ, the mediator, Satisfaction, and the dependent variable, Loyalty, all of these relationships were tested whilst controlling for TPSQ (Appendix 7). The causal diagram in Figure 14 illustrates that satisfaction partially mediates the relationship between APSQ and loyalty with it reducing the coefficient of the direct effect of APSQ on loyalty from 0.557 to 0.195 with all relationships being significant at the p<0.05 level this equates to 64.991% of the total effect of APSQ on loyalty being mediated by satisfaction, this finding was confirmed by the Sobel test which confirmed that satisfaction does mediate this relationship (t = 4.923170 p<0.01) with this finding being similar to that of Lin, Tsai (2008) who also found that the effect of service quality on loyalty was partially mediated by satisfaction therefore hypothesis H5a can be accepted.

As the model includes a mediating variable two regression models are needed to explain the relationship between APSQ and loyalty (Equation 2

Equation 2), the dependent variable model which describes the relationship between satisfaction and loyalty and had a low adjusted R2 value of .3066 P<0.01 meaning that it only explains 30% of the variation in the dependent variable, and the mediating variable model, which analyses the relationship between APSQ and satisfaction which has an adjusted R2 value of .472 p<0.01 therefore explaining 47% of the variation with the Anova analysis showing that the predictive models are 'significantly better than would be expected by chance' (M model F(2,132)= 59.041; p<0.01, DV model DV model F(3,131)= 20.747; p<0.01)



Path C'	Coefficient	0.195
	Std Error	0.14
	P<0.05	
Path C	Coefficient	0.557
	Std Error	0.134
	P<0.01	
Amount of mediation C - C'		0.362

Figure 14 Illustration showing the mediation effect of satisfaction on the APSQ – Combined loyalty relationship controlling for TPSQ

$$M = .978 + .39X + r$$

$$Y = 10.456 + -0.195X + 0.98M + r$$

Equation 2 Regression model for the APSQ to loyalty relationship

The literature and hypothesis H4 argue that APSQ is a dissatisfier only effecting satisfaction when the respondent has experienced low PSQ, therefore the analysis in Figure 14 may be misleading if only those with low APSQ are effecting satisfaction and therefore loyalty. To test this respondents were split into high and low APSQ groups based on the 50th percentile[22]. Table 17 shows that APSQ only has significant correlations with loyalty ($r=0.269$, $df=109$, $p<0.05$) and satisfaction ($r=0.451$, $df=109$, $p<0.01$) for those who experienced low PSQ when TPSQ is controlled for with satisfaction also having a moderately strong correlation with loyalty for this group ($r=0.477$, $df=109$, $p<0.01$) therefore the Baron Kenny (1986) procedures can only be undertaken for the low PSQ group, and APSQ does not affect satisfaction when high service quality ($r=--0.019$, $df\ 109$, $p>0.05$) has been received therefore confirming hypothesis H4 that APSQ is a dissatisfier.

[22] Originally it was intended to split responses into 3 groups however, this was not possible due to the low numbers in each group

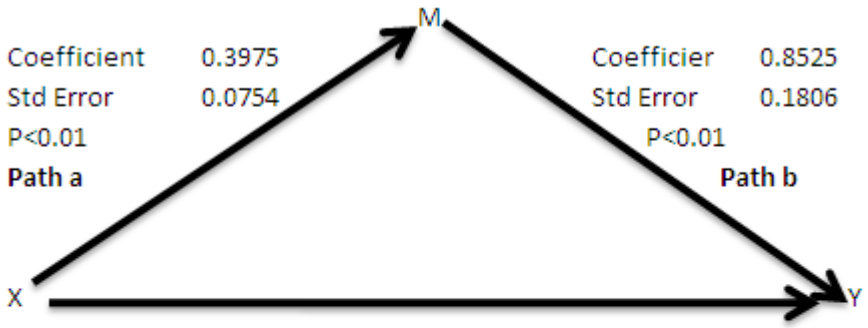
adminrecode2	Control Variables			combined loyalty	Satisfaction	AdminPSQ	TeachPSQ
1.00	-none- [a]	combinedloyalty	Correlation	1.000	.444	.271	.036
			Significance (2-tailed)	.	.000	.004	.709
			df	0	110	110	110
		Satisfaction	Correlation	.444	1.000	.466	.437
			Significance (2-tailed)	.000	.	.000	.000
			df	110	0	110	110
		AdminPSQ	Correlation	.271	.466	1.000	.150
			Significance (2-tailed)	.004	.000	.	.115
			df	110	110	0	110
		TeachPSQ	Correlation	.036	.437	.150	1.000
			Significance (2-tailed)	.709	.000	.115	.
			df	110	110	110	0
	TeachPSQ	combinedloyalty	Correlation	1.000	.477	.269	
			Significance (2-tailed)	.	.000	.004	
			df	0	109	109	
		Satisfaction	Correlation	.477	1.000	.451	
			Significance (2-tailed)	.000	.	.000	
			df	109	0	109	
		AdminPSQ	Correlation	.269	.451	1.000	
			Significance (2-tailed)	.004	.000	.	
			df	109	109	0	
2.00	-none- [a]	combinedloyalty	Correlation	1.000	.732	.131	.589
			Significance (2-tailed)	.	.000	.552	.003
			df	0	21	21	21
		Satisfaction	Correlation	.732	1.000	-.019	.756
			Significance (2-tailed)	.000	.	.933	.000
			df	21	0	21	21
		AdminPSQ	Correlation	.131	-.019	1.000	-.205
			Significance (2-tailed)	.552	.933	.	.349
			df	21	21	0	21
		TeachPSQ	Correlation	.589	.756	-.205	1.000
			Significance (2-tailed)	.003	.000	.349	.
			df	21	21	21	0
	TeachPSQ	combinedloyalty	Correlation	1.000	.543	.318	
			Significance (2-tailed)	.	.009	.149	
			df	0	20	20	
		Satisfaction	Correlation	.543	1.000	.212	
			Significance (2-tailed)	.009	.	.343	
			df	20	0	20	
		AdminPSQ	Correlation	.318	.212	1.000	
			Significance (2-tailed)	.149	.343	.	
			df	20	20	0	

a. Cells contain zero-order (Pearson) correlations.

Table 17 Correlations between APSQ, satisfaction and combined loyalty for those who experienced low and high APSQ

The Baron, Kenny (1986) regression analysis showed that low APSQ has a small direct effect on loyalty but satisfaction mediates 74.8% of the relationship (Figure 15)(Appendix 8),with the mediation effect being confirmed by the Sobel test ($t=3.516683$ $p<0.01$), however the model had a poor fit with the dependent variable model having an adjusted R2 value of .2105 $p<0.01$ and the mediating variable model

having an adjusted R2 value of .355 p<0.01 with the Anova results showing that this model is significantly better than what would be expected by chance (M model F(2,109)= 30.020; p<0.01 DV model F(3,108)= 10.865; p<0.01).



Path C'	Coefficient	0.114
	Std Error	0.1593
	P>0.05	
Path C	Coefficient	0.4529
	Std Error	0.1554
	P<0.05	
Amount of mediation C - C'		0.3389

Figure 15 Illustration showing the mediation effect of satisfaction on the APSQ – Combined loyalty relationship for those who experienced low PSQ controlling for TPSQ

$$M = 1.347 + .2964X + r$$

$$Y = 14.867 + 0.114X + 0.8525M + r$$

Equation 3 Regression equation for the APSQ to satisfaction relationship for those that suffered low APSQ

This section has established that satisfaction mediates the relationship between APSQ and loyalty (hypothesis H4), however further analysis identified that APSQ only effects satisfaction when low service quality has been received consequently APSQ is a dissatisfier (hypothesis H5a). This study will now investigate the mediating effect of satisfaction on the relationship between TPSQ and loyalty.

Teaching Perceived Service Quality – Satisfaction - Loyalty

In the literature review this paper argued that TPSQ may be a critical affecting satisfaction at high and low levels as it is the core product as perceived by the student and it is an expressive factor eliciting both positive and negative feelings (Vargo, Nagao, He, Morgan 2007). This section will investigate if TPSQ is a critical whilst also investigating whether satisfaction mediates the relationship between TPSQ and loyalty. The mediating effect of satisfaction will be investigated by the Baron, Kenny (1986) procedures whilst the position of TPSQ as a critical will be investigated by utilising the select cases command in SPSS combined with correlation and regression analysis to assess to the relationship between TPSQ and satisfaction at different levels of TPSQ. This will allow the assessment of:-

- If TPSQ is a critical
- If satisfaction mediates the relationship between TPSQ and combined loyalty for the sample as a whole and at low and high levels of TPSQ

The first step in the Baron Kenny (1986) method is to show that TPSQ is correlated with the mediator and the dependent variable, this relationship is shown for the entire sample in Table 18 which confirms that TPSQ has a moderately strong correlation with satisfaction ($r=0.503, df=132, p<0.01$), a weak significant correlation with loyalty ($r=0.177, df=132, p<0.05$) and that satisfaction is moderately correlated with loyalty ($r=0.447, df=132, P<0.01$), when the effect of APSQ is controlled.

Control Variables			combined loyalty	TeachPSQ	Satisfaction	AdminPSQ
-none- [a]	combinedloyalty	Correlation	1.000	.262	.556	.387
		Significance (2-tailed)	.	.002	.000	.000
		df	0	133	133	133
	TeachPSQ	Correlation	.262	1.000	.555	.273
		Significance (2-tailed)	.002	.	.000	.001
		df	133	0	133	133
	Satisfaction	Correlation	.556	.555	1.000	.541
		Significance (2-tailed)	.000	.000	.	.000
		df	133	133	0	133
	AdminPSQ	Correlation	.387	.273	.541	1.000
		Significance (2-tailed)	.000	.001	.000	.
		df	133	133	133	0
AdminPSQ	combinedloyalty	Correlation	1.000	.177	.447	
		Significance (2-tailed)	.	.041	.000	
		df	0	132	132	
	TeachPSQ	Correlation	.177	1.000	.503	
		Significance (2-tailed)	.041	.	.000	
		df	132	0	132	
	Satisfaction	Correlation	.447	.503	1.000	
		Significance (2-tailed)	.000	.000	.	
		df	132	132	0	

a. Cells contain zero-order (Pearson) correlations.

Table 18 Correlations between service quality factors, satisfaction and loyalty controlling for APSQ

The significant correlations between the independent, mediator and dependent variables mean that the regression analysis part of the Barron, Kenny (1986) test for mediation can be undertaken. Figure 16 and Appendix 9 show the results of the analysis of the mediating effect of satisfaction and shows that satisfaction has a significant mediation effect on the TPSQ loyalty relationship with it reducing the coefficient from .2011 ($p<0.05$) to -.070 ($p>0.05$) therefore satisfaction completely mediates the relationship between TPSQ and loyalty with the negative c' path potentially being a result of error, with this mediating effect being confirmed by the Sobel test ($t=5.171778$ $p<0.01$ two tailed) (http://www.danielsoper.com/statcalc/calc31.aspx) therefore proving hypothesis H5b. However, the predictive models developed do not explain either the mediating variable, satisfaction, or the dependent variable, loyalty, very well with adjusted R2 equalling .307 $p<0.01$ for the dependent variable model and

.355 for the mediator variable model with the regression equation for these relationships being shown in Equation 4 however the Anova results show that the models are significantly better than would occur by chance (M model F(2,132)= 59.041;p<0.01 DV model F(3,131)= 20.747; p<0.01).

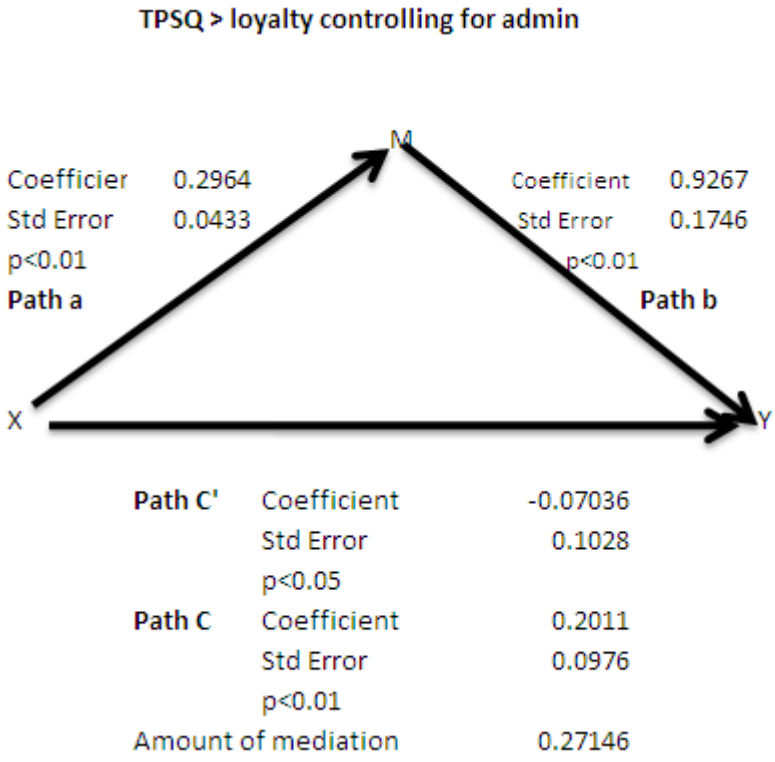


Figure 16 Path analysis for TPSQ to loyalty with satisfaction as the mediation

$$M = .978 + .296X + r$$

$$Y = 10.456 + -0.70X + 0.92M + r$$

Equation 4 Regression model for TPSQ to Loyalty mediated model

The causal model in Figure 16 shows the causal relationship for the whole sample however the literature posits that TPSQ may be a critical in that low and high values may significantly affect satisfaction and therefore loyalty. If this is correct then HE

establishments should maximise resources in this area to maintain high standards and ensure that no one experiences low service quality. To investigate the relationship between TPSQ level, satisfaction and loyalty TPSQ was recoded into high and low groups[23] and partial correlation analysis was undertaken (Table 19). This shows that TPSQ has a moderate positive effect on satisfaction when TPSQ is low (r=0. 591,df 52, $p<0.01$) but has a weaker effect on satisfaction when TPSQ is high (r=0.294, df=77. $p=0.08$)[24] and that satisfaction has a very weak insignificant correlation with loyalty for the low PSQ group (r=0.176, df=52, $p>0.05$), but a moderately strong correlation for the high PSQ group (r=0.656, df=77, $p<0.01$). These findings indicated that TPSQ may be a critical in that both high and low TPSQ effect satisfaction, this was confirmed by regression analysis for the relationship between the groups and satisfaction with the TPSQ of the low group explaining .515 ($p<0.01$) (Appendix 14,Table 125) of the variation in satisfaction, whilst the TPSQ of the high group explained .213 ($p=0.08$) (Appendix 14,Table 129) therefore supporting hypothesis H3. Therefore low TPSQ has a greater effect on satisfaction than higher TPSQ, however the low service groups influence is not passed onto the loyalty construct (.176 $p>0.05$) (Table 19) therefore only the effect of high TPSQ is transmitted to loyalty showing that satisfaction does not mediate the relationship between low TPSQ and loyalty and that low TPSQ does not affect loyalty.

The Baron Kenny (1986) analysis was therefore only completed for high TPSQ group, this showed that satisfaction mediates 59.39% of the effect of TPSQ on loyalty (Figure

[23] based upon the 50th percentile

[24] Although the relation between TPSQ and satisfaction for the high TPSQ was above p=0.05 due to the limitations of the sampling and the results closeness to the 0.05 level this study will investigate the relationship further

17)(Appendix 10) this was confirmed by the Sobel test (t=2.513563 p<0.05) (http://www.danielsoper.com/statcalc/calc31.aspx), with the regression equations for the proposed model being shown in Equation 5 (adjusted R2 .5680 p<0.01).

Correlations

tecrec2	Control Variables			combined loyalty	Satisfaction	TeachPSQ	AdminPSQ
1.00	-none- [a]	combinedloyalty	Correlation	1.000	.173	.222	.020
			Significance (2-tailed)	.	.207	.103	.885
			df	0	53	53	53
		Satisfaction	Correlation	.173	1.000	.579	.329
			Significance (2-tailed)	.207	.	.000	.014
			df	53	0	53	53
		TeachPSQ	Correlation	.222	.579	1.000	.067
			Significance (2-tailed)	.103	.000	.	.625
			df	53	53	0	53
		AdminPSQ	Correlation	.020	.329	.067	1.000
			Significance (2-tailed)	.885	.014	.625	.
			df	53	53	53	0
	AdminPSQ	combinedloyalty	Correlation	1.000	.176	.222	
			Significance (2-tailed)	.	.202	.107	
			df	0	52	52	
		Satisfaction	Correlation	.176	1.000	.591	
			Significance (2-tailed)	.202	.	.000	
			df	52	0	52	
		TeachPSQ	Correlation	.222	.591	1.000	
			Significance (2-tailed)	.107	.000	.	
			df	52	52	0	
2.00	-none- [a]	combinedloyalty	Correlation	1.000	.757	.471	.502
			Significance (2-tailed)	.	.000	.000	.000
			df	0	78	78	78
		Satisfaction	Correlation	.757	1.000	.505	.652
			Significance (2-tailed)	.000	.	.000	.000
			df	78	0	78	78
		TeachPSQ	Correlation	.471	.505	1.000	.473
			Significance (2-tailed)	.000	.000	.	.000
			df	78	78	0	78
		AdminPSQ	Correlation	.502	.652	.473	1.000
			Significance (2-tailed)	.000	.000	.000	.
			df	78	78	78	0
	AdminPSQ	combinedloyalty	Correlation	1.000	.656	.307	
			Significance (2-tailed)	.	.000	.006	
			df	0	77	77	
		Satisfaction	Correlation	.656	1.000	.294	
			Significance (2-tailed)	.000	.	.008	
			df	77	0	77	
		TeachPSQ	Correlation	.307	.294	1.000	
			Significance (2-tailed)	.006	.008	.	
			df	77	77	0	

a. Cells contain zero-order (Pearson) correlations.

Table 19 Table showing the partial correlation between TPSQ, satisfaction and loyalty

TPSQ > loyalty controlling for admin for those who experienced high PTQ

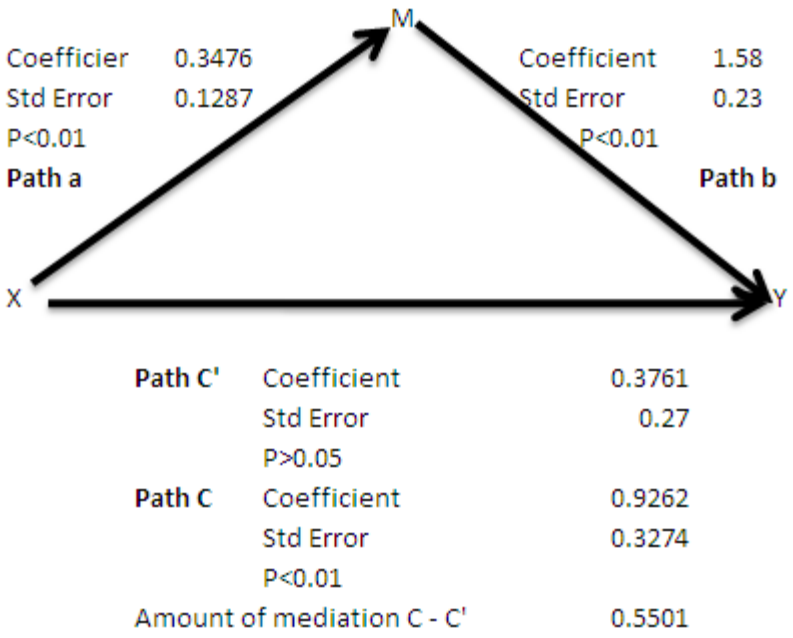


Figure 17 Causal Path diagram TPSQ to loyalty for those who experienced high TPSQ

$$M = .734 + .3476X + r$$

$$Y = -4.304 + 0.3761X + 1.58M + r$$

Equation 5 Regression model for the TPSQ to loyalty relationship for those who experienced high TPSQ

This section has found that TPSQ is a critical effecting satisfaction at high and low levels (hypothesis H3) and that satisfaction mediates the relationship between TPSQ and loyalty for the sample as a whole, a relationship which is repeated for the high satisfaction group, however the effect of low TPSQ only effects satisfaction and not loyalty therefore providing only partial support to hypothesis H5b.

Moderating Variables

A moderator divides reactions to an independent variable into groups with different relationships to the dependent variable. As explained in the methodology this study will use the 'pick-a-point' (Hayes, Matthews 2009:924) approach, utilising the macro developed in Hayes, Matthews (2009) to test the moderating effects of involvement, part-time employment and type of student on the PSQ – satisfaction relationship and loyalty propensity on the satisfaction loyalty relationship. In the pick-a-point approach 'representative values of the moderator are selected, and then...the effect of the focal predictor' (Hayes, Matthews 2009:924) is estimated at representative values with this study using the mean and +1/-1 standard deviations as the representative values (Hayes, Matthews 2009), furthermore to minimize the amount of data lost only age will be transformed into a dichotomy therefore allowing sophisticated analysis to be undertaken.

Moderation of the Perceived Service Quality - Satisfaction Relationship

As the university experience is a co-created product with the student, other students and university employees all being involved, the student's level of involvement is posited to moderate the relationship between PSQ and satisfaction (Zhang, Han, Gao 2008). This is because highly involved respondents may take more responsibility for their experience and due to self justification are more likely to be satisfied with TPSQ. This relationship was tested using the Hayes, Matthews (2009) procedure, this found that involvement does not moderate the relationship between TPSQ and satisfaction (.0191 $p>0.05$) (Table 20) therefore we cannot reject the null hypothesis and therefore

hypothesis H7a is not supported. However, involvement was found to moderate the relationship between APSQ and satisfaction with an interaction effect of -0.0636 ($p<0.05$) therefore involvement moderates the APSQ satisfaction relationship and hypothesis H7b is supported. The interactions at high (+1SD), low (-1SD) and moderate values (mean) of involvement were further explored by graphing the relationships (Table 21), this found that students who are highly involved have higher satisfaction at any given level of APSQ with the effect of APSQ becoming insignificant at the highest level of involvement (Table 20). This may be because students who are not highly involved need more administrative support to cope with the university experience and therefore poor administrative performance has a greater effect on their satisfaction alternatively it may be because involved customers blame themselves rather than the college when things go wrong meaning they are less dissatisfied at any given level of PSQ (Kotzé, Plessis 2003).

```
Outcome Variable
 Satisfac

Focal Predictor Variable
 TeachPSQ

Moderator Variable
 Involvem

Regression Summary
R-sq          F         df1         df2          p           n
.5064     33.0882      4.0000    129.0000       .0000    134.0000

============================================================================
                b          se          t          p
constant     7.2160      .6782     10.6400      .0000
AdminPSQ      .3309      .0627      5.2798      .0000
TeachPSQ      .2781      .0453      6.1359      .0000
Involvem      .1784      .0710      2.5144      .0132
interact      .0191      .0198       .9646      .3365

Interact Is defined As:
 TeachPSQ X        Involvem
```

Table 20 Involvement as a moderator of the TPSQ to satisfaction relationship

```
Regression Summary
       R-sq          F         df1         df2           p           n
      .5222    35.2534      4.0000    129.0000      .0000    134.0000

============================================================================
                  b         se          t          p
constant     4.7316      .8500     5.5665     .0000
TeachPSQ      .3225      .0448     7.1932     .0000
AdminPSQ      .2747      .0669     4.1030     .0001
Involvem      .2653      .0736     3.6030     .0004
interact     -.0636      .0278    -2.2882     .0237

Interact Is defined As:
 AdminPSQ X        Involvem

============================================================================

Conditional Effect of Focal Predictor at Values of the Moderator Variable
Involvem      b           se          t          p      LLCI(b)     ULCI(b)
 -2.3875      .4266      .0733     5.8160     .0000      .2815      .5717
  .0000       .2747      .0669     4.1030     .0001      .1422      .4071
 2.3875       .1227      .1114     1.1020     .2725     -.0976      .3430

Alpha level used for confidence intervals:
  .05
```

Table 21 Involvement as a moderator of the APSQ to satisfaction relationship

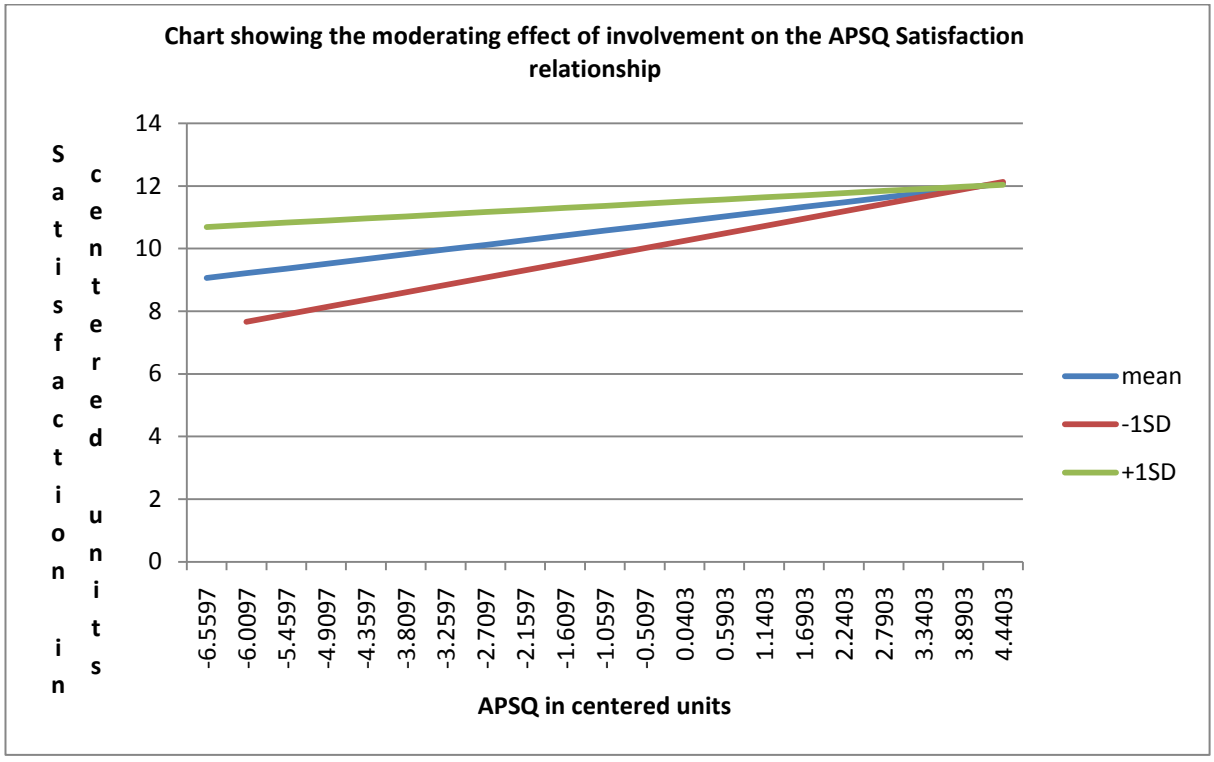


Figure 18 Chart showing the effect of involvement as a moderator of the APSQ to satisfaction relationship

The literature review identified that the amount of part-time employment a student undertakes may moderate the PSQ to satisfaction relationship. This study found that the TPSQ – Satisfaction relationship is moderated by part-time employment (Table 22 ,Figure 19) with students who perceive they spend more time in employment having lower satisfaction at low levels of TPSQ than other members of the sample, however as the standard of TPSQ rises this group is actually more satisfied than the other groups. A similar relationship is shown for the APSQ-satisfaction relationship (Table 23 ,Figure 20) with those students who undertake a lot of part-time employment being less satisfied at lower levels of APSQ than those who undertake little part-time employment; however the moderating effect is reversed at higher levels. The finding that APSQ / TPSQ - Satisfaction relationship is moderated by the level of part-time employment and that the moderation effect is reversed at different levels of the predictor may be because students who conduct part-time employment have higher expectations of their teaching than other students as they are contributing significantly to financing their education therefore they are less satisfied at lower levels than other students, however at higher levels they are more satisfied as the increased effort they have made to achieve their goal leads to 'self actualisation' (Daft 2003:47).

```
Focal Predictor Variable
 TeachPSQ

Moderator Variable
 parttime

Regression Summary
      R-sq          F         df1         df2           p           n
    .5226    35.2988     4.0000   129.0000      .0000   134.0000

************************************************************************
                 b         se          t          p
constant    6.8523      .6487    10.5633      .0000
AdminPSQ     .3704      .0598     6.1923      .0000
TeachPSQ     .2778      .0430     6.4534      .0000
parttime    -.2732      .1080    -2.5294      .0126
interact     .0799      .0306     2.6078      .0102

Interact Is defined As:
 TeachPSQ X        parttime

************************************************************************

Conditional Effect of Focal Predictor at Values of the Moderator Variable
parttime     b         se          t          p         LLCI(b)    ULCI(b)
-1.4362    .1630      .0658     2.4773      .0145      .0328      .2932
.0000      .2778      .0430     6.4534      .0000      .1926      .3630
1.4362     .3926      .0570     6.8876      .0000      .2798      .5053

Alpha level used for confidence intervals:
  .05
```

Table 22 Regression model showing the moderating effect of part time work on the TPSQ Satisfaction relationship

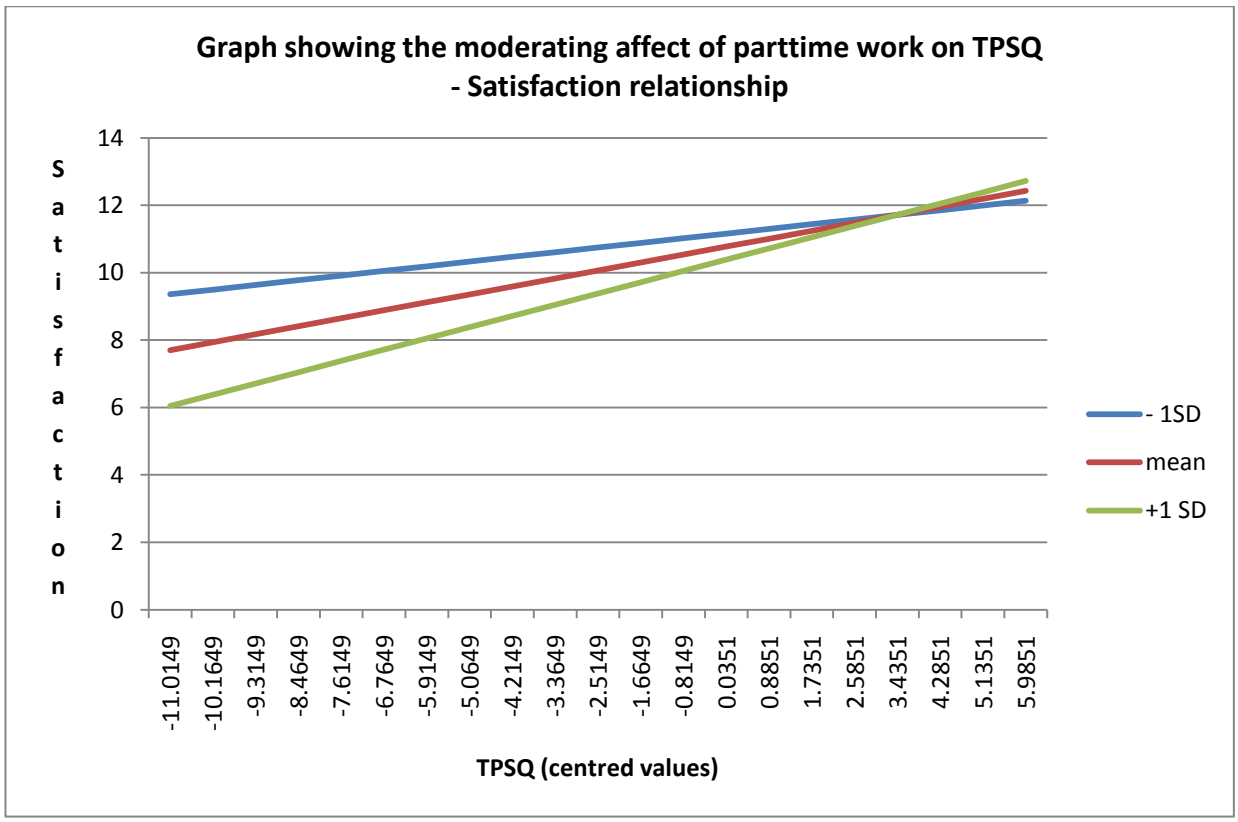


Figure 19 Graph showing the moderating effect of part time work on the TPSQ Satisfaction relationship

```
Outcome Variable
 Satisfac

Focal Predictor Variable
 AdminPSQ

Moderator Variable
 parttime

Regression Summary
      R-sq          F         df1         df2           p           n
    .5134     34.0204      4.0000    129.0000      .0000    134.0000

************************************************************************
                    b         se          t          p
constant       5.0547      .8332     6.0669     .0000
TeachPSQ        .3022      .0432     6.9939     .0000
AdminPSQ        .3254      .0625     5.2095     .0000
parttime       -.2995      .1091    -2.7452     .0069
interact        .0883      .0429     2.0567     .0417

Interact Is defined As:
 AdminPSQ X        parttime

************************************************************************

Conditional Effect of Focal Predictor at Values of the Moderator Variable
parttime        b         se          t          p     LLCI(b)     ULCI(b)
-1.4362      .1986      .0987     2.0115     .0464     .0033      .3939
.0000        .3254      .0625     5.2095     .0000     .2018      .4490
1.4362       .4523      .0753     6.0096     .0000     .3034      .6012

Alpha level used for confidence intervals:
   .05
Moderator values are the sample mean and plus/minus one SD from mean
```

Table 23 Regression model showing the moderating effect of part time work on the APSQ Satisfaction relationship

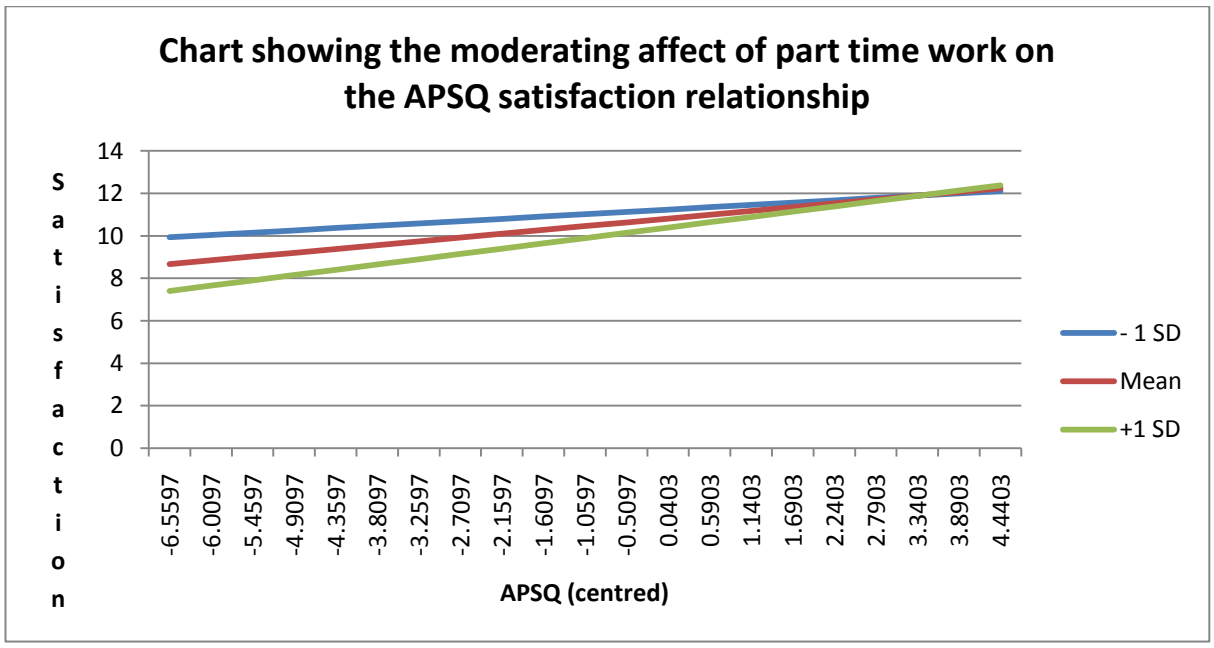


Figure 20 Graph showing the moderating effect of part time work on the TPSQ Satisfaction relationship

The demographic analysis and the literature review indicated that age may moderate the effect of TPSQ on satisfaction. As the Anova analysis and post-hoc tests (Appendix 5,Table 46) indicated that significant differences exist between the under 22's and the over 22's, and as the literature supports a traditional / mature student split this study transformed the age group data into dichotomous variables representing traditional and mature students[25], this analysis found that the type of student does not moderate either the TPSQ to satisfaction relationship ($p>0.05$) (Table 24) or the APSQ to satisfaction relationship ($p>0.05$) (Table 25).

[25] 1 represented traditional students (under 22) and 2 represented mature

```
Regression Summary
      R-sq          F         df1         df2           p           n
    .3938    17.3767      4.0000    107.0000      .0000    112.0000

============================================================================
                 b         se          t          p
constant     -.2633     3.6185     -.0728      .9421
AdminPSQ      .3955      .0740     5.3416      .0000
TeachPSQ      .4392      .1883     2.3326      .0215
tradstud      .5696     2.8453      .2002      .8417
interact     -.0814      .1462     -.5569      .5788

Interact Is defined As:
 TeachPSQ X        tradstud
```

Table 24 Moderating effect of age on relationship between TPSQ and satisfaction

```
Regression Summary
      R-sq          F         df1         df2           p           n
    .4131    18.8299      4.0000    107.0000      .0000    112.0000

============================================================================
                 b         se          t          p
constant     5.9552     2.4883     2.3933      .0184
TeachPSQ      .3439      .0603     5.7008      .0000
AdminPSQ     -.0509      .2374     -.2144      .8306
tradstud    -3.8181     1.4883    -2.5655      .0117
interact      .2838      .1447     1.9607      .0525

Interact Is defined As:
 AdminPSQ X        tradstud

============================================================================

Conditional Effect of Focal Predictor at Values of the Moderator Variable
tradstud      b         se          t          p       LLCI(b)     ULCI(b)
1.0000      .2329      .1090     2.1372      .0349      .0169      .4489
2.0000      .5167      .0965     5.3564      .0000      .3255      .7079
```

Table 25 Table showing the moderation effect of the type of student on the relationship between the APSQ and satisfaction relationship

Moderation of the Satisfaction – Loyalty Relationship

Although a number of studies have shown that satisfaction and loyalty are related the relationship is not perfect and satisfied customers defect. This study aims to test whether the personality trait, loyalty propensity, helps to explain why some customers remain loyal when satisfied and others do not. It is argued that those who have high

levels of loyalty propensity are more likely to be loyal at any given level of satisfaction than those with low levels. This relationship was tested by assessing the relationship between satisfaction and loyalty at three levels of loyalty propensity[26] this analysis confirmed that loyalty propensity moderates the relationship between satisfaction and loyalty (-101, $p<0.05$)(Table 26) with those who have higher levels of the trait displaying greater loyalty at any given level of satisfaction than those who have lower levels (Figure 21), with its moderating effect being greatest at lower levels of satisfaction with it mitigating some of the influence of low satisfaction, however as satisfaction increases the effect of loyalty propensity is reduced (Figure 21) therefore confirming hypothesis H9.

Regression Summary

R-sq	F	df1	df2	p	n
.4392	16.6026	5.0000	106.0000	.0000	112.0000

	b	se	t	p
constant	22.6764	2.4279	9.3401	.0000
AdminPSQ	-.0065	.1392	-.0468	.9628
TeachPSQ	-.1111	.1069	-1.0396	.3009
Satisfac	.5488	.1637	3.3527	.0011
Lpropens	.7855	.1329	5.9095	.0000
interact	-.1010	.0486	-2.0791	.0400

Interact Is defined As:
Satisfac X Lpropens

Conditional Effect of Focal Predictor at Values of the Moderator Variable

Lpropens	b	se	t	p	LLCI(b)	ULCI(b)
-2.3633	.7874	.1828	4.3065	.0000	.4249	1.1499
.0000	.5488	.1637	3.3527	.0011	.2243	.8734
2.3633	.3102	.2156	1.4387	.1532	-.1173	.7378

Alpha level used for confidence intervals:
.05

Table 26 Table showing the moderation effect of Loyalty propensity on the satisfaction loyalty relationship

[26] +1 SD, -1 SD and mean

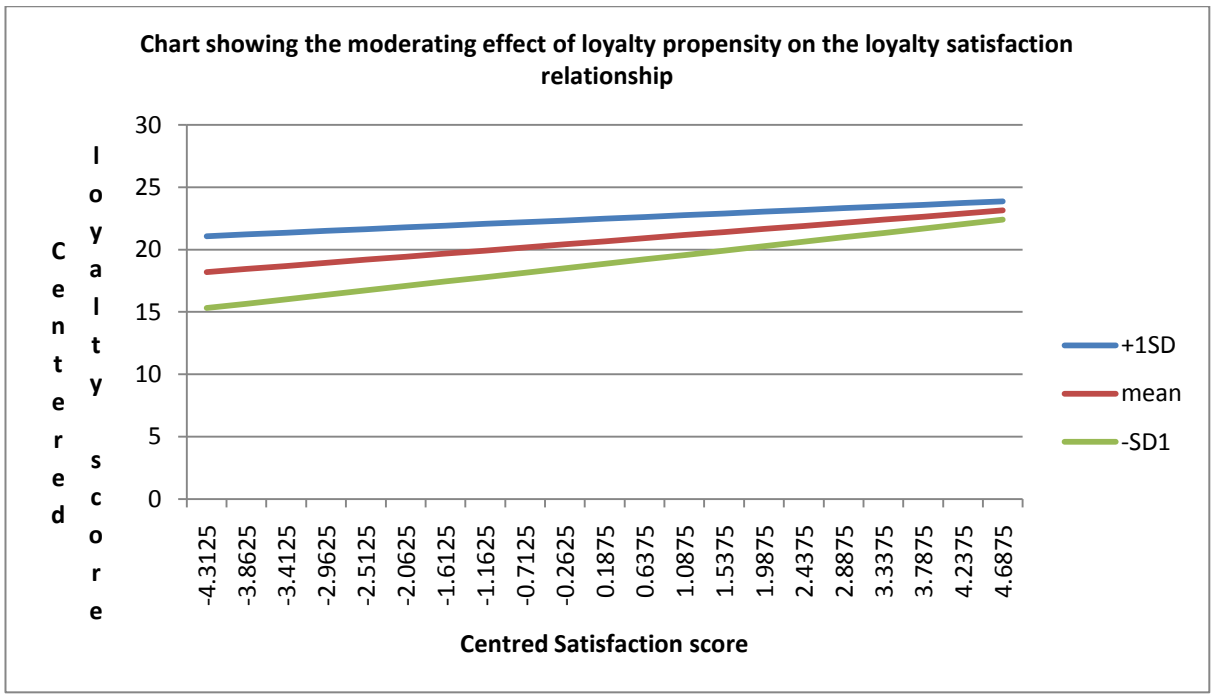


Figure 21 chart showing the moderation effect of Loyalty propensity on the satisfaction loyalty relationship

Conclusion

This section has discovered that satisfaction partially moderates the relationship between PSQ and loyalty, it has confirmed that APSQ is a dissatisfier only effecting satisfaction at low levels of APSQ and that TPSQ is a critical effecting satisfaction at high and low levels with its strongest effect being at lower levels. The study has also confirmed that the relationships between APSQ and satisfaction are moderated by the amount of part-time work a student undertakes, and the student's involvement in university life whilst the satisfaction loyalty relationship is moderated by the personality trait loyalty propensity, with the study supporting the literature and finding that satisfaction is a significant predictor of loyalty. Furthermore the study has identified that some demographic factors affect the level of PSQ and therefore loyalty with mature students perceiving higher TPSQ and lower APSQ than younger students, whilst the level of part-time work also impacts PSQ with those who work part-time

having lower PSQ than other groups. However no predictive model which includes the effect of all independent, moderating and mediating variables has been developed, this is because SPSS does not have the facility to model such complex relationships via regression analysis and the 'moderated-mediation' macro provided by Preacher, Rucker, Hayes (2007) only allows one moderating and one independent variable to be modelled therefore this paper develops a regression model which includes satisfaction as a mediator but excludes moderating variables. To develop this simple model variables were entered into the SPSS regression module in "enter" fashion to create the mediator model, this is because the previous research provides strong guidance that both APSQ and TPSQ should have a significant effect on satisfaction. From this analysis the model in Equation 6 was developed with the mediator model having an adjusted R Square of .464 with TPSQ explaining the majority of the variation (a standardised coefficient of .440) and APSQ explaining slightly less (standardised coefficient of 4.21) (Appendix 11,Table 101), whilst the forward method was used to determine the dependent variable model with satisfaction, TPSQ and APSQ being entered in this model. The forward method was used because previous analysis indicated that TPSQ and APSQ were only partially mediated by satisfaction therefore they may have a direct effect on loyalty, however TPSQ and APSQ were automatically excluded from the model as they did not achieve the appropriate F ratio with satisfaction having a standardised coefficient of .556 (Appendix 11, Table 105) and the model having a low adjusted R squared value of .304 (Appendix 11, Table 103).

$$M = .978 + 2.96\ TPSQ + .390\ APSQ + e$$

$$DV = 10.545 + .980 + e$$

Equation 6 Simple regression model no moderation effects

The literature and this research has shown that APSQ is a dissatisfier therefore alternative regression models were developed for the low and high APSQ group. These models followed the same procedures as those in Equation 6 and found that for the low APSQ group APSQ explained more of the variance than TPSQ (.410 v .375) (Appendix 12, Table 109) in the mediator model but TPSQ had a direct effect on loyalty with it having a standardised coefficient of -.194 against satisfactions standardised coefficient of .530 (Appendix 12,Table 113), however for the high APSQ group APSQ had an insignificant relationship with satisfaction and therefore was excluded from the model with the mediator model having an adjusted R squared value of .549 (Appendix 13, Table 115) and the dependent variable model having an adjusted r squared of .514 (Appendix 13,Table 119). This confirms that APSQ is a dissatisfier but it also illustrates that when poor APSQ is received it more important than TPSQ overshadowing its effect.

$$M = 1.347 + .272TPSQ + .397APSQ + e$$

$$DV = 15.50 + .911satisfaction + -.244TPSQ + e$$

Equation 7 Regression equation for the low APSQ group

M = 5.361 + .343TPSQ + e

DV = 3.821 + 1.607satisfaction + e

Equation 8 Regression equation for the high APSQ group

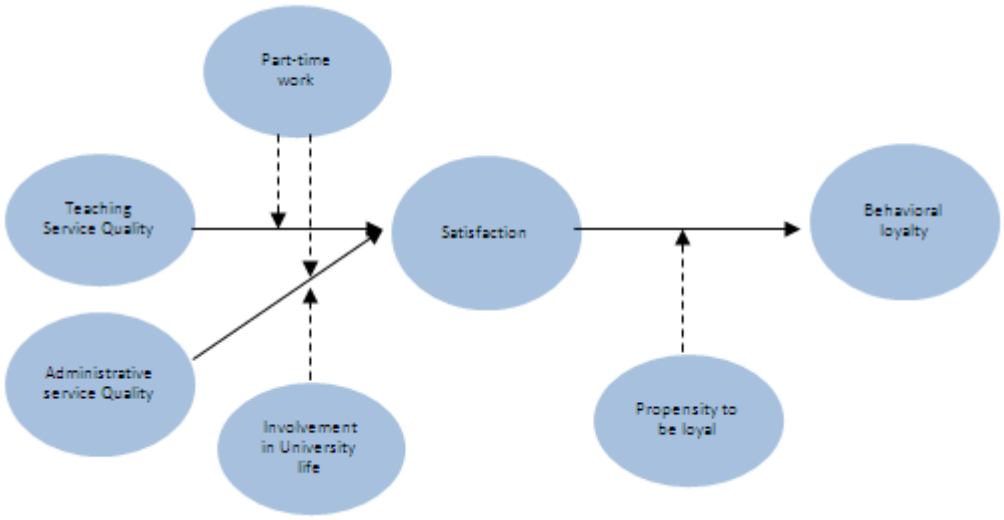
This section has analysed the data and refined the initially proposed causal model, the next chapter will conclude the research, discussing the findings of this chapter, highlighting its limitations and its importance in relation to other academic research and practitioners

Chapter Five - Conclusions

This paper has developed and tested a model of the student loyalty process in a UK university. The analysis identified unexpected relationships such as the lack of a moderating role for involvement on the TPSQ to satisfaction relationship and confirmed relationships such as the moderating role of loyalty propensity on the satisfaction - loyalty relationship and involvement on the APSQ - satisfaction relationship. The analysis confirmed that the causal model for student loyalty is complicated involving a number of multifaceted relationships, these findings and relationships are shown in Figure 22 and Figure 23 and can be summarised as:

- Traditional students perceive lower TPSQ but higher APSQ than mature students with this potentially being caused by traditional students not being used to working on their own and by mature students needing to rely more on administrative support due to other pressures and being less forgiving of administrative failures due to previous experience.
- Those who complete a large amount of part-time work perceive lower APSQ and TPSQ and therefore satisfaction, this is potentially because they have less time to dedicate to co-producing the university experience, and because they may have higher expectations due to the higher level of commitment they are demonstrating.
- APSQ is shown to be a dissatisfier only influencing satisfaction, and therefore loyalty, when low service quality is received, however when low APSQ is received it explains more of the variation in satisfaction than TPSQ.
- TPSQ is a critical influencing satisfaction at high and low levels.

- Satisfaction partially mediates the relationship between APSQ/TPSQ and loyalty.
- The relationship between APSQ and satisfaction is moderated by part-time work and involvement.
- The relationship between TPSQ and satisfaction is moderated by the level of part-time work.
- The relationship between satisfaction and loyalty is moderated by loyalty propensity.



Note if low APSQ is received the effect of APSQ on satisfaction is stronger than that of TPSQ

Figure 22 Diagram showing the antecedents of student loyalty for the low APSQ group

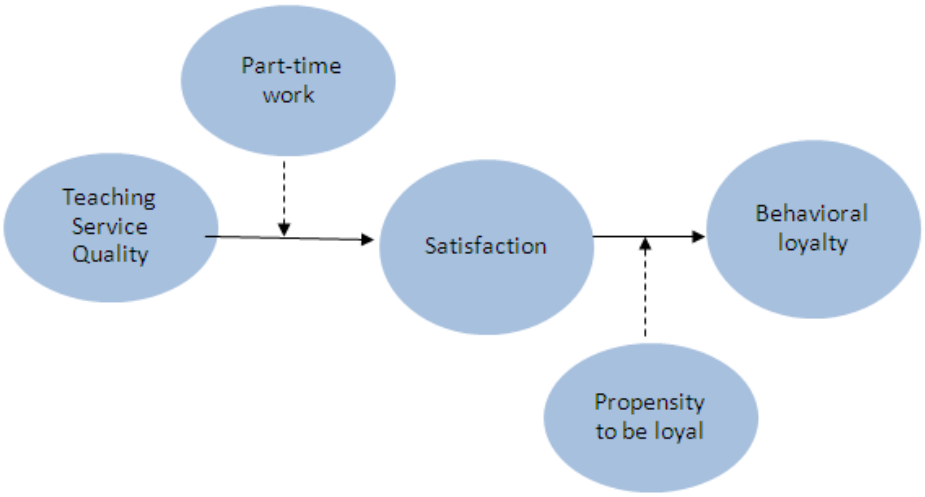


Figure 23 Diagram showing the antecedents of student loyalty for the high APSQ group

Contributions

This study has made a number of contributions to the existing literature; firstly it has developed and tested a model of student loyalty in a UK context using a sample which included students from a wide variety of subjects. This is a valuable contribution because most studies have concentrated on business students who may differ from non business students as they may be more careers focussed and this may affect the antecedents of loyalty, and most studies have studied students in different countries which have different cultures and this may also affect the antecedents of loyalty (Hofstede 2008). The model tested also contributes to the literature as it includes service quality and satisfaction which have been posited to be the most important antecedents of loyalty, however unlike most studies this paper does not use SERVQUAL due to concerns about reliability and validity instead it measures the service quality of operational areas using a performance only measure of service quality which includes both functional and technical aspects of service quality. Furthermore this study has utilised the dissatisfiers, critical, satisfiers and neutrals

taxonomy (Vargo, Nagao, He, Morgan 2007:5) to analyse the relationship between PSQ and satisfaction in an educational context an approach which has not previously been undertaken in a quantitative analysis of educational service quality with the study finding that this taxonomy has value in explaining the relationships between service quality and satisfaction. The final contribution of this study is that it has included both moderating and mediating variables with satisfaction being shown to partially mediate the relationships between service quality and loyalty. Whilst the effect of APSQ on satisfaction is moderated by the level of involvement and the level of part-time work this is a significant discovery as it means that managers can reduce the effect of negative APSQ by involving students more in university life and it means managers should target administrative resources on less involved students as poor APSQ has a larger effect on such students satisfaction than for more involved students. Finally the personality trait loyalty propensity was found to moderate the satisfaction loyalty relationship with those who have high levels of loyalty propensity being more loyal at any given level of satisfaction this helps to explain why loyal customers defect.

Limitations

This study suffers from a number of limitations, chief amongst these is the lack of a random sample which would have allowed the results of the study to be generalised to the population, with the use of snowball sampling meaning that findings can only be safely applied to the current sample and that further analysis utilising a random sample will be needed to extend findings to the general population.

This study analysed the antecedents of loyalty at one point in time however loyalty is dynamic changing over the course of a relationship for example a study of car purchases found that service satisfaction had the greatest impact on loyalty in the first four months of purchase, whilst satisfaction with the product itself had the largest longer term impact (Johnson, Herrmann, Huber 2006:122), it is likely that this type of relationship happens in education with students in their first year being interested in the functional aspects of service quality whilst graduates may be more effected by technical service quality.

The study's use of a quantitative design with the questions being adapted from the literature means that the study may be reinforcing existing prejudices (Fisher 2007) or by asking questions about an area giving it unrealistic levels of importance (Fisher 2007) for example this study does not include social aspects because these have not been modelled in previous studies, however anecdotal evidence of the importance of social life exists on multiple social websites (www.facebook.com) and on the websites of most universities (http://www.google.co.uk/search?hl=en&source=hp&q=student+social+life&meta=&rlz=1R2ADBF_en-GB&aq=0&oq=student+social+l). The potential reinforcement of prejudices could have been avoided by the use of qualitative research to identify areas to investigate, such qualitative research could also have been used as a form of triangulation (Remenyi, Williams, Money, Swartz 1998:143), this would also have helped to confirm the findings of the quantitative research, this is important as despite service quality, and satisfaction, being posited as the most important antecedents of service quality other antecedents such as 'trust' (Morgan, Hunt 1994), and 'value' (Parasuraman, Grewal

2000) have also been suggested. Furthermore qualitative research would have provided evidence on why variables affect each other.

The statistical tests utilised also provide some limitations as the Baron Kenny (1986) approach has been criticised for low statistical power (Le Breton, Wu, Bing 2008:126), because it assumes that mediation can be tested using linear regression (Shrout, Bolger 2002:422), because four regression studies are needed which is time consuming and increases the chance of Type I errors (Le Breton, Wu, Bing 2008:127), whilst developments in statistics have led to the bootstrap approach (Shrout, Bolger 2002) becoming the preferred method for testing the effects of mediation as this technique can be used with smaller samples than the Sobel test (Shrout, Bolger 2002). These issues combined with the complexity of the proposed model mean that structural equation modelling may have been a better methodology as it allows the testing of more complicated models, furthermore whilst 'regression is highly susceptible to error of interpretation by misspecification, the SEM strategy of comparing alternative models to assess relative model fit makes it more robust' (http://faculty.chass.ncsu.edu/garson/PA765/structur.htm) however the researcher did not have the relevant software making the use of SEM impossible.

Management Implications

The use of operational areas of service quality allows managers to 'align their organisational structure, processes and procedures to become more customer

orientated' (DeSheilds, Kara, Kaynak 2005:137). The finding that APSQ only effects satisfaction and loyalty when low service quality is received means that managers in the education sphere should only dedicate enough resource to make sure that APSQ reaches an acceptable level, with no additional advantages being gained by allocating additional resources above this level, furthermore the finding that the relationship between APSQ and satisfaction is moderated by involvement and the level of part-time work means that management can focus on administrative support on whom it has greater effect – those that work part-time and the less involved. The study also identified that TPSQ is a critical effecting satisfaction at the high and low levels therefore resources should be concentrated on this area to ensure that every student receives at least an adequate level of teaching quality.

Recommendations for Further Research

A number of findings identified in this study provide opportunities for further research. Firstly the causal model left a large proportion of variance unexplained therefore further qualitative research is needed to identify missing causal variables with the quality of social life (Kane, Williams, Cappuccini-Ansfield 2008), value (Patterson, Spreng 1997), trust (Morgan, Hunt 1994) and the image of the institution (Nesset, Helgesen 2009) being potentially important. Secondly the study found that loyalty propensity moderates the relationship between satisfaction and loyalty, this is an important finding perhaps helping to explain why satisfied customers defect however this finding occurred in a limited study with a non random sample therefore this finding needs verification in multiple contexts with these studies utilising random samples. Lastly the effect of culture on the antecedents of loyalty may be an

interesting topic to investigate as cultures differ across a number of dimensions all of which may affect the university experience (Hofstede 2008) this is important as Britain is a multicultural society, furthermore foreign students attend UK universities therefore the antecedents of loyalty for UK students may be affected by the student's culture.

Reflections

When embarking on the study the complex nature of the relationships were not fully envisaged and neither was the difficulty in gaining access to subjects to survey. The research questions were mostly answered however due to problems with the internal reliability of FPSQ only two of the three service quality areas were included in the causal model. The difficulties in completing this study were compounded by the lack of agreement on the definitions and operisations of the key constructs making it difficult to compare the findings across studies, furthermore the complex nature of each construct meant that it was hard to give each of the constructs the required coverage within the word limit. Completion of the study on time was a considerable challenge due to the difficulties associated with completing a major research project for the first time, the difficulty gaining the relevant sample size, and a lack of statistical knowledge which meant that the researcher had to teach himself statistics and the use of SPSS.

On a personal level the completion of the research was further complicated by the birth of my son and by a change of careers which meant that the original subject was no longer possible and the study had to be adapted to a different context.

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Appendices

Appendix 1

Combined Loyalty

Question	Original Study	Comments / Adaption's made
I usually talk about my university favourably	Yu, Kim (2008)	Originally used to measure WOM as an output of satisfaction but similar question used by Lin, Tsai (2008) for combined loyalty – used to measure the activity part of advocacy
I often bring out positive aspects about my university in conversations with friends	Yu, Kim (2008)	used to measure the activity part of advocacy
I usually try to give positive comments on my university	Yu, Kim (2008)	used to measure the praise part of advocacy
I'm very interested in keeping in touch with "my faculty."	Hennig-Thurau, Langer, Hanson (2001)	Measure of behavioural intentions
I'd become a member of any alumni organizations at my old university or faculty	Hennig-Thurau, Langer, Hanson (2001)	Measure of behavioural intentions
I intend to donate money to my university after graduation	Yu,Kim (2008)	Measure of behavioural intentions
If I faced the same choice again, I'd still choose the same University?	Hennig-Thurau, Langer, Hanson (2001)	This was used to assess combined loyalty in the original study

Propensity to be loyal

Question	Original Study	Comments / Adaption's made
I would rather stick with a brand I usually buy than try something I am not very sure of	Bennett (2001)	None
I rarely take chances by buying unfamiliar brands	Bennett (2001)	None

even if it means sacrificing Variety		
I would rather wait for others to try a new brand than try it myself	Bennett (2001)	None

Satisfaction

Question	Original Study	Comments / Adaption's made
Overall you are satisfied with the service provider	Eshghi, Roy, Ganguli (2008)	Overall are you satisfied with your university
The services of my mobile phone service provider are close to my expectations.	Eshghi, Roy, Ganguli (2008)	The services of my university are close to my expectations
My present mobile phone service provider is comparable with my ideal mobile phone service provider	Eshghi, Roy, Ganguli (2008)	My University is comparable with by ideal University

Administrative service quality

Question	Original Study	Comments / Adaption's made
In...the administrative staff provide courteous services	Lin, Tsai (2008)	Measures functional Service Quality
In...the administrative staff provide efficient services	Lin, Tsai (2008)	Measures technical Service Quality
In...administrative staff provide information that makes me feel confident in them solving my problems	Lin, Tsai (2008)	Measures functional Service Quality

Teaching service quality

Question	Original Study	Comments / Adaption's made
In (name of university), teachers teach clearly	Lin, Tsai (2008)	Measures functional service quality
In (name of university), teachers teach enthusiastically	Lin, Tsai (2008)	Measures functional service quality
In (name of university), teachers have sufficient professional knowledge for teaching	Lin, Tsai (2008)	Measures technical service quality
In (name of university), lessons taught by teachers are useful	Lin, Tsai (2008)	Measures technical service quality
In (name of university), overall teaching quality is good	Lin, Tsai (2008)	Measures functional service quality

Facilities service Quality

Question	Original Study	Comments / Adaption's made
In...the quality of the infrastructure that facilitates teaching is good (lecture theatres, seminar rooms, library)	Lin, Tsai (2008)	Measures technical Service Quality
In...the housing is of a good quality	Lin, Tsai (2008)	Measures technical Service Quality
In...the student union is of a good quality	Lin, Tsai (2008)	Measures technical Service Quality
In...the quality of food available on campus is of a good	Lin, Tsai (2008)	Measures technical Service Quality

quality		

Involvement with the university

Question	Original Study	Comments / Adaption's made
I regularly take part in university related activities	(Hennig-Thurau, Langer, Hanson 2001)	Academic integration in original study
I always have interactive contact with my fellow students	(Hennig-Thurau, Langer, Hanson 2001)	Social integration in original study
I regularly do things with fellow students outside university	(Hennig-Thurau, Langer, Hanson 2001)	Social integration in original study

Part Time work

Question	Original Study	Comments / Adaption's made
A proportion of my time is taken up with paid work	(Hennig-Thurau, Langer, Hanson 2001)	

Appendix 2

Descriptive Statistics Male and Female

Gender			Combined loyalty	Satisfaction	L propensity	Admin PSQ	Teach PSQ	Involvement	Part-time
female	N	Valid	76	76	76	76	76	76	76
		Missing	0	0	0	0	0	0	0
	Mean		21.3947	10.8816	8.7500	10.5263	19.0132	11.0132	3.28
	Median		21.0000	11.5000	9.0000	11.0000	20.0000	11.5000	4.00
	Mode		21.00	12.00	7.00	12.00	20.00	12.00	4
	Std. Deviation		4.21451	2.42744	2.33310	2.72506	3.52701	2.33520	1.493
	Percentiles	25	19.0000	9.0000	7.0000	8.0000	17.2500	9.0000	2.00
		50	21.0000	11.5000	9.0000	11.0000	20.0000	11.5000	4.00
		75	24.0000	12.0000	10.0000	12.0000	21.0000	12.7500	4.75
	Skewness		-.486	-.381	.097	-.515	-.856	-.326	-.392
	Std. Error of Skewness		.276	.276	.276	.276	.276	.276	.276
	Kurtosis		1.095	-.602	.200	-.455	.667	-.248	-1.353
	Std. Error of Kurtosis		.545	.545	.545	.545	.545	.545	.545
Male	N	Valid	58	58	58	58	58	58	58
		Missing	0	0	0	0	0	0	0
	Mean		20.6552	10.5345	8.5690	10.6034	19.0172	10.7931	3.26
	Median		21.0000	11.0000	8.0000	12.0000	20.0000	11.0000	4.00
	Mode		19.00	12.00	8.00	12.00	20.00	12.00	4
	Std. Deviation		4.63606	2.58345	2.45744	2.66846	3.94476	2.46917	1.371
	Percentiles	25	19.0000	8.7500	7.0000	8.7500	17.0000	9.0000	2.00
		50	21.0000	11.0000	8.0000	12.0000	20.0000	11.0000	4.00
		75	23.0000	12.0000	10.2500	12.0000	21.0000	12.0000	4.00
	Skewness		-.825	-.221	-.156	-.848	-.884	-.268	-.487
	Std. Error of Skewness		.314	.314	.314	.314	.314	.314	.314
	Kurtosis		1.374	-.787	-.528	-.266	.681	-.337	-1.072
	Std. Error of Kurtosis		.618	.618	.618	.618	.618	.618	.618

a. Multiple modes exist. The smallest value is shown

Table 27 Table showing the descriptive statistics by gender for all constructs

Appendix 3

Internal Reliability Analysis

Scale: Combined Loyalty

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.813	.832	7

Table 28 Table showing the Cronbach's Alpha score for the combined loyalty construct

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Bloyal1	20.60	17.678	.786	.737	.750
Bloyal2	20.74	18.878	.720	.640	.766
Bloyal3	20.80	18.042	.765	.737	.755
aloyal1	21.43	19.640	.433	.362	.808
aloyal2	21.65	19.694	.484	.342	.799
aloyal3	21.41	18.511	.434	.398	.815
aloyal4	21.07	19.084	.402	.517	.819

Table 29 Table showing the Cronbach's Alpha scores for the combined loyalty construct if items are deleted

Scale: Loyalty Propensity

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.800	.802	3

Table 30 Table showing the Cronbach's Alpha score for the loyalty propensity construct

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Lprop1	5.63	2.892	.645	.437	.729
Lprop2	5.98	2.694	.696	.490	.674
Lprop3	5.79	2.782	.599	.364	.778

Table 31 Table showing the Cronbach's Alpha scores for the loyalty propensity construct if items are deleted

Scale: Satisfaction

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.859	.861	3

Table 32 Table showing the Cronbach's Alpha score for the satisfaction construct

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
satis1	6.98	2.768	.713	.626	.829
satis2	7.22	2.771	.859	.742	.686
satis3	7.28	3.278	.647	.504	.880

Table 33 Table showing the Cronbach's Alpha scores for the satisfaction construct if items are deleted

Scale: Administrative Perceived service quality

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.885	.888	3

Table 34 Table showing the Cronbach's Alpha score for the APSQ construct

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
admin1	7.07	3.039	.789	.660	.830
admin2	7.21	3.006	.854	.730	.763
admin3	6.85	4.112	.719	.540	.894

Table 35 Table showing the Cronbach's Alpha scores for the APSQ construct if items are deleted

Scale: Teaching Perceived service quality

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.902	.903	5

Table 36 Table showing the Cronbach's Alpha score for the TPSQ construct

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
teach1	15.47	8.788	.721	.536	.888
teach2	15.28	7.995	.837	.707	.862
teach3	14.88	9.598	.696	.516	.892
teach4	15.30	9.512	.755	.639	.882
teach5	15.19	8.734	.789	.662	.872

Table 37 Table showing the Cronbach's Alpha scores for the TPSQ construct if items are deleted

Scale: Facilities Perceived service quality

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.437	.450	4

Table 38 Table showing the Cronbach's Alpha score for the FPSQ construct

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Facility1	8.2836	2.099	.301	.100	.304
facility2	8.7836	2.562	.276	.131	.346
facility3	8.8582	2.589	.242	.102	.373
facility4	9.1567	2.284	.183	.053	.444

Table 39 Table showing the Cronbach's Alpha scores for the FPSQ construct if items are deleted

Scale: Involvement

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.659	.668	3

Table 40 Table showing the Cronbach's Alpha score for the involvement construct

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
involve1	7.98	2.609	.491	.244	.540
involve2	6.78	3.825	.432	.190	.635
involve3	7.07	2.461	.532	.283	.478

Table 41 Table showing the Cronbach's Alpha scores for the involvement construct if items are deleted

Appendix 4

Descriptive Statistics for all variables by the amount of part time work

Descriptive Statistics

parttime		N	Minimum	Maximum	Mean	Std. Deviation
1	combinedloyalty	25	11.00	30.00	20.8800	5.30189
	Satisfaction	25	6.00	15.00	11.6800	2.30434
	Lpropensity	25	6.00	14.00	9.3600	2.23383
	AdminPSQ	25	7.00	14.00	11.5600	1.78139
	TeachPSQ	25	12.00	24.00	20.0000	2.81366
	Involvement	25	7.00	15.00	11.8800	2.22336
	Valid N (listwise)	25				
2	combinedloyalty	20	16.00	27.00	20.7500	2.42520
	Satisfaction	20	9.00	15.00	11.2000	2.26181
	Lpropensity	20	6.00	14.00	8.6000	1.95744
	AdminPSQ	20	6.00	15.00	9.9000	2.91818
	TeachPSQ	20	10.00	21.00	16.9500	3.50150
	Involvement	20	9.00	14.00	11.7000	1.38031
	Valid N (listwise)	20				
3	combinedloyalty	12	19.00	28.00	23.1667	2.97973
	Satisfaction	12	6.00	13.00	11.3333	2.05971
	Lpropensity	12	6.00	12.00	9.1667	2.08167
	AdminPSQ	12	11.00	14.00	12.2500	.96531
	TeachPSQ	12	13.00	25.00	20.6667	3.77391
	Involvement	12	4.00	15.00	11.0000	4.06761
	Valid N (listwise)	12				
4	combinedloyalty	48	8.00	30.00	20.8333	5.07113
	Satisfaction	48	6.00	15.00	10.6250	2.40235
	Lpropensity	48	3.00	13.00	8.8958	2.65970
	AdminPSQ	48	6.00	15.00	10.6458	2.68558
	TeachPSQ	48	8.00	25.00	19.8333	3.58088
	Involvement	48	7.00	15.00	10.8542	1.79822
	Valid N (listwise)	48				
5	combinedloyalty	29	15.00	28.00	21.0000	3.89138
	Satisfaction	29	7.00	15.00	9.5172	2.73366
	Lpropensity	29	3.00	14.00	7.5517	2.13117
	AdminPSQ	29	4.00	14.00	9.3103	3.06015
	TeachPSQ	29	11.00	24.00	17.5517	3.78518
	Involvement	29	4.00	14.00	9.6207	2.56924
	Valid N (listwise)	29				

Table 42 Table showing descriptive statistics for all variables by the amount of part-time work completed by the respondent

Appendix 5

Anova analysis and posthoc tests comparing the means of all variables for each age group

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
parttime	1.00	70	2.83	1.424	.170	2.49	3.17	1	5
	2.00	24	3.42	1.283	.262	2.88	3.96	1	5
	3.00	20	3.75	1.070	.239	3.25	4.25	1	5
	4.00	5	4.60	.548	.245	3.92	5.28	4	5
	5.00	15	4.00	1.648	.425	3.09	4.91	1	5
	Total	134	3.27	1.436	.124	3.02	3.51	1	5
Satisfaction	1.00	70	10.7429	2.68482	.32090	10.1027	11.3830	6.00	15.00
	2.00	24	12.4167	.97431	.19888	12.0053	12.8281	11.00	15.00
	3.00	20	9.6000	2.54227	.56847	8.4102	10.7898	6.00	12.00
	4.00	5	11.0000	1.22474	.54772	9.4793	12.5207	9.00	12.00
	5.00	16	9.5625	2.06458	.51615	8.4624	10.6626	7.00	12.00
	Total	135	10.7407	2.48567	.21393	10.3176	11.1639	6.00	15.00
Lpropensity	1.00	70	9.3143	2.07499	.24801	8.8195	9.8090	6.00	14.00
	2.00	24	8.3333	1.85722	.37910	7.5491	9.1176	5.00	12.00
	3.00	20	7.7500	3.33837	.74648	6.1876	9.3124	3.00	13.00
	4.00	5	7.6000	3.36155	1.50333	3.4261	11.7739	3.00	12.00
	5.00	16	8.0625	2.17466	.54367	6.9037	9.2213	6.00	12.00
	Total	135	8.6963	2.38864	.20558	8.2897	9.1029	3.00	14.00
AdminPSQ	1.00	70	10.6000	2.66159	.31812	9.9654	11.2346	6.00	15.00
	2.00	24	12.2917	1.39811	.28539	11.7013	12.8820	9.00	15.00
	3.00	20	9.8000	2.30788	.51606	8.7199	10.8801	7.00	13.00
	4.00	5	11.6000	.89443	.40000	10.4894	12.7106	10.00	12.00
	5.00	16	8.5000	3.36650	.84163	6.7061	10.2939	4.00	12.00
	Total	135	10.5704	2.68367	.23097	10.1135	11.0272	4.00	15.00
TeachPSQ	1.00	70	17.8857	4.37232	.52259	16.8432	18.9283	8.00	25.00
	2.00	24	21.5000	1.97814	.40379	20.6647	22.3353	18.00	25.00
	3.00	20	20.5500	1.27630	.28539	19.9527	21.1473	19.00	24.00
	4.00	5	18.4000	2.07364	.92736	15.8252	20.9748	16.00	21.00
	5.00	16	18.6250	2.27669	.56917	17.4118	19.8382	15.00	21.00
	Total	135	19.0296	3.68932	.31753	18.4016	19.6576	8.00	25.00
Involvement	1.00	70	11.7857	2.05640	.24579	11.2954	12.2760	7.00	15.00
	2.00	24	11.3333	2.18028	.44505	10.4127	12.2540	7.00	14.00
	3.00	20	9.6000	2.32605	.52012	8.5114	10.6886	4.00	15.00
	4.00	5	8.2000	2.48998	1.11355	5.1083	11.2917	4.00	10.00
	5.00	15	8.8667	1.64172	.42389	7.9575	9.7758	8.00	12.00
	Total	134	10.9179	2.38746	.20625	10.5100	11.3259	4.00	15.00
combinedloyalty	1.00	70	22.4571	3.38233	.40427	21.6507	23.2636	16.00	30.00
	2.00	24	22.0000	3.42624	.69938	20.5532	23.4468	16.00	28.00
	3.00	20	18.7000	6.25005	1.39755	15.7749	21.6251	8.00	29.00
	4.00	5	19.6000	3.36155	1.50333	15.4261	23.7739	16.00	25.00
	5.00	16	17.0625	3.58643	.89661	15.1514	18.9736	11.00	21.00
	Total	135	21.0741	4.38387	.37730	20.3278	21.8203	8.00	30.00

Table 43 Descriptive statistics for all variables by age group[27]

[27] 1 = under 22's, 2=22 to 26, 3=27-35, 4= 36-45, 5=over 46

	Levene Statistic	df1	df2	Sig.
parttime	3.966	4	129	.005
Satisfaction	9.042	4	130	.000
Lpropensity	3.237	4	130	.014
AdminPSQ	8.714	4	130	.000
TeachPSQ	9.616	4	130	.000
Involvement	.361	4	129	.836
combinedloyalty	3.548	4	130	.009

Table 44 Test of Homogeneity of Variances

		Sum of Squares	df	Mean Square	F	Sig.
parttime	Between Groups	35.602	4	8.901	4.810	.001
	Within Groups	238.726	129	1.851		
	Total	274.328	133			
Satisfaction	Between Groups	115.984	4	28.996	5.295	.001
	Within Groups	711.942	130	5.476		
	Total	827.926	134			
Lpropensity	Between Groups	60.242	4	15.060	2.780	.030
	Within Groups	704.307	130	5.418		
	Total	764.548	134			
AdminPSQ	Between Groups	156.923	4	39.231	6.311	.000
	Within Groups	808.158	130	6.217		
	Total	965.081	134			
TeachPSQ	Between Groups	288.896	4	72.224	6.117	.000
	Within Groups	1534.986	130	11.808		
	Total	1823.881	134			
Involvement	Between Groups	191.645	4	47.911	10.911	.000
	Within Groups	566.452	129	4.391		
	Total	758.097	133			
combinedloyalty	Between Groups	535.550	4	133.888	8.533	.000
	Within Groups	2039.709	130	15.690		
	Total	2575.259	134			

Table 45 Anova analysis comparing the mean scores of each age groups for each construct

Dependent Variable		(I) agerecintonum	(J) agerecintonum	Mean Difference (I-J)	Std. Error	95% Confidence Interval Lower Bound	Upper Bound
parttime	Dunnett C	1	2	-0.58810	0.31227	-1.49681	0.32062
			3	-0.92143	0.29362	-1.78407	-0.05879
			4	-1.77143	0.29828	-2.93776	-0.60510
			5	-1.17143	0.45818	-2.57918	0.23632
		2	1	0.58810	0.31227	-0.32062	1.49681
			3	-0.33333	0.35465	-1.38994	0.72328
			4	-1.18333	0.35852	-2.49242	0.12575
			5	-0.58333	0.49949	-2.11777	0.95111
		3	1	0.92143	0.29362	0.05879	1.78407
			2	0.33333	0.35465	-0.72328	1.38994
			4	-0.85000	0.34240	-2.13172	0.43172
			5	-0.25000	0.48805	-1.75797	1.25797
		4	1	1.77143	0.29828	0.60510	2.93776
			2	1.18333	0.35852	-0.12575	2.49242
			3	0.85000	0.34240	-0.43172	2.13172
			5	0.60000	0.49087	-1.09205	2.29205
		5	1	1.17143	0.45818	-0.23632	2.57918
			2	0.58333	0.49949	-0.95111	2.11777
			3	0.25000	0.48805	-1.25797	1.75797
			4	-0.60000	0.49087	-2.29205	1.09205
Satisfaction	Dunnett C	1	2	-1.67381	0.37753	-2.74757	-0.60005
			3	1.14286	0.65279	-0.78772	3.07343
			4	-0.25714	0.63480	-2.81248	2.29819
			5	1.18036	0.60777	-0.64781	3.00852
		2	1	1.67381	0.37753	0.60005	2.74757
			3	2.81667	0.60225	1.00892	4.62441
			4	1.41667	0.58271	-1.07273	3.90606
			5	2.85417	0.55314	1.15556	4.55278
		3	1	-1.14286	0.65279	-3.07343	0.78772
			2	-2.81667	0.60225	-4.62441	-1.00892
			4	-1.40000	0.78940	-4.32054	1.52054
			5	0.03750	0.76783	-2.29953	2.37453
		4	1	0.25714	0.63480	-2.29819	2.81248
			2	-1.41667	0.58271	-3.90606	1.07273
			3	1.40000	0.78940	-1.52054	4.32054
			5	1.43750	0.75260	-1.42767	4.30267
		5	1	-1.18036	0.60777	-3.00852	0.64781
			2	-2.85417	0.55314	-4.55278	-1.15556
			3	-0.03750	0.76783	-2.37453	2.29953
			4	-1.43750	0.75260	-4.30267	1.42767
Lpropensity	Dunnett C	1	2	0.98095	0.45302	-0.33717	2.29908
			3	1.56429	0.78660	-0.78509	3.91366
			4	1.71429	1.52365	-4.99287	8.42144
			5	1.25179	0.59756	-0.56393	3.06750
		2	1	-0.98095	0.45302	-2.29908	0.33717
			3	0.58333	0.83723	-1.92561	3.09227
			4	0.73333	1.55039	-6.02101	7.48768
			5	0.27083	0.66279	-1.74722	2.28888
		3	1	-1.56429	0.78660	-3.91366	0.78509
			2	-0.58333	0.83723	-3.09227	1.92561
			4	0.15000	1.67846	-6.83424	7.13424
			5	-0.31250	0.92348	-3.11542	2.49042
		4	1	-1.71429	1.52365	-8.42144	4.99287
			2	-0.73333	1.55039	-7.48768	6.02101
			3	-0.15000	1.67846	-7.13424	6.83424
			5	-0.46250	1.59862	-7.31828	6.39328
		5	1	-1.25179	0.59756	-3.06750	0.56393
			2	-0.27083	0.66279	-2.28888	1.74722
			3	0.31250	0.92348	-2.49042	3.11542
			4	0.46250	1.59862	-6.39328	7.31828

AdminPSQ	Dunnett C	1	2	-1.69167	0.42737	-2.91833	-0.46500
			3	0.80000	0.60623	-0.98868	2.58868
			4	-1.00000	0.51108	-2.94644	0.94644
			5	2.10000	0.89974	-0.64608	4.84608
		2	1	1.69167	0.42737	0.46500	2.91833
			3	2.49167	0.58971	0.72535	4.25799
			4	0.69167	0.49137	-1.24587	2.62921
			5	3.79167	0.88870	1.05953	6.52380
		3	1	-0.80000	0.60623	-2.58868	0.98868
			2	-2.49167	0.58971	-4.25799	-0.72535
			4	-1.80000	0.65293	-4.11597	0.51597
			5	1.30000	0.98724	-1.72676	4.32676
		4	1	1.00000	0.51108	-0.94644	2.94644
			2	-0.69167	0.49137	-2.62921	1.24587
			3	1.80000	0.65293	-0.51597	4.11597
			5	3.10000	0.93184	-0.01058	6.21058
		5	1	-2.10000	0.89974	-4.84608	0.64608
			2	-3.79167	0.88870	-6.52380	-1.05953
			3	-1.30000	0.98724	-4.32676	1.72676
			4	-3.10000	0.93184	-6.21058	0.01058
TeachPSQ	Dunnett C	1	2	-3.61429	0.66041	-5.50247	-1.72610
			3	-2.66429	0.59544	-4.36042	-0.96815
			4	-0.51429	1.06447	-4.82462	3.79605
			5	-0.73929	0.77270	-3.02398	1.54541
		2	1	3.61429	0.66041	1.72610	5.50247
			3	0.95000	0.49446	-0.52007	2.42007
			4	3.10000	1.01146	-1.15641	7.35641
			5	2.87500	0.69786	0.75089	4.99911
		3	1	2.66429	0.59544	0.96815	4.36042
			2	-0.95000	0.49446	-2.42007	0.52007
			4	2.15000	0.97028	-2.04274	6.34274
			5	1.92500	0.63671	-0.03080	3.88080
		4	1	0.51429	1.06447	-3.79605	4.82462
			2	-3.10000	1.01146	-7.35641	1.15641
			3	-2.15000	0.97028	-6.34274	2.04274
			5	-0.22500	1.08810	-4.65803	4.20803
		5	1	0.73929	0.77270	-1.54541	3.02398
			2	-2.87500	0.69786	-4.99911	-0.75089
			3	-1.92500	0.63671	-3.88080	0.03080
			4	0.22500	1.08810	-4.20803	4.65803
Involvement	Dunnett C	1	2	0.45238	0.50841	-1.03209	1.93685
			3	2.18571	0.57527	0.47739	3.89404
			4	3.58571	1.14036	-1.39674	8.56817
			5	2.91905	0.48999	1.43106	4.40704
		2	1	-0.45238	0.50841	-1.93685	1.03209
			3	1.73333	0.68454	-0.31041	3.77707
			4	3.13333	1.19919	-1.95178	8.21844
			5	2.46667	0.61461	0.60310	4.33023
		3	1	-2.18571	0.57527	-3.89404	-0.47739
			2	-1.73333	0.68454	-3.77707	0.31041
			4	1.40000	1.22903	-3.74719	6.54719
			5	0.73333	0.67098	-1.31355	2.78022
		4	1	-3.58571	1.14036	-8.56817	1.39674
			2	-3.13333	1.19919	-8.21844	1.95178
			3	-1.40000	1.22903	-6.54719	3.74719
			5	-0.66667	1.19150	-5.76310	4.42977
		5	1	-2.91905	0.48999	-4.40704	-1.43106
			2	-2.46667	0.61461	-4.33023	-0.60310
			3	-0.73333	0.67098	-2.78022	1.31355
			4	0.66667	1.19150	-4.42977	5.76310

combinedloyalty	Dunnett C	1	2	0.45714	0.80781	-1.89945	2.81374
			3	3.75714	1.45485	-0.59475	8.10904
			4	2.85714	1.55674	-3.89086	9.60514
			5	5.39464	0.98353	2.40521	8.38408
		2	1	-0.45714	0.80781	-2.81374	1.89945
			3	3.30000	1.56278	-1.38359	7.98359
			4	2.40000	1.65805	-4.53160	9.33160
			5	4.93750	1.13712	1.48290	8.39210
		3	1	-3.75714	1.45485	-8.10904	0.59475
			2	-3.30000	1.56278	-7.98359	1.38359
			4	-0.90000	2.05260	-8.65632	6.85632
			5	1.63750	1.66044	-3.39487	6.66987
		4	1	-2.85714	1.55674	-9.60514	3.89086
			2	-2.40000	1.65805	-9.33160	4.53160
			3	0.90000	2.05260	-6.85632	8.65632
			5	2.53750	1.75040	-4.62055	9.69555
		5	1	-5.39464	0.98353	-8.38408	-2.40521
			2	-4.93750	1.13712	-8.39210	-1.48290
			3	-1.63750	1.66044	-6.66987	3.39487
			4	-2.53750	1.75040	-9.69555	4.62055

* The mean difference is significant at the .05 level.

Table 46 Table showing the posthoc test results for the Anova analysis comparing the mean scores of each age groups for each construct

Appendix 6

Anova analysis and posthoc tests comparing the means of all variables for each part-time work group

Descriptives statistics for all constructs for each level of part-teme employement

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
AdminPSQ	1	25	11.5600	1.78139	0.35628	10.8247	12.2953	7.00	14.00
	2	20	9.9000	2.91818	0.65253	8.5342	11.2658	6.00	15.00
	3	12	12.2500	0.96531	0.27866	11.6367	12.8633	11.00	14.00
	4	48	10.6458	2.68558	0.38763	9.8660	11.4256	6.00	15.00
	5	29	9.3103	3.06015	0.56826	8.1463	10.4744	4.00	14.00
	Total	134	10.5597	2.69087	0.23246	10.0999	11.0195	4.00	15.00
TeachPSQ	1	25	20.0000	2.81366	0.56273	18.8386	21.1614	12.00	24.00
	2	20	16.9500	3.50150	0.78296	15.3112	18.5888	10.00	21.00
	3	12	20.6667	3.77391	1.08944	18.2688	23.0645	13.00	25.00
	4	48	19.8333	3.58088	0.51686	18.7936	20.8731	8.00	25.00
	5	29	17.5517	3.78518	0.70289	16.1119	18.9915	11.00	24.00
	Total	134	19.0149	3.69919	0.31956	18.3828	19.6470	8.00	25.00
Involvement	1	25	11.8800	2.22336	0.44467	10.9622	12.7978	7.00	15.00
	2	20	11.7000	1.38031	0.30865	11.0540	12.3460	9.00	14.00
	3	12	11.0000	4.06761	1.17422	8.4156	13.5844	4.00	15.00
	4	48	10.8542	1.79822	0.25955	10.3320	11.3763	7.00	15.00
	5	29	9.6207	2.56924	0.47710	8.6434	10.5980	4.00	14.00
	Total	134	10.9179	2.38746	0.20625	10.5100	11.3259	4.00	15.00
Satisfaction	1	25	11.6800	2.30434	0.46087	10.7288	12.6312	6.00	15.00
	2	20	11.2000	2.26181	0.50576	10.1414	12.2586	9.00	15.00
	3	12	11.3333	2.05971	0.59459	10.0247	12.6420	6.00	13.00
	4	48	10.6250	2.40235	0.34675	9.9274	11.3226	6.00	15.00
	5	29	9.5172	2.73366	0.50763	8.4774	10.5571	7.00	15.00
	Total	134	10.7313	2.49259	0.21533	10.3054	11.1573	6.00	15.00
combinedloyalty	1	25	20.8800	5.30189	1.06038	18.6915	23.0685	11.00	30.00
	2	20	20.7500	2.42520	0.54229	19.6150	21.8850	16.00	27.00
	3	12	23.1667	2.97973	0.86017	21.2734	25.0599	19.00	28.00
	4	48	20.8333	5.07113	0.73195	19.3608	22.3058	8.00	30.00
	5	29	21.0000	3.89138	0.72261	19.5198	22.4802	15.00	28.00
	Total	134	21.0746	4.40032	0.38013	20.3227	21.8265	8.00	30.00

Table 47 Descriptive statistics for all variables by level of part-time work

	Levene Statistic	df1	df2	Sig.
AdminPSQ	7.497	4	129	0.000
TeachPSQ	1.745	4	129	0.144
Involvement	9.812	4	129	0.000
Satisfaction	1.426	4	129	0.229
combinedloyalty	1.840	4	129	0.125

Table 48 Homogeneity of variance test

Post hoc tests for part-time work groups

Dependent Variable		(I) parttime	(J) parttime	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
AdminPSQ	Tukey HSD	1	2	1.66000	0.76981	0.203	-0.4699	3.7899
			3	-0.69000	0.90116	0.940	-3.1833	1.8033
			4	0.91417	0.63289	0.600	-0.8369	2.6652
			5	2.24966(*)	0.70031	0.014	0.3121	4.1872
		2	1	-1.66000	0.76981	0.203	-3.7899	0.4699
			3	-2.35000	0.93698	0.095	-4.9424	0.2424
			4	-0.74583	0.68293	0.810	-2.6353	1.1437
			5	0.58966	0.74584	0.933	-1.4739	2.6532
		3	1	0.69000	0.90116	0.940	-1.8033	3.1833
			2	2.35000	0.93698	0.095	-0.2424	4.9424
			4	1.60417	0.82818	0.303	-0.6872	3.8955
			5	2.93966(*)	0.88077	0.010	0.5028	5.3765
		4	1	-0.91417	0.63289	0.600	-2.6652	0.8369
			2	0.74583	0.68293	0.810	-1.1437	2.6353
			3	-1.60417	0.82818	0.303	-3.8955	0.6872
			5	1.33549	0.60351	0.182	-0.3343	3.0053
		5	1	-2.24966(*)	0.70031	0.014	-4.1872	-0.3121
			2	-0.58966	0.74584	0.933	-2.6532	1.4739
			3	-2.93966(*)	0.88077	0.010	-5.3765	-0.5028
			4	-1.33549	0.60351	0.182	-3.0053	0.3343
	Dunnett C	1	2	1.66000	0.74345		-0.5653	3.8853
			3	-0.69000	0.45231		-2.0720	0.6920
			4	0.91417	0.52649		-0.6056	2.4340
			5	2.24966(*)	0.67071		0.2894	4.2099
		2	1	-1.66000	0.74345		-3.8853	0.5653
			3	-2.35000(*)	0.70954		-4.5085	-0.1915
			4	-0.74583	0.75898		-2.9944	1.5028
			5	0.58966	0.86528		-1.9774	3.1567
		3	1	0.69000	0.45231		-0.6920	2.0720
			2	2.35000(*)	0.70954		0.1915	4.5085
			4	1.60417(*)	0.47740		0.1854	3.0230
			5	2.93966(*)	0.63290		1.0564	4.8229
		4	1	-0.91417	0.52649		-2.4340	0.6056
			2	0.74583	0.75898		-1.5028	2.9944
			3	-1.60417(*)	0.47740		-3.0230	-0.1854
			5	1.33549	0.68787		-0.6518	3.3228
		5	1	-2.24966(*)	0.67071		-4.2099	-0.2894
			2	-0.58966	0.86528		-3.1567	1.9774
			3	-2.93966(*)	0.63290		-4.8229	-1.0564
			4	-1.33549	0.68787		-3.3228	0.6518

TeachPSQ	Tukey HSD	1	2	3.05000(*)	1.05106	0.035	0.1420	5.9580
			3	-0.66667	1.23041	0.983	-4.0709	2.7375
			4	0.16667	0.86413	1.000	-2.2242	2.5575
			5	2.44828	0.95617	0.084	-0.1972	5.0938
		2	1	-3.05000(*)	1.05106	0.035	-5.9580	-0.1420
			3	-3.71667(*)	1.27931	0.034	-7.2562	-0.1771
			4	-2.88333(*)	0.93245	0.020	-5.4632	-0.3035
			5	-0.60172	1.01834	0.976	-3.4192	2.2158
		3	1	0.66667	1.23041	0.983	-2.7375	4.0709
			2	3.71667(*)	1.27931	0.034	0.1771	7.2562
			4	0.83333	1.13077	0.947	-2.2952	3.9619
			5	3.11494	1.20257	0.078	-0.2123	6.4421
		4	1	-0.16667	0.86413	1.000	-2.5575	2.2242
			2	2.88333(*)	0.93245	0.020	0.3035	5.4632
			3	-0.83333	1.13077	0.947	-3.9619	2.2952
			5	2.28161(*)	0.82401	0.050	0.0018	4.5614
		5	1	-2.44828	0.95617	0.084	-5.0938	0.1972
			2	0.60172	1.01834	0.976	-2.2158	3.4192
			3	-3.11494	1.20257	0.078	-6.4421	0.2123
			4	-2.28161(*)	0.82401	0.050	-4.5614	-0.0018
	Dunnett C	1	2	3.05000(*)	0.96421		0.1705	5.9295
			3	-0.66667	1.22619		-4.5578	3.2245
			4	0.16667	0.76407		-2.0460	2.3793
			5	2.44828	0.90040		-0.1865	5.0830
		2	1	-3.05000(*)	0.96421		-5.9295	-0.1705
			3	-3.71667	1.34160		-7.9518	0.5185
			4	-2.88333(*)	0.93817		-5.6560	-0.1107
			5	-0.60172	1.05218		-3.7218	2.5184
		3	1	0.66667	1.22619		-3.2245	4.5578
			2	3.71667	1.34160		-0.5185	7.9518
			4	0.83333	1.20582		-2.9783	4.6449
			5	3.11494	1.29650		-0.9558	7.1857
		4	1	-0.16667	0.76407		-2.3793	2.0460
			2	2.88333(*)	0.93817		0.1107	5.6560
			3	-0.83333	1.20582		-4.6449	2.9783
			5	2.28161	0.87246		-0.2367	4.7999
		5	1	-2.44828	0.90040		-5.0830	0.1865
			2	0.60172	1.05218		-2.5184	3.7218
			3	-3.11494	1.29650		-7.1857	0.9558
			4	-2.28161	0.87246		-4.7999	0.2367

Involvement	Tukey HSD	1	2	0.18000	0.68556	0.999	-1.7168	2.0768
			3	0.88000	0.80253	0.808	-1.3404	3.1004
			4	1.02583	0.56363	0.367	-0.5336	2.5852
			5	2.25931(*)	0.62366	0.004	0.5338	3.9848
		2	1	-0.18000	0.68556	0.999	-2.0768	1.7168
			3	0.70000	0.83443	0.918	-1.6087	3.0087
			4	0.84583	0.60819	0.635	-0.8369	2.5285
			5	2.07931(*)	0.66421	0.018	0.2416	3.9170
		3	1	-0.88000	0.80253	0.808	-3.1004	1.3404
			2	-0.70000	0.83443	0.918	-3.0087	1.6087
			4	0.14583	0.73754	1.000	-1.8947	2.1864
			5	1.37931	0.78437	0.402	-0.7909	3.5495
		4	1	-1.02583	0.56363	0.367	-2.5852	0.5336
			2	-0.84583	0.60819	0.635	-2.5285	0.8369
			3	-0.14583	0.73754	1.000	-2.1864	1.8947
			5	1.23348	0.53746	0.153	-0.2535	2.7205
		5	1	-2.25931(*)	0.62366	0.004	-3.9848	-0.5338
			2	-2.07931(*)	0.66421	0.018	-3.9170	-0.2416
			3	-1.37931	0.78437	0.402	-3.5495	0.7909
			4	-1.23348	0.53746	0.153	-2.7205	0.2535
	Dunnett C	1	2	0.18000	0.54129		-1.4254	1.7854
			3	0.88000	1.25560		-3.1353	4.8953
			4	1.02583	0.51488		-0.4767	2.5283
			5	2.25931(*)	0.65219		0.3493	4.1693
		2	1	-0.18000	0.54129		-1.7854	1.4254
			3	0.70000	1.21411		-3.2086	4.6086
			4	0.84583	0.40327		-0.3384	2.0300
			5	2.07931(*)	0.56823		0.4081	3.7505
		3	1	-0.88000	1.25560		-4.8953	3.1353
			2	-0.70000	1.21411		-4.6086	3.2086
			4	0.14583	1.20256		-3.7210	4.0127
			5	1.37931	1.26744		-2.6621	5.4207
		4	1	-1.02583	0.51488		-2.5283	0.4767
			2	-0.84583	0.40327		-2.0300	0.3384
			3	-0.14583	1.20256		-4.0127	3.7210
			5	1.23348	0.54313		-0.3394	2.8063
		5	1	-2.25931(*)	0.65219		-4.1693	-0.3493
			2	-2.07931(*)	0.56823		-3.7505	-0.4081
			3	-1.37931	1.26744		-5.4207	2.6621
			4	-1.23348	0.54313		-2.8063	0.3394
Satisfaction	Tukey HSD	1	2	0.48000	0.72423	0.964	-1.5238	2.4838
			3	0.34667	0.84781	0.994	-1.9990	2.6923
			4	1.05500	0.59542	0.394	-0.5924	2.7024
			5	2.16276(*)	0.65885	0.011	0.3399	3.9856
		2	1	-0.48000	0.72423	0.964	-2.4838	1.5238
			3	-0.13333	0.88151	1.000	-2.5722	2.3056
			4	0.57500	0.64250	0.898	-1.2026	2.3526
			5	1.68276	0.70168	0.122	-0.2586	3.6241
		3	1	-0.34667	0.84781	0.994	-2.6923	1.9990
			2	0.13333	0.88151	1.000	-2.3056	2.5722
			4	0.70833	0.77915	0.893	-1.4474	2.8640
			5	1.81609	0.82863	0.189	-0.4765	4.1087
		4	1	-1.05500	0.59542	0.394	-2.7024	0.5924
			2	-0.57500	0.64250	0.898	-2.3526	1.2026
			3	-0.70833	0.77915	0.893	-2.8640	1.4474
			5	1.10776	0.56778	0.296	-0.4631	2.6787
		5	1	-2.16276(*)	0.65885	0.011	-3.9856	-0.3399
			2	-1.68276	0.70168	0.122	-3.6241	0.2586
			3	-1.81609	0.82863	0.189	-4.1087	0.4765
			4	-1.10776	0.56778	0.296	-2.6787	0.4631
	Dunnett C	1	2	0.48000	0.68424		-1.5587	2.5187
			3	0.34667	0.75229		-2.0049	2.6983
			4	1.05500	0.57675		-0.6213	2.7313
			5	2.16276(*)	0.68563		0.1551	4.1704
		2	1	-0.48000	0.68424		-2.5187	1.5587
			3	-0.13333	0.78059		-2.5835	2.3168
			4	0.57500	0.61321		-1.2356	2.3856
			5	1.68276	0.71657		-0.4384	3.8039
		3	1	-0.34667	0.75229		-2.6983	2.0049
			2	0.13333	0.78059		-2.3168	2.5835
			4	0.70833	0.68831		-1.4482	2.8649
			5	1.81609	0.78181		-0.6066	4.2388
		4	1	-1.05500	0.57675		-2.7313	0.6213
			2	-0.57500	0.61321		-2.3856	1.2356
			3	-0.70833	0.68831		-2.8649	1.4482
			5	1.10776	0.61475		-0.6683	2.8838
		5	1	-2.16276(*)	0.68563		-4.1704	-0.1551
			2	-1.68276	0.71657		-3.8039	0.4384
			3	-1.81609	0.78181		-4.2388	0.6066
			4	-1.10776	0.61475		-2.8838	0.6683

combinedloyalty	Tukey HSD	1	2	0.13000	1.32509	1.000	-3.5362	3.7962
			3	-2.28667	1.55118	0.581	-6.5784	2.0051
			4	0.04667	1.08942	1.000	-2.9675	3.0608
			5	-0.12000	1.20545	1.000	-3.4552	3.2152
		2	1	-0.13000	1.32509	1.000	-3.7962	3.5362
			3	-2.41667	1.61284	0.565	-6.8790	2.0457
			4	-0.08333	1.17555	1.000	-3.3358	3.1691
			5	-0.25000	1.28383	1.000	-3.8020	3.3020
		3	1	2.28667	1.55118	0.581	-2.0051	6.5784
			2	2.41667	1.61284	0.565	-2.0457	6.8790
			4	2.33333	1.42557	0.477	-1.6108	6.2775
			5	2.16667	1.51609	0.610	-2.0280	6.3613
		4	1	-0.04667	1.08942	1.000	-3.0608	2.9675
			2	0.08333	1.17555	1.000	-3.1691	3.3358
			3	-2.33333	1.42557	0.477	-6.2775	1.6108
			5	-0.16667	1.03884	1.000	-3.0409	2.7075
		5	1	0.12000	1.20545	1.000	-3.2152	3.4552
			2	0.25000	1.28383	1.000	-3.3020	3.8020
			3	-2.16667	1.51609	0.610	-6.3613	2.0280
			4	0.16667	1.03884	1.000	-2.7075	3.0409
	Dunnett C	1	2	0.13000	1.19100		-3.3938	3.6538
			3	-2.28667	1.36539		-6.4652	1.8919
			4	0.04667	1.28847		-3.7037	3.7970
			5	-0.12000	1.28319		-3.8871	3.6471
		2	1	-0.13000	1.19100		-3.6538	3.3938
			3	-2.41667	1.01685		-5.6396	0.8062
			4	-0.08333	0.91095		-2.7224	2.5557
			5	-0.25000	0.90346		-2.9127	2.4127
		3	1	2.28667	1.36539		-1.8919	6.4652
			2	2.41667	1.01685		-0.8062	5.6396
			4	2.33333	1.12945		-1.1308	5.7974
			5	2.16667	1.12342		-1.3175	5.6508
		4	1	-0.04667	1.28847		-3.7970	3.7037
			2	0.08333	0.91095		-2.5557	2.7224
			3	-2.33333	1.12945		-5.7974	1.1308
			5	-0.16667	1.02855		-3.1232	2.7899
		5	1	0.12000	1.28319		-3.6471	3.8871
			2	0.25000	0.90346		-2.4127	2.9127
			3	-2.16667	1.12342		-5.6508	1.3175
			4	0.16667	1.02855		-2.7899	3.1232

*. The mean difference is significant at the .05 level.

Table 49 Table showing the posthoc test results for the Anova analysis comparing the mean scores of each age groups for each construct

Appendix 7

Baron, Kenny Test for APSQ Loyalty relationship

```
Dependent, Independent, and Proposed Mediator Variables:
DV =   combined
IV =   AdminPSQ
MEDS = Satisfac

Statistical Controls:
CONTROL= TeachPSQ
```

IV to mediator - Path a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.687(a)	.472	.464	1.81951

a Predictors: (Constant), TeachPSQ, AdminPSQ

Table 50 Model summary Path A for APSQ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	390.923	2	195.461	59.041	.000(a)
	Residual	437.003	132	3.311		
	Total	827.926	134			

a Predictors: (Constant), TeachPSQ, AdminPSQ
b Dependent Variable: Satisfaction

Table 51 Anova Path A for APSQ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.978	.923		1.059	.292
	AdminPSQ	.390	.061	.421	6.406	.000
	TeachPSQ	.296	.044	.440	6.691	.000

a Dependent Variable: Satisfaction

Table 52 Coefficients for Path A for APSQ

Direct effect of mediator on dependent variable - Path b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.568(a)	.322	.307	3.65057

a Predictors: (Constant), TeachPSQ, AdminPSQ, Satisfaction

Table 53 Model summary Path B for APSQ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	829.469	3	276.490	20.747	.000(a)
	Residual	1745.791	131	13.327		
	Total	2575.259	134			

a Predictors: (Constant), TeachPSQ, AdminPSQ, Satisfaction
b Dependent Variable: combinedloyalty

Table 54 Anova analysis Path B for APSQ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.456	1.860		5.620	.000
	Satisfaction	.927	.175	.525	5.307	.000
	AdminPSQ	.195	.140	.120	1.396	.165
	TeachPSQ	-.074	.103	-.062	-.715	.476

a Dependent Variable: combinedloyalty

Table 55 Coefficients Path B for APSQ

Total effect of Independent Variable on dependent variable - C Path

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.420(a)	.176	.164	4.00860

a Predictors: (Constant), TeachPSQ, AdminPSQ

Table 56 Model Summary Path C for APSQ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	454.169	2	227.085	14.132	.000(a)
	Residual	2121.090	132	16.069		
	Total	2575.259	134			

a Predictors: (Constant), TeachPSQ, AdminPSQ
b Dependent Variable: combinedloyalty

Table 57 Anova analysis Path C for APSQ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.362	2.034		5.585	.000
	AdminPSQ	.557	.134	.341	4.151	.000
	TeachPSQ	.201	.098	.169	2.061	.041

a Dependent Variable: combinedloyalty

Table 58 Coefficients Path C for APSQ

Direct Effect of Independent variable on dependent variable - C' path

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.568(a)	.322	.307	3.65057

a Predictors: (Constant), Satisfaction, AdminPSQ, TeachPSQ

Table 59 Model Summary Path C' for APSQ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	829.469	3	276.490	20.747	.000(a)
	Residual	1745.791	131	13.327		
	Total	2575.259	134			

a Predictors: (Constant), Satisfaction, AdminPSQ, TeachPSQ
b Dependent Variable: combinedloyalty

Table 60 Anova Path C' for APSQ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.456	1.860		5.620	.000
	AdminPSQ	.195	.140	.120	1.396	.165
	TeachPSQ	-.074	.103	-.062	-.715	.476
	Satisfaction	.927	.175	.525	5.307	.000

a Dependent Variable: combinedloyalty

Table 61 Coefficients Path C' for APSQ

Appendix 8

Baron, Kenny Test for APSQ Loyalty relationship for the low APSQ group

Model	Variables Entered	Variables Removed	Method
1	TeachPSQ, AdminPSQ(a)	.	Enter

a All requested variables entered.
b Dependent Variable: Satisfaction
c Models are based only on cases for which adminrecode2 = 1.00

IV to Mediator Path a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	adminrecode2 = 1.00 (Selected)			
1	.596[a]	.355	.343	1.90905

a. Predictors: (Constant), TeachPSQ, AdminPSQ

Table 62 Model Summary Path A for low APSQ group

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	218.815	2	109.408	30.020	.000(a)
	Residual	397.247	109	3.644		
	Total	616.063	111			

a Predictors: (Constant), TeachPSQ, AdminPSQ
b Dependent Variable: Satisfaction
c Selecting only cases for which adminrecode2 = 1.00

Table 63 Anova Path A for low APSQ group

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.347	1.201		1.122	.265
	AdminPSQ	.397	.075	.410	5.273	.000
	TeachPSQ	.272	.056	.375	4.825	.000

a Dependent Variable: Satisfaction
b Selecting only cases for which adminrecode2 = 1.00

Table 64 Coefficients for Path A for low APSQ group

Direct Effects of Mediator on Dependent variable (b path)

Model	R adminrecode2 = 1.00 (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.481[a]	.232	.210	3.60039

a. Predictors: (Constant), TeachPSQ, AdminPSQ, Satisfaction

Table 65 Model summary for Path b for low APSQ group

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	422.505	3	140.835	10.865	.000(a)
	Residual	1399.986	108	12.963		
	Total	1822.491	111			

a Predictors: (Constant), TeachPSQ, AdminPSQ, Satisfaction
b Dependent Variable: combinedloyalty
c Selecting only cases for which adminrecode2 = 1.00

Table 66 Anova for Path b for low APSQ group

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	14.867	2.279		6.524	.000
	Satisfaction	.852	.181	.496	4.719	.000
	AdminPSQ	.114	.159	.068	.716	.476
	TeachPSQ	-.238	.117	-.191	-2.033	.044

a Dependent Variable: combinedloyalty
b Selecting only cases for which adminrecode2 = 1.00

Table 67 Coefficients for Path b for low APSQ group

Total Effect of Independent variable on Dependent variable (c path)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	adminrecode2 = 1.00 (Selected)			
1	.271[a]	.073	.056	3.93603

a. Predictors: (Constant), TeachPSQ, AdminPSQ

Table 68 Model summary for Path c for low APSQ group

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	133.824	2	66.912	4.319	.016(a)
	Residual	1688.667	109	15.492		
	Total	1822.491	111			

a Predictors: (Constant), TeachPSQ, AdminPSQ
b Dependent Variable: combinedloyalty
c Selecting only cases for which adminrecode2 = 1.00

Table 69 Anova for Path c for low APSQ group

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	16.016	2.477		6.466	.000
	AdminPSQ	.453	.155	.272	2.914	.004
	TeachPSQ	-.006	.116	-.005	-.054	.957

a Dependent Variable: combinedloyalty
b Selecting only cases for which adminrecode2 = 1.00

Table 70 Coefficients for Path c for low APSQ group

Direct Effect of Independent variable on Dependent variable (c-prime path)

Model	R adminrecode2 = 1.00 (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.481[a]	.232	.210	3.60039

a. Predictors: (Constant), TeachPSQ, AdminPSQ, Satisfaction

Table 71 Model summary for Path c' for low APSQ group

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	422.505	3	140.835	10.865	.000(a)
	Residual	1399.986	108	12.963		
	Total	1822.491	111			

a Predictors: (Constant), TeachPSQ, AdminPSQ, Satisfaction
b Dependent Variable: combinedloyalty
c Selecting only cases for which adminrecode2 = 1.00

Table 72 Anova for Path c' for low APSQ group

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	14.867	2.279		6.524	.000
	Satisfaction	.852	.181	.496	4.719	.000
	AdminPSQ	.114	.159	.068	.716	.476
	TeachPSQ	-.238	.117	-.191	-2.033	.044

a Dependent Variable: combinedloyalty
b Selecting only cases for which adminrecode2 = 1.00

Table 73 Coeffients for Path c' for low APSQ group

Appendix 9

Baron, Kenny Test for TPSQ Loyalty relationship

```
Dependent, Independent, and Proposed Mediator Variables:
DV =   combined
IV =   TeachPSQ
MEDS = Satisfac

Statistical Controls:
CONTROL= AdminPSQ
```

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.687[a]	.472	.464	1.81951

a. Predictors: (Constant), AdminPSQ, TeachPSQ

Table 74 Model summary for Path a for TPSQ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	390.923	2	195.461	59.041	.000(a)
	Residual	437.003	132	3.311		
	Total	827.926	134			

a Predictors: (Constant), AdminPSQ, TeachPSQ
b Dependent Variable: Satisfaction

Table 75 Anova for Path a for TPSQ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.978	.923		1.059	.292
	TeachPSQ	.296	.044	.440	6.691	.000
	AdminPSQ	.390	.061	.421	6.406	.000

a Dependent Variable: Satisfaction

Table 76 Coefficients for Path a for TPSQ

Direct Effects of Mediators on Dependent Variable (b paths)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.568(a)	.322	.307	3.65057

a Predictors: (Constant), AdminPSQ, TeachPSQ, Satisfaction

Table 77 Model summary for Path b for TPSQ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	829.469	3	276.490	20.747	.000(a)
	Residual	1745.791	131	13.327		
	Total	2575.259	134			

a Predictors: (Constant), AdminPSQ, TeachPSQ, Satisfaction
b Dependent Variable: combinedloyalty

Table 78 Anova for Path b for TPSQ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.456	1.860		5.620	.000
	Satisfaction	.927	.175	.525	5.307	.000
	TeachPSQ	-.074	.103	-.062	-.715	.476
	AdminPSQ	.195	.140	.120	1.396	.165

a Dependent Variable: combinedloyalty

Table 79 Coefficients for Path b for TPSQ

Total Effect of Independent variable on Dependent Variable (c path)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.420(a)	.176	.164	4.00860

a Predictors: (Constant), AdminPSQ, TeachPSQ

Table 80 Model summary Path c for TPSQ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	454.169	2	227.085	14.132	.000(a)
	Residual	2121.090	132	16.069		
	Total	2575.259	134			

a Predictors: (Constant), AdminPSQ, TeachPSQ
b Dependent Variable: combinedloyalty

Table 81 Anova Path c for TPSQ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	11.362	2.034		5.585	.000
	TeachPSQ	.201	.098	.169	2.061	.041
	AdminPSQ	.557	.134	.341	4.151	.000

a Dependent Variable: combinedloyalty

Table 82 Coefficient Path c for TPSQ

Direct Effect of IV on DV (c-prime path)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.568[a]	.322	.307	3.65057

a. Predictors: (Constant), AdminPSQ, TeachPSQ, Satisfaction

Table 83 Model summary Path c' for TPSQ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	829.469	3	276.490	20.747	.000(a)
	Residual	1745.791	131	13.327		
	Total	2575.259	134			

a Predictors: (Constant), AdminPSQ, TeachPSQ, Satisfaction
b Dependent Variable: combinedloyalty

Table 84 Anova Path c' for TPSQ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.456	1.860		5.620	.000
	Satisfaction	.927	.175	.525	5.307	.000
	TeachPSQ	-.074	.103	-.062	-.715	.476
	AdminPSQ	.195	.140	.120	1.396	.165

a Dependent Variable: combinedloyalty

Table 85 Coefficients Path c' for TPSQ

Appendix 10

Baron, Kenny Test for TPSQ Loyalty relationship for those with high TPSQ

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	teachrec3 = 2.00 (Selected)			
1	.739[a]	.546	.524	1.86442

a. Predictors: (Constant), AdminPSQ, TeachPSQ

Table 86 Model Summary Path a for high TPSQ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	175.650	2	87.825	25.266	.000(a)
	Residual	145.994	42	3.476		
	Total	321.644	44			

a Predictors: (Constant), AdminPSQ, TeachPSQ
b Dependent Variable: Satisfaction
c Selecting only cases for which teachrec3 = 2.00

Table 87 Anova Path a for high TPSQ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.398	4.199		-1.048	.301
	TeachPSQ	.376	.210	.213	1.793	.080
	AdminPSQ	.666	.129	.612	5.149	.000

a Dependent Variable: Satisfaction
b Selecting only cases for which teachrec3 = 2.00

Table 88 Coefficients Path a for high TPSQ

Direct Effects of Mediators on Dependent Variable (b paths)

Model	R teachrec3 = 2.00 (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.893[a]	.798	.783	2.80332

a. Predictors: (Constant), AdminPSQ, TeachPSQ, Satisfaction

Table 89 Model Summary Path b for high TPSQ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1271.042	3	423.681	53.913	.000(a)
	Residual	322.202	41	7.859		
	Total	1593.244	44			

a Predictors: (Constant), AdminPSQ, TeachPSQ, Satisfaction
b Dependent Variable: combinedloyalty
c Selecting only cases for which teachrec3 = 2.00

Table 90 Anova Path b for high TPSQ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-9.987	6.395		-1.562	.126
	Satisfaction	1.599	.232	.718	6.891	.000
	TeachPSQ	.391	.327	.100	1.195	.239
	AdminPSQ	.377	.249	.156	1.517	.137

a Dependent Variable: combinedloyalty
b Selecting only cases for which teachrec3 = 2.00

Table 91 Coefficients Path b for high TPSQ

Total Effect of Independent variable on Dependent Variable (c path)

Model	R teachrec3 = 2.00 (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.751[a]	.564	.543	4.06887

a. Predictors: (Constant), AdminPSQ, TeachPSQ

Table 92 Model Summary Path c for high TPSQ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	897.905	2	448.952	27.118	.000(a)
	Residual	695.340	42	16.556		
	Total	1593.244	44			

a Predictors: (Constant), AdminPSQ, TeachPSQ
b Dependent Variable: combinedloyalty
c Selecting only cases for which teachrec3 = 2.00

Table 93 Anova Path c for high TPSQ

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-17.019	9.163		-1.857	.070
	TeachPSQ	.993	.458	.253	2.168	.036
	AdminPSQ	1.442	.282	.595	5.107	.000

a Dependent Variable: combinedloyalty
b Selecting only cases for which teachrec3 = 2.00

Table 94 Coefficients Path c for high TPSQ

Direct Effect of IV on DV (c-prime path)

Model	R teachrec3 = 2.00 (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.893[a]	.798	.783	2.80332

a. Predictors: (Constant), AdminPSQ, TeachPSQ, Satisfaction

Table 95 Model summary Path c' for high TPSQ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1271.042	3	423.681	53.913	.000(a)
	Residual	322.202	41	7.859		
	Total	1593.244	44			

a Predictors: (Constant), AdminPSQ, TeachPSQ, Satisfaction
b Dependent Variable: combinedloyalty
c Selecting only cases for which teachrec3 = 2.00

Table 96 Anova Path c' for high TPSQ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-9.987	6.395		-1.562	.126
	Satisfaction	1.599	.232	.718	6.891	.000
	TeachPSQ	.391	.327	.100	1.195	.239
	AdminPSQ	.377	.249	.156	1.517	.137

a Dependent Variable: combinedloyalty
b Selecting only cases for which teachrec3 = 2.00

Table 97 Coefficients Path c' for high TPSQ

Appendix 11

Regression model full sample

Regression model of IV to mediator relationship for the full sample

Model	Variables Entered	Variables Removed	Method
1	AdminPSQ, TeachPSQ(a)	.	Enter

a All requested variables entered.
b Dependent Variable: Satisfaction

Table 98 Variables entered and removed IV to mediator model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.687(a)	.472	.464	1.81951

a Predictors: (Constant), AdminPSQ, TeachPSQ
b Dependent Variable: Satisfaction

Table 99 Model summary IV to mediator model

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	390.923	2	195.461	59.041	.000(a)
	Residual	437.003	132	3.311		
	Total	827.926	134			

a Predictors: (Constant), AdminPSQ, TeachPSQ
b Dependent Variable: Satisfaction

Table 100 Anova IV to mediator model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.978	.923		1.059	.292
	TeachPSQ	.296	.044	.440	6.691	.000
	AdminPSQ	.390	.061	.421	6.406	.000

a Dependent Variable: Satisfaction

Table 101 Coefficients IV to mediator model

Regression model of mediator to dependent variable relationship for the full sample

Variables Entered/Removed(a)

Model	Variables Entered	Variables Removed	Method
1	Satisfaction	.	Forward (Criterion: Probability -of-F-to-enter <= .050)

a Dependent Variable: combinedloyalty

Table 102 Variables entered and removed mediator to DV model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.556(a)	.309	.304	3.65801

a Predictors: (Constant), Satisfaction
b Dependent Variable: combinedloyalty

Table 103 Model summary mediator to DV model

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	795.581	1	795.581	59.456	.000(a)
	Residual	1779.678	133	13.381		
	Total	2575.259	134			

a Predictors: (Constant), Satisfaction
b Dependent Variable: combinedloyalty

Table 104 Anova mediator to DV model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.545	1.401		7.525	.000
	Satisfaction	.980	.127	.556	7.711	.000

a Dependent Variable: combinedloyalty

Table 105 Coefficients mediator to DV model

Appendix 12

Regression model low APSQ group

Regression model of IV to mediator relationship for the low APSQ group

Model	Variables Entered	Variables Removed	Method
1	AdminPSQ, TeachPSQ(a)	.	Enter

a All requested variables entered.
b Dependent Variable: Satisfaction
c Models are based only on cases for which adminrecode2 = 1.00

Table 106 Variables entered / removed IV to mediator relationship for the low APSQ group

Model	R adminrecode2 = 1.00 (Selected)	R adminrecode2 ~= 1.00 (Unselected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.596(a)	.765	.355	.343	1.90905

a Predictors: (Constant), AdminPSQ, TeachPSQ
b Unless noted otherwise, statistics are based only on cases for which adminrecode2 = 1.00.
c Dependent Variable: Satisfaction

Table 107 Model summary IV to mediator relationship for the low APSQ group

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	218.815	2	109.408	30.020	.000(a)
	Residual	397.247	109	3.644		
	Total	616.063	111			

a Predictors: (Constant), AdminPSQ, TeachPSQ
b Dependent Variable: Satisfaction
c Selecting only cases for which adminrecode2 = 1.00

Table 108 Anova IV to mediator relationship for the low APSQ group

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.347	1.201		1.122	.265
	TeachPSQ	.272	.056	.375	4.825	.000
	AdminPSQ	.397	.075	.410	5.273	.000

a Dependent Variable: Satisfaction
b Selecting only cases for which adminrecode2 = 1.00

Table 109 Coefficients IV to mediator relationship for the low APSQ group

Regression model of mediator to dependent variable relationship for the low APSQ group

Model	Variables Entered	Variables Removed	Method
1	Satisfaction	.	Forward (Criterion: Probability-of-F-to-enter <= .050)
2	TeachPSQ	.	Forward (Criterion: Probability-of-F-to-enter <= .050)

a Dependent Variable: combinedloyalty
b Models are based only on cases for which adminrecode2 = 1.00

Table 110 Variables entered / removed mediator to DV relationship for the low APSQ group

Model	R		R Square	Adjusted R Square	Std. Error of the Estimate
	adminrecode2 = 1.00 (Selected)	adminrecode2 ~= 1.00 (Unselected)			
1	.444(a)		.197	.190	3.64700
2	.478(b)	.569	.228	.214	3.59233

a Predictors: (Constant), Satisfaction
b Predictors: (Constant), Satisfaction, TeachPSQ
c Unless noted otherwise, statistics are based only on cases for which adminrecode2 = 1.00.
d Dependent Variable: combinedloyalty

Table 111 Model summary mediator to DV relationship for the low APSQ group

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	359.426	1	359.426	27.023	.000(a)
	Residual	1463.065	110	13.301		
	Total	1822.491	111			
2	Regression	415.863	2	207.932	16.113	.000(b)
	Residual	1406.628	109	12.905		
	Total	1822.491	111			

a Predictors: (Constant), Satisfaction
b Predictors: (Constant), Satisfaction, TeachPSQ
c Dependent Variable: combinedloyalty
d Selecting only cases for which adminrecode2 = 1.00

Table 112 Anova mediator to DV relationship for the low APSQ group

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.507	1.554		8.049	.000
	Satisfaction	.764	.147	.444	5.198	.000
2	(Constant)	15.500	2.096		7.397	.000
	Satisfaction	.911	.161	.530	5.661	.000
	TeachPSQ	-.244	.117	-.196	-2.091	.039

a Dependent Variable: combinedloyalty
b Selecting only cases for which adminrecode2 = 1.00

Table 113 Coefficients mediator to DV relationship for the low APSQ group

Appendix 13

Regression model high APSQ group

Regression model of IV to mediator relationship for the high APSQ group

Model	Variables Entered	Variables Removed	Method
1	TeachPSQ, AdminPSQ(a)	.	Enter

a All requested variables entered.
b Dependent Variable: Satisfaction
c Models are based only on cases for which adminrecode2 = 2.00

Table 114 Variables entered / removed IV to mediator relationship for the high APSQ group

Model	R		R Square	Adjusted R Square	Std. Error of the Estimate
	adminrecode2 = 2.00 (Selected)	adminrecode2 ~= 2.00 (Unselected)			
1	.768(a)	.587	.590	.549	1.36757

a Predictors: (Constant), TeachPSQ, AdminPSQ
b Unless noted otherwise, statistics are based only on cases for which adminrecode2 = 2.00.
c Dependent Variable: Satisfaction

Table 115 model summary IV to mediator relationship for the high APSQ group

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53.899	2	26.950	14.410	.000(a)
	Residual	37.405	20	1.870		
	Total	91.304	22			

a Predictors: (Constant), TeachPSQ, AdminPSQ
b Dependent Variable: Satisfaction
c Selecting only cases for which adminrecode2 = 2.00

Table 116 Anova IV to mediator relationship for the high APSQ group

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.279	5.429		.051	.960
	AdminPSQ	.347	.357	.142	.971	.343
	TeachPSQ	.356	.066	.785	5.367	.000

a Dependent Variable: Satisfaction
b Selecting only cases for which adminrecode2 = 2.00

Table 117 Coefficients IV to mediator relationship for the high APSQ group

Regression model of mediator dependent variable relationship for the high APSQ group

Model	Variables Entered	Variables Removed	Method
1	Satisfaction	.	Forward (Criterion: Probability -of-F-to-enter <= .050)

a Dependent Variable: combinedloyalty
b Models are based only on cases for which adminrecode2 = 2.00

Table 118 Variables entered / removed mediator to DV relationship for the high APSQ group

Model	R		R Square	Adjusted R Square	Std. Error of the Estimate
	adminrecode2 = 2.00 (Selected)	adminrecode2 ~= 2.00 (Unselected)			
1	.732(a)	.444	.536	.514	3.11541

a Predictors: (Constant), Satisfaction
b Unless noted otherwise, statistics are based only on cases for which adminrecode2 = 2.00.
c Dependent Variable: combinedloyalty

Table 119 Model summary mediator to DV relationship for the high APSQ group

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	235.831	1	235.831	24.298	.000(a)
	Residual	203.821	21	9.706		
	Total	439.652	22			

a Predictors: (Constant), Satisfaction
b Dependent Variable: combinedloyalty
c Selecting only cases for which adminrecode2 = 2.00

Table 120 Anova ediator to DV relationship for the high APSQ group

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.821	4.232		.903	.377
	Satisfaction	1.607	.326	.732	4.929	.000

a Dependent Variable: combinedloyalty
b Selecting only cases for which adminrecode2 = 2.00

Table 121 Coefficients mediator to DV relationship for the high APSQ group

Appendix 14

Regression analysis All, high, low TPSQ to satisfaction

Regression analysis of low TPSQ group on satisfaction

Model	Variables Entered	Variables Removed	Method
1	AdminPSQ, TeachPSQ(a)	.	Enter

a All requested variables entered.
b Dependent Variable: Satisfaction
c Models are based only on cases for which teachrec3 = 1.00

Table 122 Variables entered removed for the low TPSQ satisfaction relationship

Model	R teachrec3 = 1.00 (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.625[a]	.391	.377	1.70203

a. Predictors: (Constant), AdminPSQ, TeachPSQ

Table 123 Model summary for the low TPSQ satisfaction relationship regression model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	161.790	2	80.895	27.925	.000(a)
	Residual	252.032	87	2.897		
	Total	413.822	89			

a Predictors: (Constant), AdminPSQ, TeachPSQ
b Dependent Variable: Satisfaction
c Selecting only cases for which teachrec3 = 1.00

Table 124 Anova analysis for the low TPSQ satisfaction relationship regression model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.254	1.205		1.041	.301
	TeachPSQ	.343	.056	.515	6.153	.000
	AdminPSQ	.298	.070	.356	4.256	.000

a Dependent Variable: Satisfaction
b Selecting only cases for which teachrec3 = 1.00

Table 125 Coefficients for the low TPSQ satisfaction relationship regression model

Regression analysis of high TPSQ group on satisfaction

Model	Variables Entered	Variables Removed	Method
1	AdminPSQ, TeachPSQ(a)	.	Enter

a All requested variables entered.
b Dependent Variable: Satisfaction
c Models are based only on cases for which teachrec3 = 2.00

Table 126 Variables entered removed for the high TPSQ satisfaction relationship

Model	R teachrec3 = 2.00 (Selected)	R Square	Adjusted R Square	Std. Error of the Estimate
1	.739[a]	.546	.524	1.86442

a. Predictors: (Constant), AdminPSQ, TeachPSQ

Table 127 Model summary enered removed for the high TPSQ satisfaction relationship

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	175.650	2	87.825	25.266	.000(a)
	Residual	145.994	42	3.476		
	Total	321.644	44			

a Predictors: (Constant), AdminPSQ, TeachPSQ
b Dependent Variable: Satisfaction
c Selecting only cases for which teachrec3 = 2.00

Table 128 Anova analysis for the high TPSQ satisfaction relationship regression model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.398	4.199		-1.048	.301
	TeachPSQ	.376	.210	.213	1.793	.080
	AdminPSQ	.666	.129	.612	5.149	.000

a Dependent Variable: Satisfaction
b Selecting only cases for which teachrec3 = 2.00

Table 129 Coefficients for the high TPSQ satisfaction relationship

Regression analysis of TPSQ on satisfaction

Model	Variables Entered	Variables Removed	Method
1	AdminPSQ, TeachPSQ(a)	.	Enter

a All requested variables entered.
b Dependent Variable: Satisfaction

Table 130 Variables entered removed for the TPSQ satisfaction relationship

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.687(a)	.472	.464	1.81951

a Predictors: (Constant), AdminPSQ, TeachPSQ

Table 131 Model summary for the TPSQ satisfaction relationship

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	390.923	2	195.461	59.041	.000(a)
	Residual	437.003	132	3.311		
	Total	827.926	134			

a Predictors: (Constant), AdminPSQ, TeachPSQ
b Dependent Variable: Satisfaction

Table 132 Anova analysis for the TPSQ satisfaction relationship

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.978	.923		1.059	.292
	TeachPSQ	.296	.044	.440	6.691	.000
	AdminPSQ	.390	.061	.421	6.406	.000

a Dependent Variable: Satisfaction

Table 133 Coefficients for the TPSQ satisfaction relationship

Appendix 15

University of Leicester

Electronic AGC FORM (PROPOSAL)

SECTION 1: STUDENT TO COMPLETE		
NAME: Richard Faint	**I.D. No:**	**ENROLMENT/START DATE (07/08):**

PROGRAMME:	MODULE:	LOCAL RESOURCE CENTRE Leicester
MBA distance Learning	**THE PROPOSAL**	

STUDENT DECLARATION: In submitting work to the University you are agreeing to the following statement:

"I declare that this assignment is my own work, that all sources of reference are acknowledged in full and that it has not been submitted for any other course".

SECTION 2: TUTOR'S COMMENTS	
Ability to construct a project with clear, coherent and well defended research questions/ objectives	The objectives of the proposal and a set of research questions are stated with an expressed rationale. It's pleasing that the academic focus of the study is communicated clearly.
Discussion of the relation between your proposed research and previous research	Relevant literature field is identified successfully and key discussions in the field are presented reasonably well. The relation between research objectives and the literature is established.
Discussion and justification of proposed methods	Data collection and analysis methods are explained in details. It's good that you're aware of the limitations of the chosen methods. These methods are likely to satisfy research objectives. In your dissertation you'll need to discuss research methodology and justify the approach taken.

Overall Comments:

This is a well thought-out and presented piece of work. It's clear that significant effort and time has been put into the proposal. Its presentation and structure is clear and easy to follow. The boundaries of the study are identified, and a certain level of awareness is presented on the limitations of the chosen research techniques. In terms of the enclosed survey, operationalisation of the quality of admin. services and student loyalty is fine. But I think there is scope to improve how to measure the quality of educational services and student satisfaction. Also, all constructs that the research aims to investigate should be included in data collection instrument. Can you check whether 'student involvement' is included in your survey?

Second Marker Additional Comments (*Optional*):

It is unclear at the moment how you are operationalising 'loyalty' – is the concern with retention or loyalty (or both)? Are you focusing on life long learning and the role of loyalty with this or membership of one programme during a prescribed period? The approach taken does seem to suggest that the assumptions of the market are being replicated in education however HE does retain some distinguishing factors/moderators of the market exchange which you should perhaps discuss? The idea of co-production is interesting in the context of ideals of independent learners – might the idea of co-production in education be problematic for some students that want to be treated as though they were passive consumers of education? Could this resistance to independent learning be entwined with perceptions of service quality? This is a fascinating area of study and I wish you luck with your study and encourage you to try to question the relevance/limitations of these models to the educational sector. I don't wish to extend your study any further than it already is but do give some thought about the relationship between loyalty, co-production and an individual's identity. The student that had a poor perception of the course pre-graduation can suddenly change their attitudes once they are a graduate of that university …

SECTION 3: TUTOR'S COMMENTS - Ethical Review Process:	
Ethics Approval Decision Route: ***(Delete as appropriate)***	1. Automatic]
Does this Project have Ethics Approval? ***(Delete as appropriate)***	Comment: 1. Yes

Tutor marking this assignment	**Date of marking**	**Mark Awarded**	**Grade Awarded**
DR N DALZIEL DR M HIGGINS	08/04/09 01/05/09	65	B

Section 1: The Proposal Template

Your Name, Programme of Study, Student Number, Centre & Intake.

Richard Faint, MBA Distance Learning, Open

Please identify any University of Leicester Tutors with whom you have discussed your proposal and the forum you used (e.g. workshops/Blackboard)

Initially I discussed my dissertation topic with Dr Deborah Price via the blackboard however due to the subject matter it was necessary to move the discussion to the blackboard run by Dr Nurdilek Dalzial. I have subsequently discussed the topic with Dr Dalzial in person, on the phone and on the blackboard.

Title (max. 15 words)

The antecedents of student loyalty

Abstract (max. 200 words)

The reduction in government funding, increased competition and the introduction of student fees (http://news.bbc.co.uk/1/hi/education/4303350.stm) has led to Universities focussing on improving student loyalty as loyal students provide a regular stream of income, are less costly to retain than recruiting new students and positively contribute to teaching quality via 'active participation and committed behaviour' (Hennig-Thurau, Langer, Hanson 2001:332) additionally loyal students have been posited as more likely to assist in the future financially, by recruiting students or by positive word of mouth. The proposed exploratory study utilises quantitative methods to study student loyalty which has 'several conceptual differences' (Hennig-Thurau, Langer, Hanson 2001:332) from loyalty in the commercial environment. The study will focus on the key role of the student as co-producer of the service and how this interacts with other antecedents and in doing so will identify the relative strengths and types of relationships between the independent variables and the dependent variable of student loyalty. It will therefore help to identify how universities should concentrate resources in order to improve the loyalty of their students.

Introduction (approx. 200 words)

The aim of the proposed paper is to conduct exploratory research into the antecedents of student loyalty which is modelled as a multi-dimensional construct including measures of psychological and behavioural loyalty. To achieve this it will answer the central question of:-

What are the antecedents of student loyalty?

The proposed paper will answer the following sub questions:-

What effect does service quality have on student loyalty?

What effect does satisfaction have on student loyalty?

What effect does student involvement have on student loyalty?

My involvement in Higher Education means this question is interesting for personal and practical reasons as understanding the loyalty process will assist me, and others to make sense of the world (Simon, Vosseberg, Levett 2001:10) and by making tentative recommendations on how to efficiently utilise resources to maximise loyalty the paper may help my job performance. Academically the paper makes an 'original contribution' (Simon, Vosseberg, Levett 2001:13) to knowledge as unlike most of the literature it is based on a UK University,

and the sample will not focus exclusively on business students. Additionally it will combine the study of service quality, 'cumulative satisfaction' (Magi, Julander 1996:34), loyalty and student involvement, a combination which has not been previously researched.

Relation to previous research (approx. 400 words)

Loyalty was initially defined as a continuing willingness to purchase (Gupta, Zeithaml 2006:7), however this behavioural definition is simplistic as exit barriers, and convenience give a false impression (Gupta, Zeithaml 2006:7), the proposed paper models loyalty as having 'cognitive, affective, conative and behavioural' (Chao, Fu, Lu 2007:474) components. There is 'no generally accepted...model of...student loyalty' (Hennig-Thurau, Langer, Hanson 2001:333), and most research is non UK based therefore this study is valuable as it develops a UK model which draws on the service quality, satisfaction, and loyalty literatures. A significant number of studies have argued that service quality is an important antecedent of loyalty; however debate exists over whether satisfaction is a result (Cronin, Taylor 1992) or cause of service quality (Bolton, Drew 1991), this study models satisfaction as a result. Due to educations 'intangibility' (Lovelock, Gummesson 2004:20) its quality can only be 'measured by customer perceptions' (Rust, Chung 2006:570), this has led to loyalty research being mainly quantitative and realist in nature. Loyalty research can be separated into studies following the SERVQUAL methodology (Parasuraman, Zeithaml, Berry, 1988), research which only utilises the perception part of SERVQUAL (Cronin, Taylor 1992) and research that does not utilise SERVQUAL (Hennig-Thurau, Langer, Hanson 2001). SERVQUAL has been used to assess loyalty in a number of industries; it is based on Oliver's disconfirmation paradigm and compares expectations and perceptions of service quality across five dimensions (Lee, Lee, Yoo 2000:218). The proposed paper does not take a SERVQUAL approach as its dimensions are not

universally applicable (Lee, Lee, Yoo 2000:218), because it is possible to interpret the expectations part of the survey in multiple ways (Teas 1993) and because expectations are collected post event and therefore suffer from 'faulty' (Sapford 2007:82) recollections and 'self justification' (Sapford 2007:82). This study takes the third approach measuring perceptions of service quality across three operational areas identified in the literature 'education services, administrative services and facilities' (Yu,Kim 2008:8), it proposes that quality is an antecedent of loyalty through satisfaction which is modelled using a single item scale (Cronin, Taylor 1992, Magi, Julander 1996). In modelling loyalty the context of the service must be considered, university involves more than education therefore this paper will model social aspects (Kane, Williams, Carpuccini-Arnsfield 2008:139), additionally as students have 'the main function for the implementation of the...education service' (Zhang, Han, Gao 2008:47) this paper models student involvement, and their involvement with non university activities as their effort as co-producer of the service could affect service quality and hence potentially loyalty.

Proposed methods (approx. 400 words)

The proposed paper uses a questionnaire to investigate the relationships between independent variables identified from the literature and the dependent variable of student loyalty 'deductively' (Fisher 2007:322). It is recognised that survey research cannot capture the full richness of a situation as it must simplify situations into an 'index number' (Fisher 2007:43) such as the seven point Likert scale that this study will use in order to 'increase the ability to capture variance' (Magi, Julander 1996:37), furthermore by preselecting variables the paper may be reinforcing existing preconceptions by excluding antecedents (Sapford 2007:35). Cost, time (Sapford 2007:8) and access difficulties mean that the survey will be issued to a sample of students using non probability sampling (Sapford 2007:86). The method utilised will be 'snowball sampling' (http://www.statpac.com/surveys/sampling.htm) which relies on initial subjects to generate further subjects by referrals (http://www.statpac.com/surveys/sampling.htm).This method introduces sample bias as referrals are likely to be within a social grouping which may not be representative of the population, however as this is exploratory further research can test findings using random sampling. The study will use perceptions rather than the gap model (expectations – perceptions) to assess service quality as perceptions have been shown to be better predictors of satisfaction (Cronin, Taylor 1994). The literature identifies a large number of antecedents for loyalty, however to restrict survey size, to reduce time commitment and to encourage students to complete the survey this paper will use only the most 'pertinent constructs' (Kotze, Plessis 2003:198) from the literature. The survey will be piloted with a convenience sample of students to check comprehension and survey length. Once feedback from the pilot has been incorporated the survey will be issued. Previous studies of student loyalty have used samples up to 1162 usable returns (Hennig-Thurau, Langer, Hanson 2001), this study will gather at least 15 usable returns for each independent variable (Field 2003:121) therefore once results have been returned from 105 students the results will be analysed and the model tested using SPSS.

Firstly exploratory factor analysis will be used to identify and remove any questions that do not measure the correct construct (Field 2003:423) and internal reliability of the constructs will be tested using Cronbach alpha (Fisher 2007:197). To answer the question stepwise multiple regression will be utilised to calculate the predictive ability of the model with the 'known predictors' (Field 2003:109) from the literature being entered first and new predictors being entered in a 'stepwise fashion' (Field 2003:109) therefore allowing an assessment of whether they improve the 'fit of the model' (Field 2003:109). The stepwise regression analysis will show, for the sample, the importance of each independent variable to the dependent variable and hence answer the question 'what are the antecedents of student loyalty'.

Reflections (approx. 500 words).

Practical and empirical obstacles

Timescales mean problems of access and poor or slow response to questionnaires could raise questions about the viability and validity of this study. Response rates to questionnaires tend to be poor and this could cause validity problems as responders may be different to non responders. To reduce non response bias and to encourage quick response the questionnaire will be short reducing effort of completion, additionally through the piloting of the survey confusing questions will be rewritten therefore reducing non completion probability. Furthermore transcription time will be reduced by utilising the internet to distribute and complete the survey further reducing the time taken to complete the paper.

Conceptual and theoretical obstacles

University is transformational with freshers being different from graduates, this means that antecedents of loyalty may evolve throughout a student's life (Hennig-Thurau, Langer, Hanson 2001:332) and therefore a longitudinal method is more appropriate. However due to time constraints this exploratory paper will only assess students within their first year of starting University.

A multitude of potential antecedents have been researched, however 'overlaps exists in definition and measurement of constructs' (Gupta, Zeithaml 2006:30) therefore it is important to select constructs which do not overlap. Furthermore, including all antecedents would reduce response rates by making the questionnaire too long, the proposed paper opts for 'model parsimony including (only) the most pertinent constructs' (Kotze, Plessis 2003:198) identified from the literature.

Ethical issues

Ethical problems are separated into those related to the question's nature and those related to the methods used (Fisher 2007:63). As no harmful or painful data is being collected (Sapford 2007:40) and the research will not be used to harm respondents (Fisher 2007:70) no ethical problems are raised by the question. However, ethical problems could exist with the methods

used to collect the data and there is a danger of treating people 'like objects' (Sapford 2007:42) therefore the questionnaire's introduction will explain the research's purpose and explain why respondents have been selected therefore allowing 'informed consent' (Fisher 2007:68) to be given, additionally it will explain that the research is voluntary and that data will be confidential and anonymous thus avoiding pressurising people into responding[28]. Once the research has been completed respondents will be offered a copy of the paper however due to anonymity they will have to request this from the author.

My position as a researcher in a political field

I am involved in higher education therefore a danger exists that students may respond due to my power and may try to give answers which they interpret as being preferred, in order to reduce these problems the research will be undertaken at a different university.

As I am involved in HE my 'professional presuppositions and socialisation' (Sapford 2007:42) could heavily influence the research. To protect against this all of the constructs and questions used will be grounded in the literature, whilst awareness of my 'professional presuppositions' (Sapford 2007:42) will reduce their influence on the research. However, power and politics are inherent in research with the decision on what to study, how constructs are classified and who to survey (Sapford 2007:41) are inherently political and a danger exists that by grounding this research in the literature the paper may reinforce existing prejudices.

[28] IP address will not be recorded

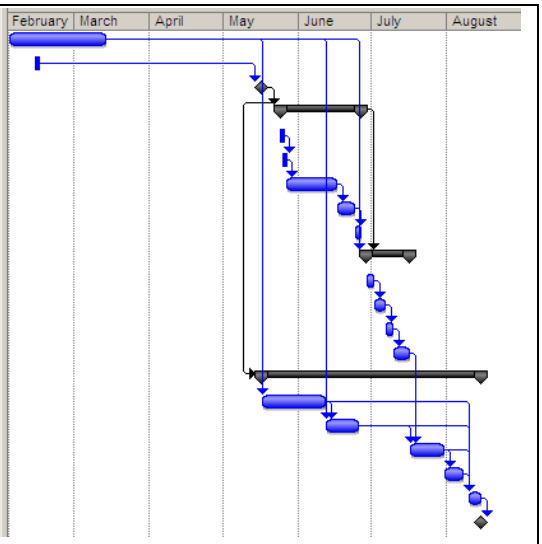
Conclusion (max. 200 words)

The proposed paper will use quantitative analysis of survey results to analyse the relationships between customer satisfaction and student loyalty within UK HE. The student loyalty literature does not include any examinations of the UK market and mostly concentrates on business students therefore allowing this study to make an original contribution. Whilst awaiting confirmation that this proposal is of the required standard I have a number of tasks that I can undertake. Firstly I need to negotiate access to my snowball sample, secondly I need to learn how to do the relevant statistical tests within SPSS, thirdly I need to select an online survey site such as www.surveymonkey.com and finally I can continue reading the relevant literature.

Timetable (approx. 100 words, or a one page diagram)

The Gantt chart below shows the estimated timings for each part of the paper, the timings for the survey section are based on Jankowitz 1995 (Fisher 2007:166)

Task Name	Duration	Start
Read relevant literature	30 days	Mon 02/02/09
Submit proposal	1 day	Fri 13/02/09
Return of Project proposal	0 days	Sun 17/05/09
Survey	**25 days**	**Mon 25/05/09**
Pretesting of questionaire	1 day	Mon 25/05/09
Adjust questionaire in response to feedback	1 day	Tue 26/05/09
Time for questionaire to reach required number of respondents	3 wks	Wed 27/05/09
Time for respondents to complete questionaire	1 wk	Wed 17/06/09
learning to use SPSS	3 days	Wed 24/06/09
Data analysis & evaluation	**14 days**	**Mon 29/06/09**
Reliability and validity analysis	3 days	Mon 29/06/09
Factor analysis	3 days	Thu 02/07/09
Stepwise regression analysis	3 days	Tue 07/07/09
Interpretation of analysis	5 days	Fri 10/07/09
Write up dissertation	**66 days**	**Sun 17/05/09**
Write up literature review	20 days	Sun 17/05/09
Write up methodology	10 days	Fri 12/06/09
Write up analysis	10 days	Fri 17/07/09
Write up conclusions	6 days	Fri 31/07/09
Error checking	5 days	Mon 10/08/09
Submit Dissertation	0 days	Fri 14/08/09



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www.ruthnbolton.com 26th January 2009

Appendices (optional)

Note on Content:

• Containing materials distracting from, but relevant to, the body of the proposal, for example,

draft questionnaires, interview questions, other tables, lists, etc.

• Do not overdo it. Only include things that really are relevant. You won't get extra marks for this.

Questions

Service Quality – educational services Measured with 7 point likert scale anchored on strongly disagree and strongly agree			
Question	Question	Original Study	
1	In...the quality of the infrastructure that facilitates teaching is good (lecture theatres, seminar rooms, library)	Lin, Tsai (2008)	
2	In...lessons taught are useful	Lin, Tsai (2008)	
3	In...lessons overall quality of teaching is good	Lin, Tsai (2008)	
Quality of Administration services Measured with 7 point likert scale anchored on strongly disagree and strongly agree			

Question Number	Question	Original study	
1	In...the administrative staff provide courteous services	Lin, Tsai (2008)	
2	In...the administrative staff provide efficient services	Lin, Tsai (2008)	
3	In...administrative staff provide information that makes me feel confident in them solving my problems	Lin, Tsai (2008)	

Quality of facilities

Measured with 7 point likert scale anchored on strongly disagree and strongly agree

Question Number	Question	Original study	
1	In...the housing is of a good quality	Lin, Tsai (2008)	
2	In...the student union is of a good quality	Lin, Tsai (2008)	
3	In...the quality of food available on campus is of a good quality	Lin, Tsai (2008)	

Satisfaction

Measured with 7 point likert scale anchored on strongly disagree and strongly agree

Question number	Question	Original study
1	I am satisfied with my decision to attend...	(Magi, Julander 1996)

Student Loyalty

Measured with 7 point likert scale anchored on strongly disagree and strongly agree

Question Number	Question	Original Study
1	I'd recommend my University to someone else?	(Hennig-Thurau, Langer, Hanson 2001)
2	I'm interested in keeping in touch with my university	(Hennig-Thurau, Langer, Hanson 2001)
3	If I faced the same choice again, I'd still choose the same University?	(Hennig-Thurau, Langer, Hanson 2001)
4	How likely are you to attend new courses at your university in the future	(Helgesen,Nesset 2007)
5	I would rather call it 'my university' rather than its official name	(Grace,Kim 2008)
6	I intend to donate money to my university after I have graduated	(Grace, Kim 2008)

Social integration

Measured with 7 point likert scale anchored on strongly disagree and strongly agree

1	I regularly take part in university related activities	(Hennig-Thurau, Langer, Hanson 2001)
2	I always have interactive contact with my fellow students	(Hennig-Thurau, Langer, Hanson 2001)
3	I regularly do things with fellow students outside university	(Hennig-Thurau, Langer, Hanson 2001)

Commitment to non university activities

Measured with 7 point Likert scale anchored on strongly disagree and strongly agree

1	I make sure that I still have plenty of time for non university hobbies	(Hennig-Thurau, Langer, Hanson 2001)
2	I make sure that I have very close contact with family and relatives	(Hennig-Thurau, Langer, Hanson 2001)
3	A proportion of my time is taken up with paid work	(Hennig-Thurau, Langer, Hanson 2001)

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Ethical Review Form: Part 1

Please read the following two statements and place an X in the area indicated for the statement that most accurately represents your research intentions.

Student Statement.		**Insert X**	**Student Action.**
Statement 1	I have read the above information. I confirm that my research ***does not*** involve the study of live human beings.		You do not need to complete Part 2 of this form. Ethics approval is not required.
Statement 2	I have read the above information. I confirm that my research ***does*** involve the study of live human beings.	**X**	Please proceed to complete Part 2 of this form.

You are only required to fill in part 2 of this form if your research involves studying live human beings. In cases of automatic ethics approval or where no ethics approval is necessary please allow 8-10 weeks from receipt by the University for the return of your grade. In instances where part 3 of the Ethics Form is completed you should allow 8-14 weeks. **Proposals that are received without the completed Ethical Review Form will be returned to the student unmarked.**

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Ethical Review Form: Part 2

Please answer all of these questions by ticking yes or no in the box provided

		Yes	No
1.	Does the study involve participants who are particularly vulnerable or unable to give informed consent? (e.g. people under the age of 18, people with learning disabilities, students you teach or assess)	☐	Y
2.	Will it be necessary for participants to take part in the study without their knowledge and consent at the time?	☐	Y
3.	Does the study involve audio or visual recording of people in public places?	☐	Y
4.	Will the study involve the discussion of sensitive topics? (e.g. sexual activity, drug use, illegal activities, death, whistleblowing)	☐	Y
5.	Are drugs, placebos or other substances to be given to the study participants or will the study involve invasive, intrusive or potentially harmful procedures of any kind?	☐	Y
6.	Will blood or tissue samples be obtained from participants?	☐	Y
7.	Is physical pain or psychological stress from the proposed project likely to cause harm or negative consequences beyond the risks in normal life?	☐	Y
8.	Will the study involve prolonged or repetitive testing?	☐	Y

9.	Will financial inducements (other than expenses) be offered to participants?	☐	Y
10.	Will the study involve recruitment of patients or staff through the NHS?	☐	Y

If your answer is yes to any of these questions, please fill in Part 3.

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Ethical Review Form: Part 3

In no more than a page –

1. Explain why you ticked yes to one or more of the questions on Part 2, and how you plan to address the ethical issues raised.

You will need to do this in consultation with a Dissertation Tutor on Blackboard. Please identify which Tutor you discussed these issues with.

Blackboard Tutor's Name:

Assessor’s Comments (to be completed by the markers of the proposal)

Assessor’s Name:

Assessor’s Signature:

Date:

END OF STUDENT SUBMISSION

THE FORMS ON THE FOLLOWING PAGES ARE ONLY USED IN INCIDENTS OF PLAGIARISM AND/OR THE AWARD OF A FAIL GRADE FOR THIS PIECE OF WORK. **STUDENTS SHOULD NOT DELETE THESE FORMS.**