Word-of-Mouth: The Effect of Service Quality, Customer Satisfaction and Commitment in a Commercial Education Context

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Abstract

Researchers have noted that word-of-mouth plays a very significant role in consumer decision making, particularly in the area of professional services. However, literature pertaining to its formation in the context of the commercial education industry is limited. With Singapore poised to become the education hub of Asia, this is an important area of study and formed the focus of the current research. More specifically, the research sought answers to the role of perceived service quality, customer satisfaction and commitment in word-of-mouth formation. Unlike prior studies in this area, an additional validity test was adopted for the current research that involved an examination of the extent to which the construct measures used were free of social desirability bias.

Of the various customer commitment dimensions examined, the findings showed affective commitment to have the greatest impact on word-of-mouth formation. In examining how satisfaction mediated the formation of word-of-mouth, it was found that not all service quality dimensions affected satisfaction, a result that was contrary to what was expected. Particularly, it was the process-related service quality (functional service quality) that affected satisfaction. Finally, it was found that all the construct measures used for the present study were free of social desirability bias.

While the study was originally planned to be conducted in one phase, this was extended to three phases following discriminant validity issues with the original measures, with a need for alternative measures to be used. What resulted was a study that was far more comprehensive and rigorous than originally intended.

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May God bless them all.

CHAPTER ONE

AN INTRODUCTION TO THE STUDY

Introduction

Word-of-mouth (WOM) communication has been defined as the informal, person-to-person communication about a brand, product, organisation, or service that occurs between a non-commercial communicator and a receiver (consumer) (Harrison-Walker, 2001) and it has been suggested that this form of communication has a greater influence on consumers' choices than do other forms of communication (Murray, 1991; Day, 1971). Indeed, some studies have quantified the extent of its influence and suggested that WOM is nine times as effective as advertising in converting unfavourable or neutral predispositions into positive attitudes (Day, 1971), although there is some debate about these numbers (e.g. Money, Gilly & Graham, 1998; Katz & Lazarfeld, 1955). With technological advancements, particularly in the area of electronic communications, the reach of this powerful persuasive influence has been significantly increased, suggesting that even greater attention should be given to the way this form of communication is formed and its impact on marketplace outcomes.

Researchers have also found that the extent of WOM's influence on consumers making service purchase decisions is different to its influence when they are making tangible goods purchase decisions and most researchers agree that its influence is much greater in service contexts (Murray & Schlacter, 1990; Bristor, 1990). Bansal and Voyer (2000) suggested that this difference is due to the greater risk associated with service purchases that arises from a service's intangibility, which creates difficulties in making pre-purchase comparisons. As WOM is considered to be unbiased and, therefore, more

credible, consumers tend to rely more on this form of communication when making service purchase decisions (Bansal & Voyer, 2000).

Even within the service sector, however, researchers have found that the extent of WOM's influence on consumers' choices differ from one service to another and it has been suggested that this occurs because the level of risk in some service purchase situations is higher than it is in others (Bansal & Voyer, 2000; Still, Barnes & Kooyman, 1984). Consequently, it is likely that WOM will be more important in contexts in which WOM's influence on consumer choice is significant. The discussions in Chapter Two, which provides a detailed literature review, suggest commercial educational services purchases are high-risk and that consumers in these environments are more likely to rely on WOM information. Consequently, the present study was undertaken in a commercial education environment, as WOM impacts are more likely to be evident.

Prior word of mouth studies have generally examined either the consequence of WOM (e.g. Reinartz & Kumar, 2002) or its formation (e.g. Harrison-Walker, 2001). The current study was concerned with the latter issue, although it is recognised that outcomes are also a crucial part of the WOM story.

Prior studies have examined the antecedents of WOM activities and, especially, the effects of satisfaction (e.g. Harrison & Shaw, 2004; Maxham & Netemeyer, 2002; Wirtz & Chew, 2002; Blodgett, Granbois & Walters, 1993) and service quality (e.g. Harrison-Walker, 2001; Boulding, Kalra, Staelin & Zeithaml, 1993) on WOM activities. Even when more than one antecedent was included in a study, as when Harrison-Walker (2001) examined consumers' service quality perception and their commitment to their service provider, researchers have tended to not examine the relationships between

these constructs. However, other research has suggested that these constructs may be linked and, therefore, the formation of WOM may be more complex than previously thought. For example, some researchers (e.g. Brady & Robertson, 2001; Soutar & McNeil, 1996; Cronin & Taylor, 1992; Parasuraman, Zeithaml & Berry, 1985) have found a link between consumers' service quality perceptions and their satisfaction, while others (e.g. Söderlund, 1998; Bone, 1992) have found a relationship between consumer satisfaction and WOM activities. Consequently, the current research follows the approach taken by many prior researchers (e.g. Cronin, Brady & Hult, 2000; Spreng & MacKoy, 1996) by allowing interrelationships between the antecedent constructs so that a more comprehensive model of WOM formation could be examined.

Some prior studies used global measures of the antecedent constructs (e.g. Harrison & Shaw, 2004; Fullerton & Taylor, 2002; Brady & Robertson, 2001). While this research suggested that such an approach could be appropriate, it was felt that the diagnostic value of such research, which in turn determines managerial usefulness, was limited. For example, managers may want to know if some dimensions of customer service have a greater impact on customer satisfaction than do others. The current research overcame such weaknesses by following Grönroos's (1984) suggestion, that service quality should be evaluated on two dimensions, which are what the customer receives (technical quality) and how the customer receives it (functional quality). For a similar reason, WOM was examined as a two-dimensional construct, with WOM Activity and WOM Praise dimensions, as discussed in Chapter Two.

Finally, a major factor that might impact on the reliability of findings in any WOM study is the possibility of social desirability bias, which can colour people's responses if they desire, either consciously or unconsciously, to conform to the actual, or perceived, values of the society and/or culture to which they belong (Keillor, Owens & Pettijohn,

2001). Consequently the impact of social desirability was examined in the current study as, if social desirability is an issue, questions can be raised about the validity of prior studies. This was regarded as significant as no previous attempts have been made to examine its influence in WOM research.

The Research Questions Examined

The objective of the present study was to improve our understanding of how WOM is formed. As has already been noted, previous studies have found that perceived service quality and customer satisfaction are important antecedents of WOM activities (Maxham III & Netemeyer, 2002; Boulding et al., 1993; Blodgett et al., 1993) and, further, service quality has been found to have a link to satisfaction (Brady & Robertson, 2001; Soutar & McNeil, 1996; Bitner, Booms & Mohr, 1994; Cronin & Taylor, 1992; Parasuraman et al., 1985). As explained earlier, in the present study, service quality was measured as a two-dimensional construct, with technical service quality and functional service quality dimensions (Grönroos, 1984), to improve the study's diagnostic value. Consequently, the first research question in the present study asked:

1. What are the relative impacts of different service quality dimensions (functional service quality and technical service quality in the present case) on customer satisfaction in a commercial education context?

Recent studies have found that customer commitment has a significant impact on WOM activities (Harrison-Walker, 2001). Further, it seems that commitment may play a mediating role in WOM formation. Consequently, the second research question asked was:

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2. Does commitment mediate the relationship between service quality and satisfaction and WOM activities in a commercial education context?

As will be explained more fully in the next section, the suggested model was an extension of the model suggested by Harrison-Walker (2001), which examined the direct effects of service quality and consumer commitment on word-of-mouth formation. In the interest of comprehensiveness, the present study included a replication of Harrison-Walker's (2001) research in the present context, which led to a third research question:

3. How generalisable is Harrison-Walker's (2001) model?

As noted previously, some researchers (e.g. Keillor et al., 2001) have found that reliability and validity could be improved by ensuring that results are free of social desirability biases. Consequently, a fourth research question asked in the present research was:

4. Are consumers' responses to the construct measured in the current study (i.e. satisfaction, service quality, commitment and WOM) affected by social desirability?

The Present Study

The study built on research undertaken by Harrison-Walker (2001). She suggested that WOM activity was two-dimensional construct that could be measured by the extent to which an individual engages in WOM (termed WOM Activity) and the valence of the WOM comments an individual makes to others about a product or service (termed WOM Praise). Harrison-Walker (2001) is one of few researchers who have examined consumer commitment in a WOM context. Adapting the extensive research that has

been undertaken in organisational commitment (e.g. Allen & Grisaffe, 2001; Meyer & Allen, 1996), Harrison-Walker (2001) suggested customer commitment was a construct with two dimensions, namely:

1. Affective commitment, which can be defined as a consumer's feelings of belonging and sense of attachment to a service provider, and

2. High-sacrifice commitment, which can be defined as the commitment that arises from the perceived costs of leaving an existing service provider and a perceived lack of alternative.

The model she suggested and tested is shown in Figure 1.1.
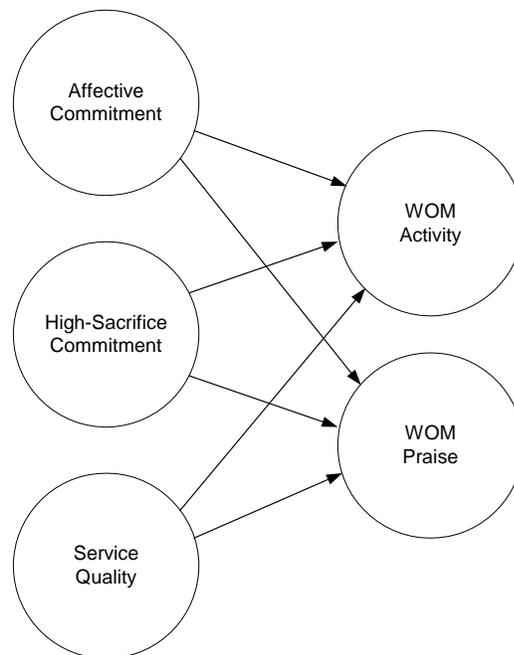
Figure 1.1: Harrison-Walker's (2001) Research Framework

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The current research extended Harrison-Walker's (2001) study in a number of ways:

1. The generalisability of her results was examined by investigating WOM formation in a different service industry. Harrison-Walker's (2001) original study was undertaken in the United States and in the hair-salon and veterinary industries. Her research was replicated in the present study to see whether it could be generalised to the education market in Singapore.

2. The original study assumed that commitment and service quality were independent constructs. As prior research has suggested that service quality and commitment may be linked through consumer satisfaction (e.g. Söderlund, 1998; Parasuraman et al., 1985), the current study suggested a more complex WOM model, as will be seen subsequently.

3. Following Grönroos's (1984) suggestion, service quality was viewed as a two-dimensional construct, with technical and functional service quality dimensions. This differs from Harrison-Walker's (2001) study, which examines service quality as a unidimensional construct.

These extensions to Harrison-Walker's (2001) study suggested the model that is shown in Figure 1.2 and it was this model that was examined in the present study.
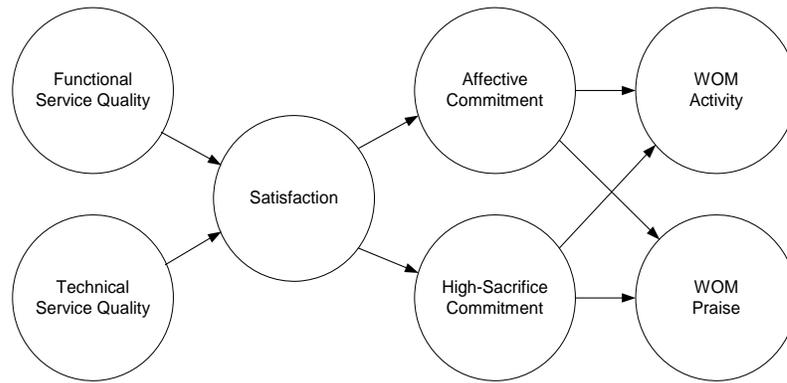
Figure 1.2: The Model Tested in the Present Study

Limitations and Delimitations of the Study

There are a number of limitations and delimitations in the study that were recognised from the beginning and these are discussed in subsequent sections.   Time and cost considerations meant that they were accepted.

1. **The generalisability of the study**

Responses were obtained from a commercial educational institution (the Singapore Institute of Management).   The institution was chosen because the researcher had access to the students who were studying there.   As it was expected that respondents' behaviour would be influenced by their culture, rather than by the commercial educational institution to which they belonged, it was felt that the choice and number of institutions selected would have little impact on the results obtained.   However, if this is not so, there may be biases that prevent generalisability.

As prior studies had indicated that the relationships examined in the current study might be dependent on the cultural context (Spreng & Chiou, 2002), the present findings may not hold in countries with very different cultures from Singapore (e.g. Kenya or Canada). Consequently, future research should examine the generalisability of the suggested WOM model in different countries.

2. **The Use of a Global Measure of Satisfaction**

The current study used a global measure of satisfaction. Greater diagnostic ability can be achieved by measuring consumer satisfaction along functional lines. For example, Singh (1991) found that the physician, the hospital and the health insurance provider influenced patients' satisfaction with a hospital. Despite this, it was felt that a global measure of satisfaction was appropriate as the purpose of the present study was to examine a general WOM model, rather than to provide diagnostic information. Further, the model's complexity would have been increased significantly if satisfaction had been measured as a multidimensional construct.

3. **Zone of Satisfaction and Service Quality Examined**

Prior studies have suggested that service quality and satisfaction have a non-linear relationship, with their behavioural consequences taking a U-shape (Anderson & Mittal, 2000; Schneider & Bowen, 1999; Taylor, 1997). At low levels of satisfaction and service quality, consumers are likely to complain, while, at high levels of satisfaction and service quality, they are likely to demonstrate positive WOM behaviour. Customers also seem to show little WOM activity in the 'neutral' zone of satisfaction and service quality. To

overcome the problem of non-linearity (between service quality and WOM, and between satisfaction and WOM), the current study was limited to examining the neutral and positive zones. Two limitations arose from this approach. Firstly, our understanding of the relationships is limited to the zones of interest (the neutral and positive zones). Secondly, the assumption of linear relationships between the various constructs and their behavioural outcomes may be flawed and is, at best, an approximation. The extent of error in making such assumption is not known but the approach was felt to be a significant improvement over prior studies that examined the relationships over all service quality and satisfaction zones.

An Overview of the Dissertation

Adopting the format suggested by Perry (1994), the thesis has the following structure.

Chapter 1:   An introduction to the study

Chapter 2:   A review of the literature

Chapter 3:   The research approach taken in the current study

Chapter 4:   The measurement characteristics of the model's constructs

Chapter 5:   Replicating Harrison-Walker's (2001) study

Chapter 6:   Evaluating the proposed model

Chapter 7:   Conclusions and research implications

Summary

Chapter One provided an introduction to the study that is reported in the present dissertation. It outlined the model that was examined, discussed its research significance and highlighted how prior research provided a foundation for the project. The limitations of the current research were also discussed. The next chapter provides a more detailed discussion of the prior research that provided the present study's foundations.

CHAPTER TWO

A REVIEW OF THE LITERATURE

Introduction

Chapter One introduced the present study and outlined the research questions that were examined. It traced the stream of prior research that led to the current study and closed with a discussion of the study's limitations and delimitations. Following the current research framework, which was presented in Figure 1.2, the present chapter reviews prior research into each of the constructs in the suggested model and examines the suggested relationships between them, starting with word of mouth, which was the construct of central interest.

Word-of-Mouth (WOM)

As noted in the previous chapter, Word-of-Mouth (WOM) has been defined as the informal, person-to-person communication between a perceived non-commercial communicator and a receiver regarding a brand, a product, an organisation or a service (Harrison-Walker, 2001). Prior studies revealed that consumers actively seek WOM information when making purchase choices (Walker, 1995). Indeed, Katona and Mueller (1955) found that about fifty percent of consumers sought the advise of others before making a purchase decision. Further, researchers have noted that WOM has a greater influence on consumers' purchase decisions than do other commercial forms of communication, with some suggesting the relative impact is as much as nine times (Money et al., 1998; Murray, 1991; Day, 1971; Katz & Lazarfeld, 1955).

Technological advancements over the last decade, bringing about new forms of communication such as electronic bulletin boards and electronic mails, catapulted WOM activities to unprecedented levels. These electronic communication forms allow information exchange between customers without a need to meet (Widdows & Widdows, 1998). Indeed, within two days of AT&T announcing its new Internet services, it received 100,000 consumer inquiries and the company believed that this response was the result of word-of-mouth (Cleland, 1996). While the current research did not include such electronic forms of communication, it was expected that the findings might hold even in such a context.

The superiority of WOM over other commercial sources of information has been explained by accessibility-diagnosticity theory (Feldman & Lynch, 1988; Lynch, Marmorstein & Weigold, 1988) and the next section provides an overview of this theory.

Accessibility-Diagnosticity Theory

According to accessibility-diagnosticity theory, the extent of influence a particular piece of information has on a buyer depends on its relative accessibility and the diagnosticity of that piece of information. Accessibility is the ease of retrieving an input from memory and diagnosticity is the sufficiency of the retrieved input to arrive at a solution for the task at hand (Menon, Raghubir & Schwarz, 1995). According to Herr et al. (1991), vividness, defined as the degree to which information is emotionally interesting, concrete and imaginary provoking and proximate in a sensory, temporal and spatial way (Nisbett & Ross, 1980), has a great influence on information accessibility. Consequently, it has been argued that WOM, considered to be more vivid than other sources of information and therefore also more accessible, would have a more

significant impact on memory (Herr et al., 1991). While researchers have generally found that vividness impacts on memory but not on judgement (e.g. Taylor & Thomson, 1982), some have suggested vividness impacts consumer choice when certain conditions are met (Herr et al., 1991; Borgida & Nisbett, 1977). According to Herr et al. (1991), judgemental vividness is important when:

(1) The judgement context provides the opportunity for differential encoding of vivid versus pallid information

(2) Prior impressions are unavailable from memory

(3) Information having extremely negative judgemental implications is unavailable for processing.

Under these conditions, WOM seems to affect judgement, although the effect was reduced in the presence of other more diagnostic sources of information. These findings are consistent with those of Hock and Deighton (1989), who noted that consumers trusted their own opinions more than they trusted the opinions of others, and of Berglas and Jones (1978), who noted that self-generated information was less likely to be contaminated by knowledge or reporting biases.

As consumers of commercial education services are unlikely to have a great deal of prior experience in such a purchase situation, it follows, from the last condition noted above, that WOM will impact on their choice. However, the information provided by commercial sources of information, which includes brochures, open houses, and information sessions, cannot be considered pallid, suggesting WOM might not significantly affect judgement. As not all of the conditions mentioned are fulfilled, it

could be argued that WOM information, in the current study, might impact on memory, but not on judgement.

The second factor influencing consumers' choice, as noted by Lynch et al. (1988), is the information's diagnosticity, and they suggested that information that is relatively more diagnostic has a greater influence on buyers. As prior studies have shown that WOM alone is sufficient to accomplish consumers' decision goals, researchers have argued that, compared to other impersonal sources of information, WOM is more diagnostic (Mangold, Miller & Brockway, 1999) and, consequently, has greater influence. Mangold et al. (1999) further noted that the extent of the diagnosticity of WOM depends on the level of experience of the buyers, with inexperienced buyers regarding WOM as most diagnostic. As previously noted, most students enrolling in courses at commercial educational institutions would fall into this category.

The arguments presented suggest that, although WOM, in a commercial educational service context, may not fulfil all the conditions necessary for judgemental vividness to be present, WOM is still likely to be more diagnostic than other forms of communication and, consequently, may have a significant impact on choice.

Receiver Initiated WOM

Early theories in the field of personal communication, including the two-step communication flow theory proposed by Katz (1957), which focused on opinion leaders, and related studies that tried to identify the characteristics of this group of individuals. However, subsequent research showed that the two-step model did not portray the flow of communication and influence between individuals very well. This led to the multi-step communication flow theory (Cox, 1963). Unlike the earlier theory, Cox (1963) suggested WOM receivers are active, rather than passive, information

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seekers who initiate information transfer from the opinion leaders. Following this suggestion, the focus of WOM research has been more 'receiver-centred', examining the motivations behind receivers seeking information (e.g. Robertson, Zielinski & Ward, 1984; Rogers, 1983; Lampert & Rosenberg, 1975).

Lampert and Rosenberg (1975) suggested that WOM activities are driven by four factors, namely:

- A desire to seek opinion, which refers to a receiver's tendency to seek peers' opinions before trying something new (Sheth, 1968; Katona & Mueller, 1955; Menzel & Katz, 1955).

- Specific self-confidence, which relates to an individual's perception of risk, and his or her confidence in judging a brand at a point in time (Bell, 1967; Cunningham, 1965).

- Generalised self-confidence, which refers to a personality trait and does not depend on a specific buying situation. Arndt (1967) noted that people with greater generalised self-confidence are more likely to engage in WOM activities.

- Social integration, which refers to a person's interaction with others. Where interaction with others is high, WOM activity will be more active, leading Granovetter (1973) to suggest information moves quickly within communities, but slowly across them. Further, Brown and Reingen (1987) noted that weak-tie sources assist the flow of information, whereas strong tie sources influence the flow of influence.

Despite the trend for WOM research to be receiver-focused, there has been substantial research that has examined WOM from a transmitter perspective (e.g. Harrison-Walker, 2001; Kowalski, 1996; Jacoby & Jaccard, 1981).

Potential Ways to Measure WOM

WOM researchers face two significant challenges. The first challenge arises from the non-linear relationship between WOM and its antecedents. For example, the relationship between satisfaction, an antecedent of WOM, and WOM is non-linear as WOM activities are strong when individuals are satisfied or dissatisfied. This has led researchers such as Davidow and Leigh (1998) to criticise studies that do not delineate between positive and negative WOM.

The second challenge relates to measuring WOM, as direct observation of information exchange in a private setting is difficult, although, more recently, the evolution of on-line communities has allowed researchers to directly measure WOM activities (Godes & Mayzlin, 2004). Researchers have relied on two methods of measuring WOM. The first uses aggregate information exchange data. Through such methods, Foster and Rosenzweig (1995) examined WOM behaviour among farmers[1] and Reingen et al. (1984) compared WOM behaviour among women living within the same house and in different houses.

The second, and more popular, method relied on recall using a variety of survey instruments (e.g. Halstead, 2002; Harrison-Walker, 2001; Bowman & Narayandas, 2001; Van Den Bulte & Lilien, 2001; Brown & Reingen, 1987). In this method, WOM

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[1] The study showed learning spillover took place within villages at a higher ratio than across villages.

activities are usually measured with direct questions such as "Did you tell someone about it?"

In the current study, individual level, rather than aggregate level, WOM data was needed. As is discussed more fully in Chapter Three, structural equation modelling was the primary method used to examine the relationship between the constructs of interest, and this method requires data at an individual level.

Limits to the Potency of WOM Information

Despite evidence showing WOM has a significant effect on consumers' behaviour, some researchers have argued that its dominance depends on several factors. Wilson and Peterson's (1989) noted that WOM information was accepted only to the extent to which the valence of the information matched the affective predisposition of the receiver and, where this information did not `fit' the existing beliefs, expectancies and/or affective predispositions of information receivers, the extent of its influence was limited.

Other studies have also found that the extent of WOM influence on consumers' decision-making depended on how substantial WOM sources are compared to an individual's feelings. According to Alloy and Tabachnic (1984), the stronger an individual's prior feelings, the more such feelings will dominate the interpretation and use of WOM information. However, even strongly held prior expectations or beliefs can be overwhelmed by contradictory new information if it is sufficiently strong, salient, and/or if substantial amount has been accumulated (Peterson, 1989).

Word-of-Mouth in Service Industries

Researchers generally agree that WOM has a greater influence in service situations than in tangible goods situations (Murray & Schlacter, 1990; Bristor, 1990) and attribute this to the greater risk associated with a service purchase. This risk arises because services are intangible, leading to difficulties in making pre-purchase comparisons. According to Bansal and Voyer (2000), customers respond to this difficulty by relying more heavily on WOM information, which they consider to be unbiased.

Prior studies have, however, found consumers do not attach equal importance to WOM communication for all types of services. Researchers have noted that consumers more actively seek WOM information when the perceived risk of purchasing a service is high. It is likely that customers of commercial educational services are exposed to high levels of risk, both in terms of the number of exposure and types of risk. The financial cost of pursuing a Bachelor's degree from a commercial educational institution in Singapore ranged from S$15,000 to S$25,000, exposing potential students to high financial risk. Further, some commercial institutions might not be able to attract a pool of competent lecturers to deliver their programmes, exposing students to high performance risk as well. As prior studies have found Asian consumers to be more collectivistic, with a high need for social acceptance (Spreng & Chiou, 2002; Money et al., 1998), Asian consumers are more exposed to social risk than are their Western counterparts. These arguments, together with findings from related studies (e.g. Davidow, 2003), suggest that WOM is more likely to have a significant impact in the chosen research context than in other possible contexts.

Word-of-Mouth Dimensions

Researchers have examined WOM in a variety of ways. Some have focused on the process of information spread, resulting in dimensions such as volume and dispersion being examined (Godes & Mayzlin, 2004). The volume of WOM is a 'how much' aspect, while dispersion measures the extent to which information is spread across relevant groups. Other researchers examined the valence of WOM (e.g. Halstead, 2002; Harrison-Walker, 2001) and this was the focus of the current research. In many of the studies that have examined this WOM aspect, a simplistic conceptualisation of WOM formation was used that focused either on the favourableness of this form of communication (e.g. Wirtz & Chew, 2002; Wilson & Paterson, 1989) or on consumers' recommendations (e.g. Söderlund, 1998; Bone, 1992). However, a better understanding can be achieved by examining WOM as a multidimensional construct and some recent studies have adopted this approach (e.g. Harrison-Walker, 2001).

Harrison-Walker (2001) suggested WOM was a two dimensional construct, with WOM Activity and WOM Praise dimensions. As noted in the preceding chapter, WOM Activity refers to the frequency with which an individual engages in WOM and the number of people with whom he or she engages, while WOM Praise refers to the valance of the WOM comments consumers make to others about their experiences (Halstead, 2002). The findings arising from such an approach should have greater managerial value as each WOM dimension has different consequences, with WOM Activity leading to an increased awareness of a brand, product or service, and WOM Praise bringing about an enhancement of the image of these entities.

Satisfaction

According to etymologists, satisfaction is derived from the Latin words *satis* and *facere*. *Satis* meant enough and *facere* meant to do or make. Taken together, satisfaction meant being provided to the point of being `enough' (Oliver, 1997). Despite appearing as a seemingly straightforward concept, there is a lack of consensus about what this term means and, consequently, how it is to be measured. For example, Hunt (1977) viewed satisfaction as a cognitive evaluation of the consumption experience, while Oliver (1981) viewed it as a summary psychological stage that occurs when the emotion surrounding disconfirmation expectations is coupled with a consumer's prior feelings about their consumption experience. Others, such as Tse and Wilton (1988), viewed satisfaction as a consumer's response based on disconfirmation theory, which is discussed later in the chapter. Despite this lack of agreement, the theories about satisfaction are well developed, and much of these being attributed to Oliver (1997). A full discussion of the theories of satisfaction is beyond the scope of this literature review. Consequently, the present discussion of this concept centres only to the seminal literature and models that are related to the present study. The following sections present the key developments of this concept.

Levels of Abstractions

Oliver (1997) noted that satisfaction can be viewed at different levels of abstractions and what he saw as variants of satisfaction, as contextualised to the current research, are shown in Figure 2.1.
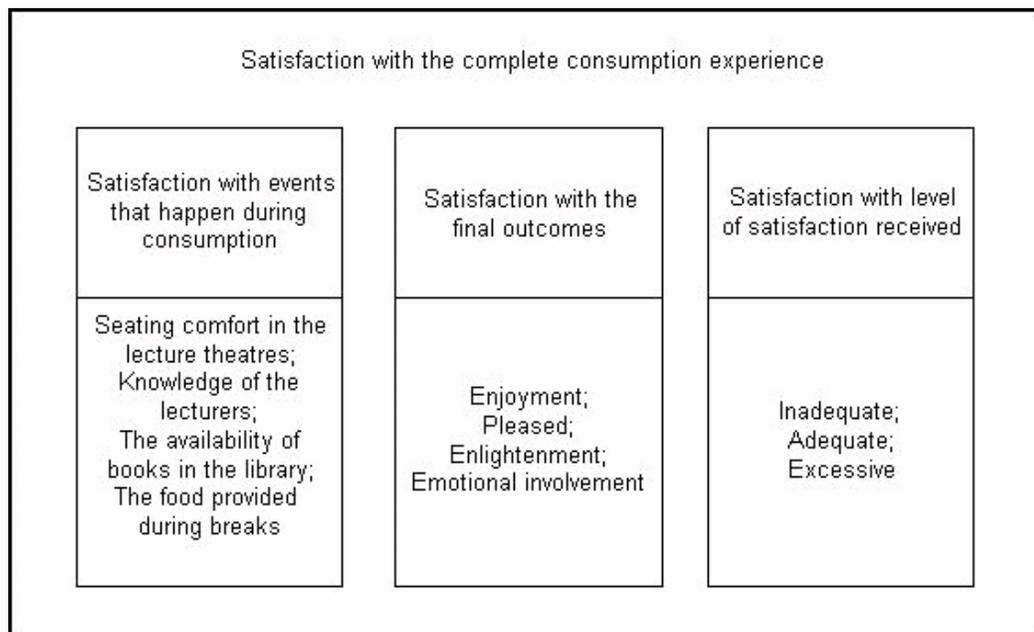
Figure 2.1: Oliver's (1997) Variants of Satisfaction

Satisfaction can be viewed in terms of how consumers are satisfied with an event, such as facilities, a lecturer's competency or the administration team supporting a programme. Researchers preferring such multi-sourced approach for measuring satisfaction have argued that such scales are managerially useful as results allow for more focused remedial actions to be undertaken. For example, Singh (1991) examined consumers' satisfaction with a hospital by looking at their satisfaction with the physician, the hospital and their health insurance provider. Findings from such an examination allow managers to determine the areas in which their organisation has done well and the areas that need improvement.

Satisfaction can also be viewed as an emotional response to a final outcome, with states such as enjoyment and being pleased. It represents a global view of satisfaction rather than an event-based view. Although it does not have the same level of diagnosticity, this may not be a major drawback because most surveys contain items that are event

related. Some researchers (e.g. Selnes, 1998) have also argued that multi-sourced scales measure service quality rather than satisfaction. While the argument is moot, the current study used a global measure of satisfaction as such an approach improved model parsimony and such a scale was sufficient to examine the hypotheses suggested later in the thesis.

Additionally, at an even higher level of abstraction, consumers may be satisfied or dissatisfied with the level of satisfaction they have received. However, unlike satisfaction with final outcomes, satisfaction at this level of abstraction is uncommon in research and was not relevant to the present study.

The Definition of Satisfaction

Oliver's (1997, p.13) definition of satisfaction was used in the current study. This suggests:

> *Satisfaction is the consumer's fulfilment response. It is a judgement that a product or service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfilment, including levels of under- or overfulfillment.*

Oliver's (1997) definition of satisfaction suggested people have a comparative referent and has formed the basis of many models of satisfaction that included disconfirmation, need fulfilment, ideals, fairness (equity) and regret constructs. As satisfaction measures do not originate solely from one theory, it is necessary to provide a brief overview of the related theories that contributed to the measure of satisfaction used in the present research, namely:

- The need theory of satisfaction.

- The attribution theory of satisfaction.

- Satisfaction as an emotion.

However, limiting satisfaction to a discussion of these three models prevents the reader from grasping the fullness of the construct. For example, when a student is dissatisfied with a lecturer, it may have nothing to do with the programme not meeting his needs but, rather, he regards the lecturer as having been unfair to him. The role of fairness in satisfaction formation can be found in the equity theory of satisfaction. For this reason, such indirect but related theories are also discussed in this review.

One theory that did not contribute to the satisfaction measure used, but which was included in this review, was expectancy-disconfirmation theory (reasons for its non-inclusion is discussed in the later sections of the chapter). This theory, which forms the foundation for understanding consumer satisfaction, is found in most marketing books (e.g. Kotler, 1994) and not including at least a brief overview of it would have rendered incomplete a review of this concept.

The next section discusses the first of the mentioned models (the expectancy-disconfirmation model), after which the other models are described.

The Expectation-Disconfirmation Model of Satisfaction

Researchers have used comparative models from as far back as 1961 in the field of job satisfaction (Porter, 1961). Since then, such models have been used in many fields under the umbrella term of discrepancy theory (Michalos, 1985). Examples include satisfaction with media communications (e.g. Dobos, 1992; Palmgreen & Rayburn, 1985) and satisfaction with quality-of-life (e.g. Michalos, 1980; Andrews & Withey, 1974). In consumer behaviour, performance and expectations are key constructs and,

instead of discrepancy, disconfirmation is the term used for the same type of comparison process (Oliver, 1997).

Disconfirmation theory brings together two important concepts (assimilation effects and contrast effects). Assimilation effects suggest information recipients who view communicators as similar to themselves will assimilate that communicator's viewpoint as their own (Hart & Diehl, 1994). This response emphasises a reluctance on the part of recipients to acknowledge discrepancies from a previously held position (Hart & Diehl, 1994). Contrast effects, on the other hand, describe a tendency of information recipients to exaggerate discrepancies between their attitudes and those of the communicator, making them larger than reality (Dawes, Singer & Lemons, 1972). Assimilation and the contrast effects, in a consumption context, are shown in Figure 2.2.
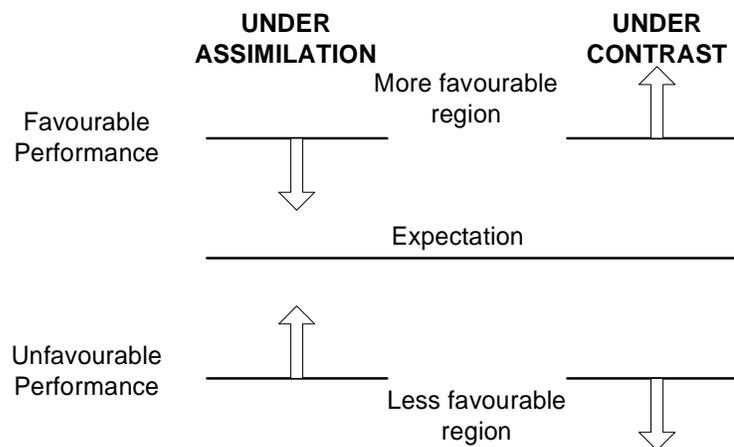
Figure 2.2: Reaction to Discrepancy under Assimilation and Contrast (Oliver, 1997)

Figure 2.2 suggests that, under assimilation theory, a consumer's perceived performance of a product of service will be drawn towards his or her expectation and, hence, consumers' expectations will dominate his or her satisfaction. Under contrast

theory, a favourable result will be viewed as more favourable and an unfavourable result will be viewed as less favourable. The discrepancy between the two theories led Anderson (1973) to suggest the two theories can co-exist and the explanation of how consumers perceive the performance of a product a service will depend on the extent of discrepancy between perceived performance and expectations. He argued that, if the discrepancy is small, assimilation effects will be dominant but, beyond a certain level, contrast effects will dominate. However, other researchers have noted that the extent to which each effect dominates may be determined more by context than by the degree of discrepancy. The assimilation-contrast effect formed the foundation for the development of disconfirmation theory as they are proxies for expectation and disconfirmation in that theory.

Oliver (1997) suggested three states of disconfirmation, with negative disconfirmation referring to the negative discrepancy that occurs when performance falls below expectation, positive disconfirmation referring to a positive discrepancy that occurs when performance exceeds expectation and zero disconfirmation (or confirmation) referring to the situation when performance matches expectations. Further, Oliver (1981) suggested the conditions that give rise to these states, which are shown in Table 2.1.

Table 2.1: Categories of Disconfirmation and States of Nature (Oliver, 1981)

State of Disconfirmation	Consumer's Experience
Positive	Low-probability desirable events occur, and/or high probability undesirable events do not occur.
Zero	Low- and high-probability events do or do not occur as expected
Negative	High-probability desirable events do not occur, and/or low-probability undesirable events occur

As an illustration of positive disconfirmation in the context of the current research, such a state could occur if programme facilitators videoed lectures a student missed and sent them to the student's home (a low-probability desirable event). Students expecting commercial educational institutions to have poorer facilities than government-funded universities (a high-probability undesirable event) could experience positive disconfirmation if they perceived that the quality of the facilities exceeded what they had expected.

In contrast, many students expect lecturers in commercial institutions to be very competent as lecturers are retained based on students' feedback (a high-probability desirable event). Consequently, if the 'performance' of a lecturer did not meet a student's expectations, negative disconfirmation occurs. Students might expect computers laboratories in commercial educational institutions would be equipped with the latest anti-virus software. If a student's work was destroyed because the institution did not install such software (a low-probability undesirable event), negative disconfirmation would occur. Finally, if a student's expectations were met in each of the scenarios then confirmation occurs.

Although theories based on expectancy-disconfirmation have grown in complexity, the overview presented in this section provides sufficient background about this concept. This is no intention to present all the developments of this theory because, as noted previously, it did not contribute to the satisfaction measure used in the present study.

The Zone of Indifference

Before leaving the theory of disconfirmation, it is necessary to note an extension of the expectancy-disconfirmation theory proposed by Oliver (1997). He suggested the relationship between performance and disconfirmation might not be linear due to the

presence of a zone around consumers' expectations known as the 'zone of indifference'. The theory is discussed as part of this literature review because it provided the background for the discussion of the relationship between service quality[2] and its marketplace outcomes in the final chapter of this thesis.

Oliver suggested the zone bends the performance-disconfirmation curve. As a consequence, performance merely exceeding expectations might not be sufficient to create positive disconfirmation and, similarly, performance slightly below expectations might not create negative disconfirmation. Consequently, consumers only experience disconfirmation if performance is outside the zone of indifference, as shown in Figure 2.3.
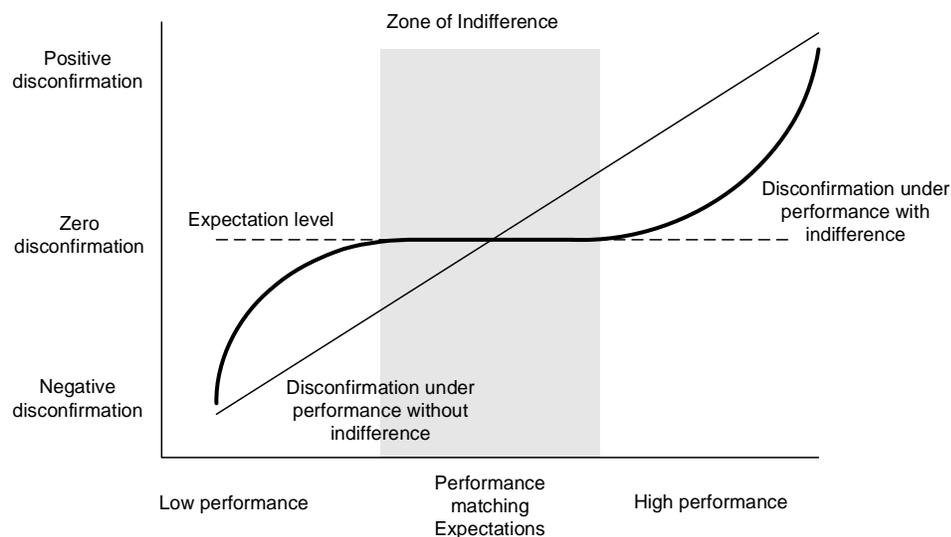
Figure 2.3: Operation of an Indifference Zone in Expectancy Disconfirmation (Oliver, 1997)

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[2] Service quality, viewed with functional and technical components, could be regarded as analogous to performance

This theory suggests the relationship between service quality and word-of-mouth formation may not be linear. Further, the theory implies that, at moderate levels of service quality (performance falling within the zone of indifference), small changes may not necessarily have a significant effect on word-of-mouth formation.

Difficulty of Theory Usage

Despite the dominance of the disconfirmation model, some researchers have argued that it is weak on practical grounds. The following section discusses these criticisms in light of the current research.

Contamination of consumer expectations

As expectations and perceived performance measurements are often made at a post-purchase stage through the use of a single instrument, some researchers have argued that expectation values are inaccurate as consumers' perceptions of performances have been contaminated by their expectations (Carman, 1990; Oliver, 1981). This leads to consumers understating expectations when experiences are negative and overstating expectations when experiences are positive.

Difficulty in applying the model to services

Following Carman's (1990) argument that the 'contamination effect' will render consumer expectation scores invalid, Getty and Thomson (1994) suggested a two-stage measurement of satisfaction, with expectations measured at a pre-purchase stage and perceived performance measured at a post-purchase stage. However, in implementing such an approach for multi-stage services that take place over time, many expectation measurements would have to be taken at intermediate stages of the process, making this approach impractical (Carman, 1990).

Inapplicability to inexperienced customers

Some researchers have noted that prior experience is necessary for the formation of expectations and, where this condition is not met, expectations may be unrealistic, leading to invalid expectation measurements (Halstead, Hartman & Schmidt, 1994). Day (1977) and Whiteley (1991) also noted that prior experience is needed for the formation of accurate and stable expectations and that experienced customers make better choices when repurchasing, leading to higher levels of satisfaction. This observation has significant implications to the current research as few students are 'experienced buyers' of commercial educational services, and, consequently, rely on external sources of information, rather than prior experiences, when forming expectations. Hence, their expectations are likely to be weaker, less complete and less stable (Halstead et al., 1994; Carman, 1990).

I-have-high-expectations social norm

Heskett et al. (1997) noted that it is a social norm for consumers to have high expectations, leading to consumers indicating very high values for every attribute on the scale for which their expectations are sought. Consequently the level of expectation almost always exceeds the level of perceived performance and, according to the expectation-disconfirmation theory, this should result in dissatisfaction. Indeed, Babakus and Boller (1992) found expectations exceeded perceived performance most of the time when respondents were asked to compare the two concepts.

Inapplicability in collectivistic cultures

Spreng and Chiou (2002) noted that individuals who are collectivistic differ in their satisfaction formation process to individuals who are individualistic, suggesting the

choice of measures for determining satisfaction should be culture dependent. They argued that collectivist societies have a close-knit social structure in which people distinguish between members of the in-group and those not in the group. In such societies, members look after the group's interest and hold the group's beliefs and opinions. In contrast, the social fabric is much looser and individuals are more motivated by self-interest in individualistic societies (Spreng & Chiou, 2002). Hofstede (1983) found Western countries are more individualistic, while Asian countries are more collectivistic. Spreng and Chiou (2002) argued that satisfaction models based on the expectancy-disconfirmation paradigm might not hold in collectivistic cultures as these consumers, rather than focusing on their own expectations, focus on group norms.

Recognising the inappropriateness of the disconfirmation model as a basis for measuring satisfaction, other satisfaction theories were examined, with the following sections providing a discussion of these models.

The Need Fulfilment Model of Satisfaction

When consumers purchase products, a need is satisfied. Oliver (1997) suggested that when consumers attempt to satisfy a need, they do so for either of two reasons. The first reason stems from the consumers' attempt to remove a deficit. A part-time student enrols in an academic programme at the Singapore Institute of Management because he missed out on the opportunity to do so earlier in his life faces a deficit in qualifications. By enrolling in the programme, the student tries to *remove* this deficit. The second reason stems from consumers seeking enhancement, which, in contrast to restoration, looks towards improving on the existing position of the respondent. It is expected that many students who enrol in post-graduate programmes do so to improve existing qualifications.

A consumer's emotional states differ depending on whether negative (restoration) or positive reinforcement (enhancement) occurs when he is satisfying a need. When a consumer restores a state, as when he makes up for a missed opportunity to do a diploma programme earlier, he experiences relief. However, when he enhances his present state, he experiences pleasure.

It cannot be argued that a student doing a part-time bachelor degree programme is either in one or the other state. While it is likely that a part-time student doing a diploma programme is in restoration mode and a student doing a doctoral programme is in enhancement mode, less can be said when a student enrols in a bachelor programme, the programmes from which the sample in the present study is obtained. It is expected that some part-time students of bachelor programmes are in a restoration mode, while others are in an enhancement mode.

The need fulfilment model formed the basis of several theories of motivation and satisfaction (e.g. Maslow's (1943) hierarchy of needs theory and Alderfer (1969) ERG theory). However, it was Herzberg's (1966) two-factor theory that was empirically examined in a consumer context (e.g. Swan & Combs, 1976; Maddox, 1981) and it is this theory that has greater relevance to the current study.

According to Herzberg (1966), attributes can be classified as satisfiers or dissatisfiers. He argued that dissatisfiers (also known as hygiene factors), which include primarily job context factors, such as working conditions and company policies, cause dissatisfaction if absent. Even when these factors are present, however, they might not satisfy an employee. In contrast, satisfiers (also known as motivating factors), which are related to the work itself and included responsibility and achievement, lead to

employee satisfaction. However, in the absence of such satisfiers, an employee may not be dissatisfied.

In a consumer context, Oliver (1997) distinguished between the attributes of a product or service and what the consumer gets from it and suggested that the former operated at a lower-level need fulfilment, while the latter operated at a higher-level need fulfilment. The lower-need fulfilment attributes, which cause dissatisfaction when flawed, are known as monovalent dissatisfiers. In the context of commercial education services, the quality of food offered to students during breaks and the availability of computer facilities might be considered monovalent dissatisfiers.

In contrast, the psychological states arising from higher-level needs are known as monovalent satisfiers. These might include the pride associated with having a connection to a good university, which will satisfy a consumer when present, but may not lead to dissatisfaction if absent. Finally, some attributes impact on satisfaction and dissatisfaction to similar extents depending on their presence or absence and are known as bivalent satisfiers. The competency of lecturers might fall into this category. Figure 2.4 shows these differences between these types of attributes.
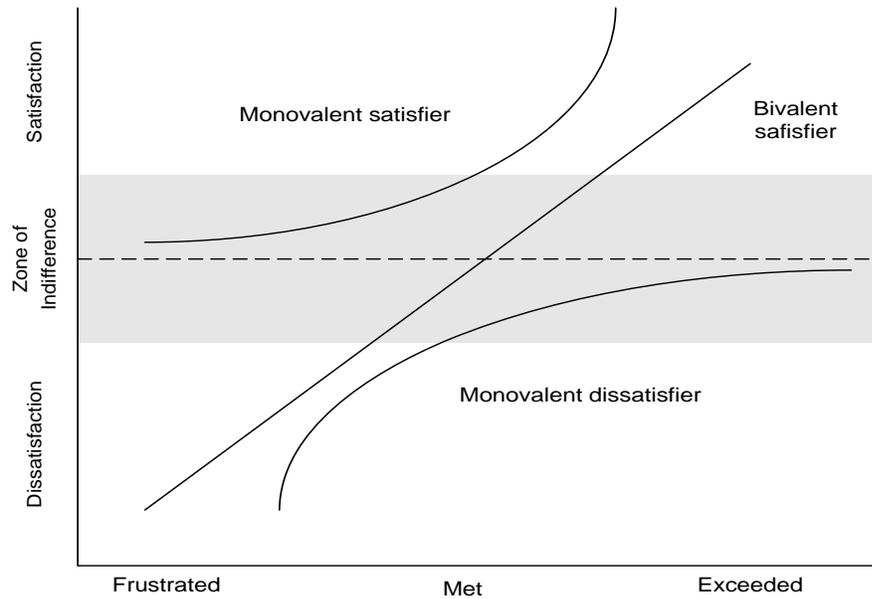
Figure 2.4: Operation of Three Need Categories on Overall (Dis)Satisfaction (Oliver, 1997)

Oliver (1997) noted that the classification of an attribute into a monovalent dissatisfier, a monovalent satisfier or a bivalent satisfier cannot be generalised as it depends on the context in which the consumer makes purchases. The researcher had also suggested an item to measure satisfaction that takes into account the fulfilment of the consumer's needs. The item reads "The services provided are exactly what I need". The complete measure of satisfaction is found in Chapter Three.

The Equity Theory of Satisfaction

Homans (1961), an early pioneer in the field of equity research, noted that a person's reward should be proportional to his or her investment. He suggested two actions consumers could take. First, they could compare their outcomes with their inputs. The outcomes refer to what a consumer would get and, in an educational context, could include support from the administrators of the programme, the availability of facilities

and, of course, the receipt of the qualification at the end of their course. Inputs would be the investments committed to the programme and could include money, time and effort. Homans' (1961) proposition of proportionality suggested the presence of a comparative reference to which an individual's outcomes and inputs are compared. This reference might be another person or the merchant. Oliver (1997) noted that the people an individual compares to might include the agent in a sales transaction, a service provider, another purchaser of the same product or even the owners of large organisations. Consumers, for example, might be sensitive to the amount of commission an automobile salesperson gets in the sale of a car and investors with shares in a company that was not making a profit might be unhappy to hear the chief executive officer received a large bonus. Existing customers of telecommunication service providers might be unhappy that the company is offering better service packages to entice new customers. These customers experience negative inequity.

Consumers are also known to use the merchant as a comparative reference when determining equity. The merchant's outcomes are the benefits he receives for the services or products offered, which are its inputs. Thus, a merchant who charges high prices for services that are considered insignificant or of low quality will be considered inequitable, leading to consumer dissatisfaction.

Two models have been suggested that explain how inequity can lead to satisfaction (the non-intervening framework (Kelly & Thibaut, 1978) and the intervening framework (Messick & Sentis, 1983; 1979). The non-intervening framework argued that inputs and outcomes have intrinsic equity interpretations and, consequently, describe the satisfaction of the situation (Oliver, 1997). The non-intervening framework is shown in Figure 2.5, while the intervening framework is shown in Figure 2.6.
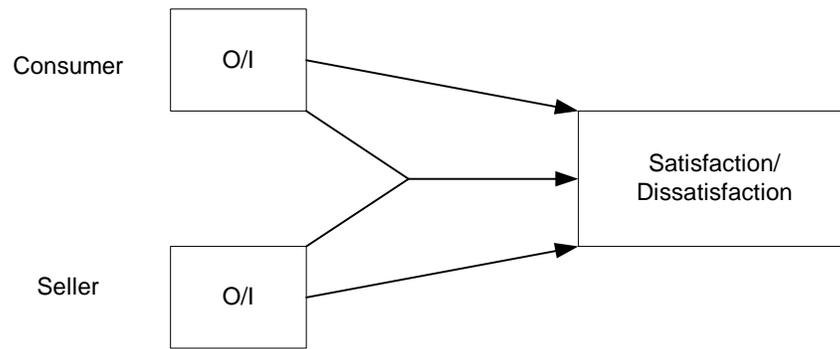
Figure 2.5: Non-intervening Approaches (Oliver, 1997)
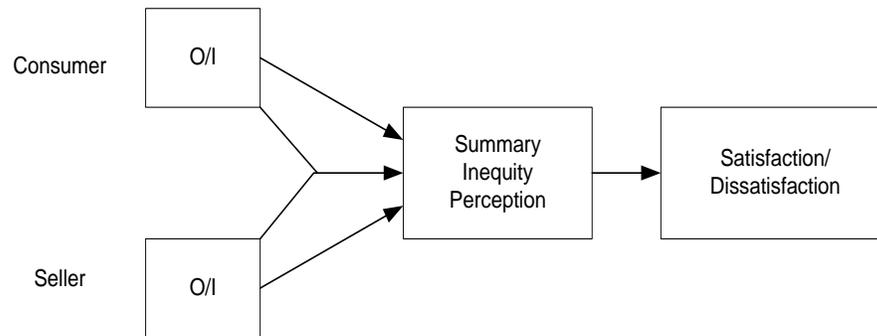
Figure 2.6: Intervening Approaches (Oliver, 1997)

The intervening approach seems to have greater consistency as it brings cognitive aspects into the model. In this framework, a consumer compares his or her outcome-input ratio with that of the other reference, but that alone does not create satisfaction or dissatisfaction. It is a consumer's interpretation of equity that leads to his or her satisfaction or dissatisfaction.

Prior research had found two competing interpretations to equity (fairness and preference (Messick & Sentis, 1979)). Fairness is a form of distributive justice in which individuals get 'what they deserve' based on their inputs (Cook & Messick, 1983). If a consumer perceived that their outcome-input ratio is approximately the same as that of

the comparative reference, he feels what he is getting is fair and, therefore, equitable, leading to satisfaction.

In contrast, the preference viewpoint suggests consumers prefer to have inequity in their favour, which is termed positive inequity (Walster, Walster & Berschield, 1978). The greater the positive inequity, the more satisfied a customer will be, as can be seen in Figure 2.7. Interestingly, several studies have found consumers feel positive inequity is fair (e.g. Oliver, 1997; Lapidus & Pinkerton, 1995).
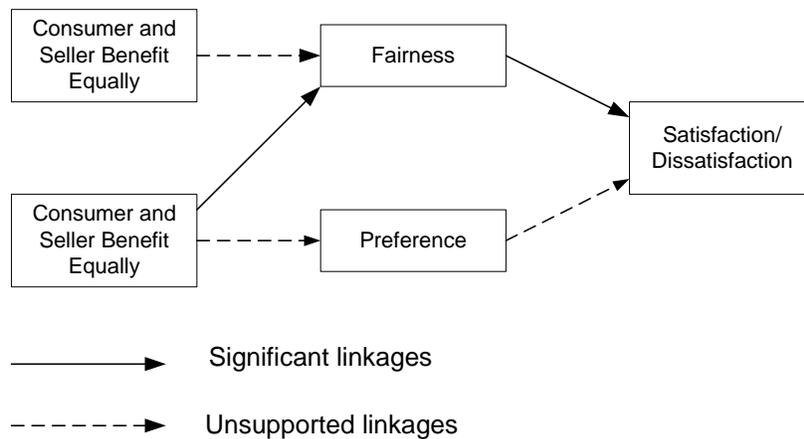
Figure 2.7: The Oliver and Swan Consumer Equity Findings

Some researchers have noted that fairness can be viewed as a multidimensional construct, and Goodwin and Ross (1992) suggested there are procedural and interactional fairness dimensions. Procedural fairness referred to the manner in which outcomes are delivered (Thibaut & Walker, 1975) and, according to Goodwin and Ross (1992), three elements are present if a transaction is judged as fair. These include an ability to participate in the distribution decision, including the chance to provide information, a belief that this information is used in the decision, and a feeling that participation has influenced the outcome (Oliver, 1997). Hence, a student who was

graded poorly by his supervisor, but not given an opportunity to defend his position, could feel the supervisor has not been fair (procedural fairness). In contrast, interactional fairness referred to the manner in which a consumer is treated in terms of respect, politeness, and dignity (Bies & Moag, 1986) and a consumer will view an outcome as equitable if what they receive is what others receive. If a student perceives a lecturer gives better treatment to others, the student could feel that he or she has not received interactional fairness.

The view of fairness as a multidimensional construct is significant as studies that have examined the effect of the various dimensions of fairness (distribution fairness, procedural fairness, and transactional fairness) on satisfaction found 79 percent of the variance of satisfaction was explained by the three dimensions, with distribution fairness being the dominant dimension (Goodwin & Ross, 1990). Other research has found that outcomes influence distribution and procedural fairness (Lapidus & Pinkerton, 1995), leading to the model shown in Figure 2.8.
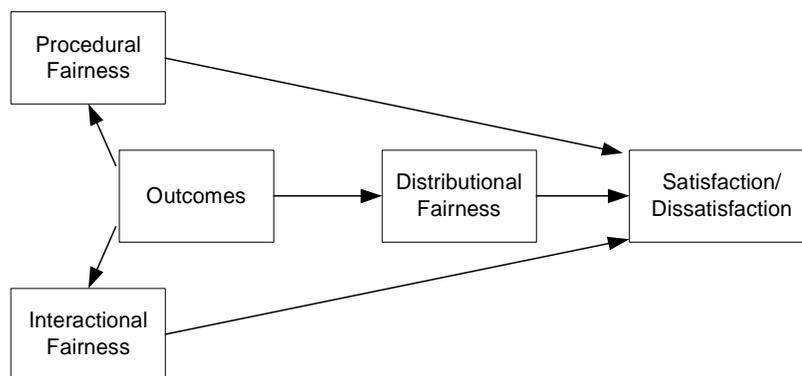
Figure 2.8: Equity Model Showing the Dimensions of Fairness (Oliver, 1997)

Although the equity model does not generally contribute to items in satisfaction measures, the model is highly relevant in an educational setting. Unlike medical

services or tuition services, where the interaction between the service provider and the customer is one to one, interaction in educational services is one to many, as one lecturer services many students at the same time. The high degree of interaction ensures comparisons will inevitably occur, and, according to the model, will result in a perception of fairness or unfairness (interactional) that lead to the feeling of satisfaction or dissatisfaction.

The Attribution Theory of Satisfaction

When students are asked for reasons that contributed to their performance, those who have done well often attribute the outcome to consistent work done throughout the course. In contrast, those who have not done as well would attribute the outcomes to having an incompetent teacher. These examples illustrate the nature of attribution, where individuals provide explanation for outcomes, whether positive or negative.

The concept of attribution was first proposed by Heider (1958) to explain individuals' reactions to others. He distinguished between reasons attributed to the person (self or other) and reasons attributed to the situation or environment. Subsequent work (e.g. Kelley & Michela, 1980) refined earlier theories. Although there are several key elements in attribution theory (e.g. actors, causes), the one that is of greatest interest to marketers (and consumer satisfaction researchers) relates to the target of the attribution (i.e. whether attributions are made to a person or to a situation). As can be seen from earlier illustration provided in this section, good students attributed positive outcomes to themselves, while the weaker students attributed negative outcomes to their teacher (the situation).

Attribution theory suggests that, when individuals make judgements as to the causes of outcomes, they do not do so rationally, leading Taylor (1981) to label them 'cognitive

misers'. Despite individuals demonstrating reasoning biases, studies have found patterns (Jones, Nisbett & Ross, 1977). Generally, attributions for the same outcome are differentially assigned depending on whether the outcome is to self or others. It seems that self outcomes tend to be situationally attributed, while the outcomes of others tended to be dispositionally (self) attributed. Further, whether outcomes are situationally or dispositionally attributed depends on whether an outcome is positive or negative (Jones et al., 1977). When outcomes are positive, individuals are motivated by 'self-enhancement' that leads them to attribute outcomes to self. In contrast, when outcomes are negative, individuals are motivated by 'self-protection, and attribute the blame to others.

In a marketing context, Valle and Wallendorf (1977) found attributions to external marketing agents (e.g. retailer and manufacturers) were three times as common as attributions to self when consumers were dissatisfied. However, when consumers were satisfied, attributions were directed to self, rather than external marketing agents. These findings have been supported by researchers in other contexts (e.g. Folkes and Kotsos (1986) in automobiles and clothing). Attribution theory has implications about the measurement of satisfaction. Satisfaction items that evaluate the wisdom of a choice or being sure a purchase decision was right are based on the attribution theory.

Satisfaction Evaluated as an Affect

Researchers examining emotion frameworks have found satisfaction in their emotional typologies (e.g. Mano, 1991; Havlana, Holbrook & Lehmann, 1989; Russell, 1979). Russell (1979) and Mano (1991) suggested emotion frameworks in the form of circumplexes, which are shown in Figure 2.9 and Figure 2.10 respectively.
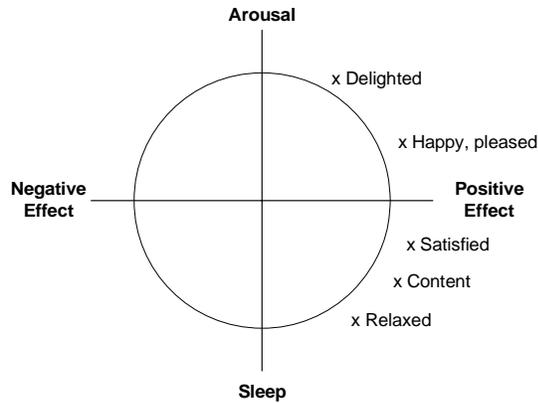
Figure 2.9: Russell's (1979) Circumplex
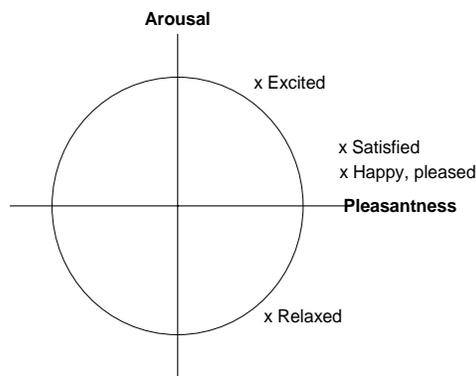
Figure 2.10: Mano's (1991) Circumplex

These circumplexes show that satisfaction can be placed within arousal frameworks. Russell (1979) placed satisfaction between pleased and content. However, Mano (1991) placed satisfaction between excited and pleased. More recently, Strauss and Neuhaus (1997) found that, for respondents who rated their total satisfaction at '1', 83% described their emotions towards the service provider as "steadfast/trust", while 15%, described their emotion as "optimism/confidence".

Oliver (1997) also noted that it was possible to experience cognitive satisfaction in the presence of negative satisfaction-related affect and affective satisfaction in the presence of negative cognition, suggesting satisfaction is subject to both affective and cognitive processes. Other researchers have suggested that emotional reactions mediates the appraisal process and responses (e.g. Bagozzi, 1992), as shown in Figure 2.11.

Appraisal Process	Emotional Reactions	Coping Responses
Outcome-desire fulfilment Achieving a goal, experiencing a pleasant event, or avaoiding an unplesant event	Satisfaction, joy, elation, pleasure, love, relief	Intent to maintain, increase, share, or enjoy outcome
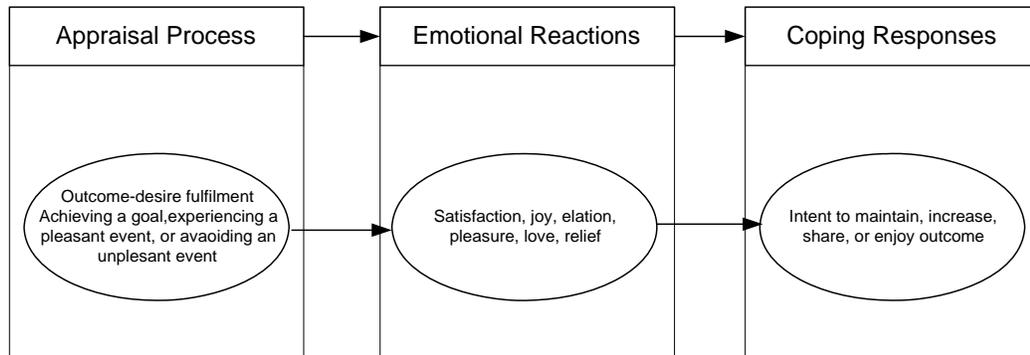
Figure 2.11: Bagozzi's (1992) Framework

The contrasting positions taken by Oliver (1997) and Bagozzi (1992) suggest satisfaction research has not matured. Nonetheless, their positions suggest consumers' emotion (or affect) should not be ignored. Bagozzi's (1992) model suggests emotions may be a better predictor of satisfaction than are cognitive-based consumption outcomes.

Further support for the inclusion of affective measures of satisfaction was provided by Spreng and Chiou (2002), who noted that, in low-context cultures, such as America, information tends to be communicated explicitly in written and verbal form, while, in high context cultures, such as Taiwan, much information is embedded in the context. According to Samli (1995), cognitive values are dominant in low-context cultures, while affective values are equally important in high-context cultures. Thus, the disconfirmation model, which focuses on the cognitive aspects of satisfaction, might

work well in low-context cultures but not in high-context cultures, such as those found in most Asian countries. Consequently both cognitive and affective components were used in the present study.

Impact of Various Models on Measuring Satisfaction

Several key satisfaction theories have been discussed. The expectancy-disconfirmation theory was discussed first as it was a major development that provided a foundation for understanding the concept. Other satisfaction theories, including need fulfilment theory, equity theory, attribution theory and affect theory, were also discussed. The various satisfaction theories discussed in this chapter were not intended to be exhaustive but were felt to be sufficient to provide a background to satisfaction.

A second reason why the various satisfaction theories were discussed related to the way satisfaction has been measured. The various theories of satisfaction formation have led to different suggestions as to how satisfaction should be measured and this was important as such a decision had to be made in the present study.

Commitment

Commitment has been extensively studied in an organisational context (e.g. Allen & Grisaffe, 2001; Hartmann & Bambacas, 2000). Allen and Grisaffe (2001) defined employee commitment as the psychological state that characterises an employee's relationship with the organisation he or she works for. In that context, Meyer and Allen (2001) have suggested that commitment has three components. Affective commitment is a person's feeling of belonging or sense of attachment to an organisation (Hartmann & Bambacas, 2000). Continuance commitment results from the perceived costs of leaving and the perceived lack of alternatives, while normative commitment refers to

the obligation employees feel to remain with an organisation (Hartmann & Bambacas, 2000).

While commitment research has its roots in organisational behaviour, recent research has extended it to a consumer context. For example, Harrison-Walker (2001) examined customer commitment in the hair grooming and veterinary industries using commitment dimensions adapted from the organisational literature.

Commitment Principles

Researchers noted that two major concepts (information and behaviour) are necessary to explain how individuals develop commitment (Staw, 1977; Salancik, 1977; Staw, 1976). To be committed, individuals must have access to extensive, understandable and credible information and must engage in activities consistent with such information (Salancik & Pfeffer, 1978; 1977). To illustrate, when people who are interested in pursuing a particular degree programme comes across such a programme (information) and subsequently enrol in it, they may not necessarily be committed to the university. They become committed only when they are involved in the activities of the university (behaviour), suggesting consumers' commitment is earned over time (Ulrich, 1989).

Ulrich (1989) further noted that not all organisations can expect committed behaviour from their customers, as customers' behaviour must be volitional, irreversible and public. Students enrolled in educational programmes in commercial institutions do so of their own free will (volitional). The time commitment for such an educational activity makes this service consumption irreversible. Finally, attending a course at a commercial educational institution is open to the scrutiny of colleagues, friends and peers (public). Following these arguments, students of commercial educational institutions can become committed to their service provider. While Ulrich (1989) did

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not distinguish between various types of commitment, his arguments suggested he was referring to what Harrison-Walker (2001) termed affective commitment.

Commitment Dimensions

While earlier research viewed customer commitment as a unidimensional construct (e.g. Ulrich, 1989), developments in the field of organisational commitment, suggested commitment was multidimensional, led to a similar view of customer commitment. In an organisational context, Meyer et al. (1993) argued that commitment was a three-dimensional construct (with affective, normative and continuance dimensions). They defined affective commitment as a person's emotional attachment to their organisation, normative commitment as a person's sense of obligation to remain, and continuance commitment as an individual's assessment of the costs associated with leaving. Blau (2003) expanded on Meyer et al's (1993) suggestion by operationalising continuance commitment as two separate sub-dimensions (accumulated costs and limited alternatives components). Accumulated costs refers to the accumulated investments that would be lost if a person left and limited alternatives as a lack of availability of comparable alternatives.

The multidimensional view of organisational commitment has been extended to consumer commitment. Harrison-Walker (2001) suggested that the construct was two-dimensional, with affective commitment and high-sacrifice commitment components. Affective commitment in this context can be defined as a customer's feelings of belonging and sense of attachment to a service provider, while high-sacrifice commitment can be defined as the commitment arising from the perceived costs of leaving an existing service provider and a perceived lack of alternatives (Harrison-Walker, 2001). As an illustration of high-sacrifice commitment, a customer of a

commercial education provider may feel compelled to remain with the institution because it is the only institution offering a suitable programme.

More recently, Bansal et al. (2004) suggested that Meyer et al.'s (1993) three component model of organisational commitment can be adapted to a consumer context. In this context, affective commitment refers to the binding of the consumer to the service provider out of desire, normative commitment refers to the binding of the consumer to the service provider out of perceived obligation, and continuance commitment refers to the binding of the consumer to the service provider out of need. In view of the need for consistency with Harrison-Walker's (2001) research, her commitment dimensions were used in the current study.

Service Quality

Parasuraman et al. (1994) defined service quality as the discrepancy between customers' expectations for the service and their perceptions of service performance, and this definition is widely accepted. While the concept of perceptions of service performance can be easily understood, there are different views as to how consumers' expectations are formed. These views, arising from differences over the comparative referent used, are discussed in the following paragraphs.

According to Ginter (1974), the comparative referent is an ideal product, defined as one that possesses ideal levels for all of its relevant features. Following Ginter's (1974) suggestion, Oliver (1997) proposed equation 2.1 as a way to measure consumers' service quality judgements.

$$Q_j = 100 - \Sigma\,(\,pr_y\,|\ P_y - I_i\,|\,) \qquad\qquad (2.1)$$

Where Q_j = quality judgement of brand j

                100   = arbitrary constant to ensure positive-numbered judgements

                Σ = summation over all attributes

                pr_y = probability that brand j processes attribute i

                P_y = performance level of brand j on attribute i

                I_i = ideal level of attribute i

                | | = absolute value bars

The absolute value bars suggest a performance level that is too high on a particular attribute might not necessarily be a good thing. This might happen in the case of student supervision. Students often welcome increased interaction with a lecturer as this is viewed as an act of concern. However, when the level of interaction is increased beyond what the student considers to be ideal, they may feel they are being monitored, which is undesirable.

The second comparative standard consumers might use in determining service quality perceptions is that of excellence, or the level of service provided by an excellent company, leading to equation 2.2 (Oliver, 1997).

$$Q_j = \Sigma\,(P_y - E_i) \qquad\qquad (2.2)$$

Where Q_j = quality gap for company j

                Σ = summation over all dimensions, features, or attributes

                P_y = performance perception for company j on dimension i

                E_i = excellence expectation for dimension i

It can be seen from these two models that consumers are thought to make judgements on specific service features that impact on their overall judgement. This discussion is relevant to the current research as service quality was evaluated on its features, rather than on a global basis.

Conceptual Differences between Service Quality and Satisfaction

As both satisfaction and service quality constructs were examined in the current research framework, it is necessary that consumers can discriminate between them to ensure discriminant validity between the constructs. The following sections describe the conceptual differences between the two constructs.

Experience Dependency

Consumers do not need to be exposed to the consumption of the product or service to draw conclusions about service quality because consumers can rely on the experience of others or on informational sources to make such judgements. In contrast, satisfaction can only be determined after consumption.

Attributes and Dimensions

Oliver (1997) noted that service quality dimensions are more clearly defined than are satisfaction dimensions. It has been suggested that satisfaction judgements can result from any dimension and, often, consumers may be dissatisfied with events outside the control of a service provider. For example, students might be dissatisfied when their peers speak among themselves in a lecture theatre. This suggests that an encounter measure of satisfaction may not be the best approach in the present study.

Expectations and Standards

It was noted previously that the comparative standards used for determining service quality are the ideals or the service levels provided by excellent companies. In contrast, and as mentioned earlier, the comparative standards used for determining satisfaction are needs, predictive expectations and equity.

Cognition and Affect

Researchers agree that quality judgements are primarily cognitive (Iacobucci, Grayson & Ostrom, 1994; Oliver, 1994; Dabholkar, 1993; Zeithaml, 1988) and that both cognition and affect are present in satisfaction (Oliver, 1993; Mano & Oliver, 1993). This is consistent with the approach taken in the current research, in which satisfaction was measured with both cognitive and affective items.

Level of Abstraction

Oliver (1997) suggested that service quality at a lower levels of abstraction can be termed service micro dimensions, while those at higher levels of abstraction can be termed service macro dimensions. Micro level features in an educational institution could include the availability of books, electronic database sources, audio-visual equipment and electronic messaging. While the evaluation of service quality at such low levels of abstractions provides managers with diagnostic information, they do not help in pinpointing problem dimensions. Oliver (1997) noted that going to such specificity requires a longer list of features and leads to long questionnaires, resulting in inaccuracies from respondent fatigue. Consequently, almost all service quality studies examine service quality dimensions rather than focusing on specific features. Levitt (1983), for example, suggested a four-level conceptualisation (the generic product, the

expected product, the augmented product and the potential product). Applying Levitt's (1983) proposal to a service context, Clemmer (1990) suggested a three-ring model (basic service, service support, and enhanced service), representing the musts, satisfiers and delights. He argued that the provision of basic service precludes dissatisfaction, the delivery of service support creates satisfaction, but the delivery of enhanced service delights the customer.

Parasuraman et al. (1988) suggested five service quality dimensions (tangibles, reliability, responsiveness, assurance, and empathy) and developed the twenty-two item SERVQUAL scale. While popular, some have questioned the generalisability of the scale (Carman, 1990) and it has been found that the number of dimensions obtained through factor analysis varies across industries. For example, Cronin and Taylor (1992) found the twenty-two items loaded onto a single factor in each of the four industries they examined. The dimensions found in a number of studies can be seen in Table 2.2.

Table 2.2: Summary of Perception Dimensions Across Selected Industries (c.f. Soutar & McNeil, 1996; Carman, 1990)

Original SERVQUAL	SERVQUAL Revised	Tire Store	Placement Centre	Dental Clinic	Education Institution
Tangibles	Tangibles	Tangibles	Tangibles	Tangibles	Tangibles
Reliability	Reliability	Reliability	Reliability	Reliability	Reliability
Responsive	Responsive	Responsive	Responsive		Responsive
Communication					
Credibility					
Security		Security	Security	Security	
Competence	Assurance				Assurance
Courtesy		Courtesy	Personal-attention		
Understanding	Empathy				Empathy
Access		Access	Access		
			Convenience	Convenience	
				Cost	
					Knowledge
					Communication

Swan and Combs (1976) suggested that the perceived performance of a product can be divided into instrumental performance and expressive performance dimensions, with the former representing the technical dimension of the product and the latter, the "psychological" level of performance (Grönroos, 1984). In the current study, the technical dimension included accessibility to and the adequateness of resources and the competency of the lecturers. The psychological dimension is affected by the interaction between the consumer and the service provider and may include acts of courtesy and empathy by service staff. Swan and Combs (1976) noted that satisfactory instrumental performance is necessary for satisfaction but both good instrumental and expressive performance lead to a satisfied customer. Despite conceptual advancements made by Swan and Comb (1976), the empirical tests on these concepts made by the researchers relate mostly to consumers goods rather than services.

Technical and Functional Service Quality

Grönroos (1984) suggested that the instrumental performance of a product referred to what the customer is left with, or the technical result of the service production process (e.g. knowledge transferred from a lecturer to a student). Grönroos (1984) termed this quality outcome as technical service quality and noted that this quality dimension, on its own, does not account for the total perception of quality. He suggested that expressive performance, which is related to buyer-seller interactions, and is known as functional service quality, is also important. In an educational context, this could include the quality of interactions with the course advisor, the cashier to whom fees are paid, the signage showing where the student should be going to on the first day of class, and the comfort of the seats and lecture theatres. However, this aspect of quality is not limited only to buyer-seller interactions. Due to the inseparability of services, Grönroos (1984) also suggested functional service quality can be affected by buyer-buyer interactions.

To illustrate, students chatting in class (buyer-buyer) can affect the quality of the interaction between other students and their lecturer.

Grönroos (1984) argued that technical service quality lends itself to more objective evaluation, while functional service quality tends to be more subjective. Perhaps this is the reason for the varied results that have been obtained by the SERVQUAL scale, a scale as it is primarily based on functional service quality aspects.

The recognised empirical weaknesses of the SERVQUAL scale and its lack of generalisability across industries, as well as the perceived benefits of Grönroos's (1984) two-dimensional service quality measure led to the decision to use Grönroos's measure in the current study and its operationalisation is discussed more fully in Chapter Three.

The Hypothesised Relationships between the Constructs

Commitment and Word-of-Mouth (WOM)

Dick and Basu (1994) suggested that WOM communication is a consequence of commitment. Other researchers have argued that affective commitment develops and maintains mutually beneficial relationships between partners (Kumar, Hibbard & Stern, 1994). Those who value and want to maintain involvement with an organisation (affective commitment) are more willing to exert effort on its behalf, whereas those who feel compelled to remain with an organisation to avoid financial or other costs (high-sacrifice commitment) may do little more than the minimum required (Harrison-Walker, 2001; Mowday, Steers & Porter, 1979). These arguments suggest affective commitment, rather than high-sacrifice commitment, will significantly impact on WOM. Harrison-Walker's (2001) research supports this argument.

The limited empirical results relating to consumer affective commitment suggest other constructs should also be examined and one of these is customer loyalty. Assael (1987) defined customer loyalty as commitment toward a brand, suggesting a close association between commitment and loyalty. Extensive research has suggested customer loyalty is a strong predictor of WOM (e.g. Gremler & Brown, 1996; Reichheld & Sasser, 1990). Consequently, if loyalty is viewed as a proxy for commitment, the case for commitment having a positive impact on WOM is strengthened, leading to the following hypotheses:

H1: *The greater the affective commitment, the greater WOM Activity*

H2: *The greater the affective commitment, the greater WOM Praise*

H3: *The effect of affective commitment on WOM Activity is greater than the effect of high-sacrifice commitment on WOM Activity*

H4: *The effect of affective commitment on WOM Praise is greater than the effect of high-sacrifice commitment on WOM Praise*

Satisfaction and Commitment

According to Ulrich (1989), satisfaction and commitment differ in the following ways:

1. Satisfied customers feel good as long as their needs are fulfilled, while committed customers look beyond short-term pleasures and develop an allegiance to the firm.

2. Satisfied customers are pleased, humoured, and fulfilled, while committed customers are dedicated and faithful.

3. Satisfied customers remain independent from the firm, while committed customers become interdependent with the firm through shared resources and values.

Ulrich (1989) further argued that customers might express themselves differently when satisfied and when committed. While the totally satisfied customer might say, "My needs have been assessed and met, so I feel good about dealing with this firm", the committed customer would say, "We have developed interdependencies, shared values and strategies to the extent that our separate needs can best be met through long-term devotion and loyalty to each other." He also noted that, as satisfaction and commitment are distinct, customers could be satisfied without being committed. Likewise, one negative experience (dissatisfaction) may not lead to a loss of commitment.

While no studies so far have examined the relationship between satisfaction and commitment in a consumer context, evidence in organisational contexts suggests satisfied employees are more committed to their organisations than are dissatisfied employees (O'Driscoll & Randall, 1999; Eby, Freeman, Rush & Lance, 1999), suggesting:

H5: *The higher the level of satisfaction, the greater will be the level of affective commitment*

H6: *Satisfaction has a greater effect on affective commitment than it does on high-sacrifice commitment*

Service Quality and Satisfaction

As noted earlier, service quality and satisfaction are distinct constructs. The major differences are presented in a summary form in Table 2.3.

Table 2.3: Differences between Quality and Satisfaction (Oliver, 1994)

Comparison Dimension	Quality	Satisfaction
Experience dependency	None required; can be externally or vicariously mediated	Required
Attributes/dimensions	Specific to characteristics defining quality for product or service	Potentially all attributes or dimensions of product or service
Expectation/standard	Ideals, excellence	Predictions, norms, needs, etc
Cognitive/affective	Primarily cognitive	Cognitive and affective

Despite general agreement that service quality and satisfaction are distinct constructs, researchers have remained divided over their order. Some viewed service quality as an antecedent to satisfaction (e.g. Cronin et al., 2000; Soutar & McNeil, 1996; Parasuraman et al., 1985), arguing that service quality is one dimension on which satisfaction is based (Dick & Basu, 1994). Others, however, viewed satisfaction as an antecedent to service quality (e.g. Bitner et al., 1994; Bolton & Drew, 1991), arguing that perceived service quality, regarded as an attitude, is a function of consumer's residual perception of the service's quality from the prior period and his or her level of satisfaction or dissatisfaction with the current level of service performance (Bolton & Drew, 1991; 1991).

In one of the more comprehensive studies to date, Cronin et al. (2000) examined six industries and found satisfaction was a significant mediator of the effect of service quality on behavioural intentions, providing strong support for the suggestion that service quality is an antecedent to satisfaction.

Perhaps the most comprehensive theory explaining the relationship between the two constructs was suggested by Oliver (1994), who argued that the order of relationship

between service quality and satisfaction depends on how service quality and satisfaction are viewed, as both have short-term and long-term effects. Service quality can be viewed at an encounter level and, as episodes accumulate, consumers form an overall judgment about the quality of the service. Oliver (1994) noted that, if consumption is experienced, service quality will have a significant impact on customer satisfaction, in turn, reinforcing perceptions of service quality.

Many researchers (e.g. Bitner et al., 1994; Bolton & Drew, 1991; Parasuraman, Zeithaml & Berry, 1988) who compared service quality and satisfaction noted that satisfaction is transaction-specific, whereas service quality is a long-run evaluation. Following this background, Oliver (1997) suggested short-term encounter-specific quality influences short-term encounter-specific customer satisfaction and that these add into a global satisfaction judgement, as can be seen in Figure 2.12.
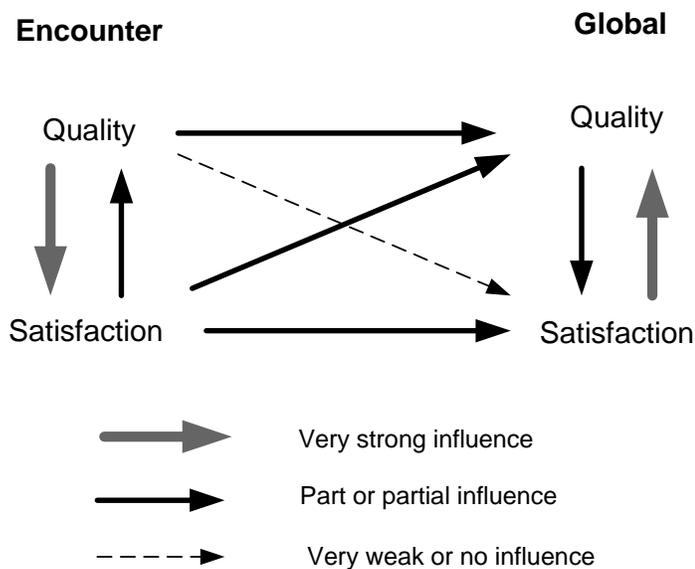
Figure 2.12: Oliver's (1997) Illustration of the Reciprocal Influences between Quality and Satisfaction

Figure 2.12 suggests the relationship between the two constructs depends on the objective of the study, which, in turn, determines how quality and satisfaction are

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viewed (encounter-specific or global). If satisfaction and quality are examined at a global level, satisfaction will have a positive impact on quality (and quality has a partial influence on satisfaction) but, if both constructs are examined at an encounter-specific level, quality impacts on satisfaction. In the current study, service quality was examined at a global level of two dimensions (technical and functional) while satisfaction was also examined at a global level. Figure 2.12 suggests that, in the current study, service quality should have a partial impact on satisfaction (although satisfaction might have a strong influence on service quality). Strong empirical evidence showing service quality's impact on global satisfaction supported the suggested relationship (e.g. Cronin et al., 2000). Following Grönroos's (1984) argument that service quality should be viewed as a two-dimensional construct, with technical quality and functional quality dimensions, the following hypotheses were suggested:

> H7: *The higher the level of perceived technical quality, the higher the level of satisfaction*

> H8: *The higher the level of perceived functional quality, the higher the level of satisfaction*

The research framework for the current study that is implied by the various hypothesised relationships can be shown diagrammatically as in Figure 2.13. The proposed model includes six latent constructs (service quality, satisfaction, high-sacrifice commitment, affective commitment, WOM Activity, and WOM Praise) and eight hypothesised relationships and it was this model that was examined in the present study.
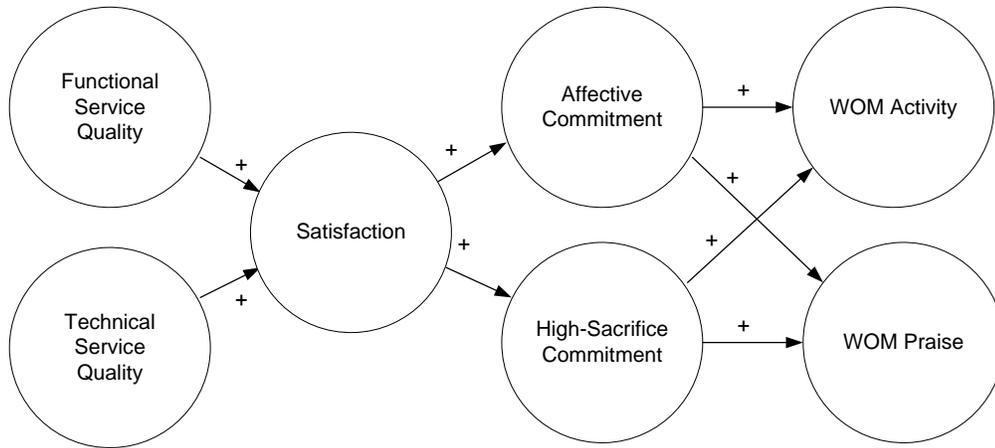
Figure 2.13: The Current Research Framework

It should also be noted that some relationships, particularly those between service quality and word-of-mouth, were not examined in the current model, although the original model suggested there is a relationship between them. This was because doing so would have resulted in an unidentified model, which would have meant that subsequent findings obtained would not be meaningful.

Summary

The present chapter reviewed the relevant research for each of these constructs included in the suggested model and for the suggested relationships between them. The constructs examined in the current research were service quality, satisfaction, commitment and word-of-mouth. Service quality and satisfaction, in particular, have been examined in depth by prior research and rich theories about their formation have been developed and the present chapter traced their development.

The suggested relationships that were examined in the present research were between service quality and satisfaction, satisfaction and consumer commitment and consumer commitment and word-of-mouth. Some relationships have been previously examined

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in other consumer contexts (e.g. the relationship between service quality and satisfaction), while other relationships (e.g. between satisfaction and commitment) were inferred based organisational behaviour research.[3]   The remaining relationships (e.g. between commitment and word-of-mouth) were based on other research into marketplace outcomes (e.g. customer loyalty).

The constructs used in the current research were based on the research background that was presented in the present chapter.   The ways in which these constructs were measured, however, is discussed in Chapter Three.   In addition, Chapter Three describes the research approach taken to obtain the data needed and the data analysis that was used to examine the data and estimate the suggested model.

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[3] Commitment research was first undertaken by organisational researchers.

CHAPTER THREE

THE RESEARCH APPROACH TAKEN
IN THE CURRENT STUDY

Introduction

In Chapter Two, the various constructs included in the suggested extended word of mouth model were examined and the model's implied hypotheses were discussed. The present chapter provides a description of the research approach used in the current study, discusses how the measures of the various constructs within the model were chosen and, finally, discusses the development of the questionnaire that was used to collect the data that was subsequently analysed

The Research Approach

The Sample

Data for the current study were obtained from students enrolled in the Singapore Institute of Management (SIM). SIM, which was founded in 1964, is an independent not-for-profit professional membership organisation which has, over the years, grown to become the largest private professional educational and training institution in Singapore. It offers forty bachelors programmes, thirteen masters programmes and two doctoral programmes to about 3,000 full-time students and 12,500 part-time students in collaboration with a number of foreign universities, including:

- RMIT University

- The University of Melbourne

- The University of Queensland

- The University of Sydney

- Beijing Normal University

- Henley Management College/Brunel

- The Open University (UK)

- University of London

- State University of New York at Buffalo

- The George Washington University

- The University of Manchester Institute of Technology

SIM offers more than forty degree programmes with a number of different specialisations. For the current study, a convenience sampling approach was used, with responses obtained from students enrolled in the following programmes:

- Bachelor of Science in Business

- Bachelor of Science in Economics and Management

- Bachelor of Science in Management

- Bachelor of Science in Management with Law

- Bachelor of Science (Honours) in Financial Services

- Bachelor of Science in Business Administration

As the objective of the current research was to examine the formation of WOM activities with a model that included constructs such as service quality, satisfaction and commitment, a sampling requirement was that the respondents selected should have adequate exposure to the services of the commercial institution. This follows from Halstead's (1994) suggestion, which was discussed in Chapter Two, that experience is necessary for the formation of these types of attitudes and outcomes (Oliver, 1997). To

ensure students had reasonable exposure to the commercial educational institution's services, only students who had been enrolled in the institution for more than six months were included in the sample.

It was also thought unnecessary to sample students from all of the programmes offered by the institution as the objective of the current study was to examine the relationships between the constructs of interest, rather than the performance of the institution. On the other hand, the need to reduce sampling errors suggested that students from more than one programme should be sampled. Consequently, as already noted, students were sampled from seven of the programmes offered within SIM.

Although several of the programmes from which responses were obtained had full-time and part-time enrolments, only the latter group was used. This was done to minimise the effect of background differences as it was felt that full-time students and part-time students differ significantly in terms of their work experience and age.

All part-time students enrolled in the seven programmes were asked to complete the surveys in class. As nearly all of the students[4] in the selected programmes participated in the surveys, the randomness of sample was not an issue.

Sample Size

According to Hair et al. (1998), four factors should be considered when determining an appropriate sample size when structural equation modelling is used to analyse data, as was the case in the present study (support for the use of structural equation modelling is provided later in this chapter). These factors included model misspecification, model size, departures from normality and the estimation procedure that is used. The following sections discuss these issues in turn.

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[4] As noted in Chapter Four, the response rate of the survey was ninety-two percent.

Model Misspecification

Model misspecification refers to the extent to which a model suffers from specification error and arises from the possible omission of potential constructs and indicators. According to Hair et al. (1998), if a researcher is confident that the most important constructs and indicators are included in the model, sample size need not be increased over what is usually recommended.

As the current research framework was developed from prior research, it was unlikely that major constructs that might influence WOM activities had been omitted. Further, the measures for the latent constructs in the current study were carefully chosen and adapted from prior studies in which they had been systematically developed. It was not thought that important indicators had been omitted from the various constructs. Thus, sample size did not need to be increased over what model complexity suggests is necessary.

Model Size

Hair et al. (1998) also noted that the minimum sample size used in a study must be greater than the number of covariances or correlations in the input data matrix and they suggest that a minimum ratio of at least five respondents for each estimated parameter should be used as a guideline. In the current study, forty-four indicators were used to measure the model's seven latent constructs (7 items for WOM Activity; 4 items for WOM Praise; 9 items for Affective Commitment; 6 items for High-Sacrifice Commitment; 7 items for Satisfaction; 7 items for Technical Service Quality; 4 items for Functional Service Quality). With a further eight correlations between the latent constructs, a total of fifty-two parameters needed to be estimated in the model. Thus, according to Hair et al. (1998), a minimum sample of 260 was needed.

Departures from Normality

Hair et al. (1998) also noted that the ratio of respondents to parameters should be increased if multivariate normality assumptions are violated, and suggested a ratio of 15 respondents for each parameter estimated in such cases. Thus, a maximum sample of 780 respondents might be needed in the present context.

Estimation Procedure

Maximum likelihood estimation (MLE) requires a minimum sample of 100 to 150 observations (Ding, Velicer & Harlow, 1995). However,, with very large sample sizes (more than 400), MLE can become 'too sensitive', resulting in the various goodness-of-fit measures suggesting a poor fit, even when differences between the estimated and observed covariance matrices are very small (Tanaka, 1994; Marsh, Balla & McDonald, 1988; Carmines & McIver, 1981). Hair et al. (1998) therefore suggested a sample of between 100 to 200, while Hoelter (1983) suggested that 200 was the 'critical sample size'. Following Hair et al.'s (1998) suggestion that there should be a minimum of five respondents for each parameter estimated, a sample of about two hundred and sixty was the target in the present study as it was assumed that the constructs would be reasonably normally distributed.

The Investigative Method

As was noted earlier, the respondents surveyed were students at SIM. While a number of survey options were available, it was felt that an in-class survey would give a higher response rate and, hence, this collection method was used, with students being asked to complete the survey during class breaks.

A pre-test of the questionnaire was undertaken on a sample of twenty-five respondents with similar backgrounds to those questioned during the main survey (part-time

students of bachelor programmes) to identify possible problem areas that might arise from the survey. No respondent encountered any problem with the wording of the questions and most took no longer than fifteen minutes to complete the questionnaire. This was not unexpected given the respondents are undergraduates.

The Data Analysis Approach

As can be seen in Figure 2.17, the study involved an examination of the relationships between two exogenous constructs (Functional Service Quality and Technical Service Quality) and five endogenous constructs (Satisfaction, Affective Commitment, High-Sacrifice Commitment, WOM Activity, and WOM Praise). Of the five endogenous constructs, two were dependent variables (WOM Activity and WOM Praise) and three were intervening or mediating variables (Satisfaction, High-Sacrifice Commitment, and Affective Commitment). Given this, structural equation modelling was felt to be the appropriate data analysis approach for the reasons outlined in subsequent paragraphs.

Interrelationships between constructs

The current model has a number of interrelationships. Service quality influences satisfaction, satisfaction influences commitment and commitment influences WOM. Hair et al. (1998) noted that structural equation modelling is the appropriate analytical method for analysing such interrelationships.

Latent constructs

Latent constructs were used in the current study. Hair et al. (1998) defined a latent construct as an unobserved concept that can be approximated by a set of observed (or manifest) variables. This definition suggests that manifest variables might not fully represent a latent construct and, hence, measurement error is present in the estimation. Hair et al. (1998) also noted that structural equation modelling can represent such latent

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constructs and account for measurement error in the estimation process, thereby further supporting its use in the current study.

Social Desirability

Researchers agree that there is a tendency for individuals to avoid negative evaluations and to portray a positive view of themselves by providing self-reports of behaviours that are socially desirable (Loo & Thorpe, 2000; Latkin, 1998). This tendency, known as social desirability, has been formally defined as the need for social approval, or acceptance, and the belief that this approval or acceptance can be achieved through culturally acceptable and appropriate behaviours (Crowne & Marlowe, 1964; Marlowe & Crowne, 1964).

It has been noted that social desirability bias has been consistently neglected in scale construction, evaluation and implementation (King & Bruner, 2000) and that this neglect can be a threat to the validity of survey research findings in social sciences (Marisky et al. (2002). Although social desirability bias has not been evaluated in the areas of service quality, satisfaction or their outcomes, concerns about this issue suggested it was better to err on the side of caution and ensure results were free from such a bias. Consequently, a social desirability bias scale was included in the questionnaire and is discussed later in the present chapter.

Measures of the Latent Constructs

This section discusses the considerations that led to the choices of measures for the various latent constructs in the model, starting with word-of-mouth, which was the construct of central interest. In all cases, responses were obtained on a 7-point Likert-type scale.

The Word-of-Mouth Measure

The current study was an extension and replication of Harrison-Walker's (2001) research, and, therefore, it was thought that as far as possible, the measures chosen in the present study should be similar to those used in her study because, as was noted in Chapter One, one of the purposes of the present study was to see whether her results could be replicated in a new context as the present study was undertaken in a Singaporean educational institution.

It is important to note that WOM measures used in some earlier studies were either not properly developed or not empirically validated (e.g. Anderson, 1998; Bone, 1995; Singh, 1990; Swan & Oliver, 1989). Harrison-Walker's (2001) measures, however, were systematically developed and were found to be reliable (WOM Activity had alpha coefficients of 0.80 and WOM Praise had alpha coefficients of 0.78). Further, she established discriminant validity between WOM and commitment, a construct that was also included in the current model. The items used to measure the two WOM dimension suggested by Harrison-Walker (2001) (activity and praise), as adapted for the current study, are shown in Table 3.1 and Table 3.2.

Table 3.1: The WOM Activity Measure

1. I often mention SIM to others.
2. I talk to more people about SIM than I do about most other organisations.
3. I seldom miss an opportunity to tell others about SIM.
4. When I tell others about SIM, I tend to talk about it in great detail.
5. I only rarely mention SIM by name (R).
6. I rarely have the occasion to mention SIM to others (R).
7. Once I get talking about SIM, it is hard to stop.

   R means reverse coded

Table 3.2: The WOM Praise Measure

1. I have only good things to say about SIM.

2. I am proud to tell others I study at SIM.

3. Although I study at SIM, I don't recommend it to others (R).

4. In general, I do not speak favourably about SIM (R).

   R means reverse coded

Although only four WOM Activity items (the first four items in Table 3.1) and two WOM Praise items (the first two items in Table 3.2) remained after scale purification in her studies, the current study used the original items shown in Table 3.1 and Table 3.2 and subjected them to a scale purification process. This approach was taken, rather than relying on Harrison-Walker's (2001) final measures, as the contexts of the two studies were very different (Harrison-Walker's (2001) study was done in a hair-salon and veterinary industry context).

The Commitment Measure

As commitment studies originated in organisational behaviour, most of the systematically developed commitment measures have been designed for use in that context (e.g. Schechter, 1985), rather than in a consumer context. Harrison-Walker (2001) added and adapted items to an existing battery of items from Schechter's (1985) study and found the measures to be reliable. (Affective commitment had an alpha coefficient of 0.95 and high-sacrifice commitment had an alpha coefficient of 0.85.)

It should be noted that as well as the organisational commitment measures developed by Schechter (1985) (from which Harrison-Walker (2001) developed her commitment measure), alternative measures, such as the occupational commitment measure developed by Blau (2003), were also available. However, to allow for a meaningful comparison between studies, Harrison-Walker's (2001) commitment measures were

preferred. As there were a large number of items in her final commitment scale (11 items for affective commitment and 6 items for high-sacrifice commitment), these measures were used in the current study, as shown in Table 3.3 and Table 3.4.

Table 3.3: Affective Commitment Measure

1.	SIM is one of the best service organisations of its kind.
2.	I am proud to study at SIM.
3.	I care about SIM's success.
4.	I like the way SIM operates.
5.	I like SIM.
6.	I have a special relationship with SIM.
7.	I want to help SIM achieve its goals.
8.	Studying at SIM is enjoyable.
9.	I study at SIM because I like it.
10.	I usually agree with SIM's policies and procedures on important matters.
11.	SIM inspires me to be a good customer.

Table 3.4: High-Sacrifice Commitment Measure

1.	The longer I study at SIM, the harder it is for me to leave.
2.	It would be difficult for me to adapt to a new educational institution if I left SIM.
3.	My present circumstances would have to change to stop me from studying at SIM.
4.	I would give up a lot if I stopped studying with SIM.
5.	Changing to a new educational institution would be impractical for me.
6.	I remain with SIM only because it would be difficult to make a change to another institution.

The Satisfaction Measure

It was noted in the previous chapter that satisfaction can be measured either on a global basis or on a multi-sourced basis. Despite the benefits of the latter approach from a diagnostic perspective, it was argued that a global measure would improve model parsimony and was sufficient for the purposes of the current study. Hence a global measure was used.

It was also argued that, while satisfaction can be viewed from either a cognitive or an affective perspective, the full impact of the construct can only be captured if both components are included (Oliver, 1997; Strauss & Neuhaus, 1997; Liljander & Starandvik, 1997). Further, it was argued that, in Asian countries, which are considered high context cultures, the need for an affective satisfaction component is even more pronounced (Samli, 1995). However, the greatest support for the inclusion of the affective component came from Fullerton and Taylor (2002), who noted that researchers have demonstrated the strongest discriminant validity between satisfaction and service quality if this component is included in the measure of satisfaction.

Following these considerations, it was decided to use items from two previous studies.[5] Three cognitive items and were taken from Westbrook and Oliver's (1991) satisfaction measure and four affective items were taken from Spreng and MacKoy's (1996) scale. The seven items are shown in Table 3.5.

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[5] It should be noted that consumer satisfaction was not evaluated in Harrison-Walker's (2001) study and so measures from other studies were used in the current study.

Table 3.5: Satisfaction Measure

1. My decision to study at SIM was a wise one.[a]
2. I think I did the right thing when I decided to study at SIM.[a]
3. The services provided by SIM are exactly what I need.[a]
4. I am very pleased with SIM's services.[b]
5. I am very contented with SIM's services.[b]
6. I am very delighted with SIM's services.[b]
7. I am very satisfied with SIM's services.[b]

[a] *based on Westbrook and Oliver's (1991) measure*
[b] *based on Spreng and MacKoy's (1996) measure*

The Service Quality Measure

The dominant measure of service quality is based on Parasuraman et al.'s (1985) SERVQUAL scale, which views service quality as the gap between customers' service expectations and their perceptions of the service experience. Despite its popularity, the scale has been criticised for its lack of generalisability as some researchers have found that the various items do not always load onto the same components (Carman, 1990). Further, the number of dimensions obtained through factor analysis is not consistent across industries and, in some studies, performance-based measures offered a better explanation for service quality than did performance-expectations difference scores (Woodruff, Cadotte & Jenkins, 1983; Churchill & Suprenant, 1982).

In Harrison-Walker's (2001) study, the twenty-two item SERVQUAL scale loaded onto two dimensions, with one dimension measuring tangibles and the other measuring reliability, responsiveness, assurance and empathy. She found the scale reliability of both dimensions to be high (alpha coefficient was 0.88 and 0.97 respectively). Despite this, it was not mentioned why service quality was subsequently evaluated as a one dimensional construct.

The potential problems with the SERVQUAL scale suggested that an alternative scale should be used for the current study. As noted in the previous chapter, Grönroos's (1984) service quality components (technical quality and functional quality) provided a useful alternative. As a brief recap, Grönroos (1984) referred to technical quality as the outcome or "what the customer is left with, when the production process and buyer-seller interactions are over" and functional quality as the "experiences of the simultaneous production and consumption process". The items that capture the students' experiences (functional quality) were adapted from Dabholkar (2000), Oliver (1997) and from Sweeney et al. (1999) and are shown in Table 3.6.

Table 3.6: Functional Service Quality Measure

1. SIM's staff are interested in me as a student[b].

2. I get individual attention at SIM[b].

3. SIM's staff are courteous[b].

4. SIM's staff provide prompt service[b].

5. SIM provides excellent overall service to its students[a].

6. SIM's service is of very high quality[a].

7. SIM provides a high standard of service[a].

8. SIM provides superior service to its students[a].

9. SIM's service outcomes are comparable to the best organisations I know[c].

   [a] *Based on Dabholar's (2000) measure*
   [b] *Based on Sweeney et al's (1999) measure*
   [c] *Based on Oliver's (1997) definition of service quality*

In the context of commercial educational services, technical quality relates to the accuracy of information provided by SIM's staff that would lead the students to the degree and subsequently the career they seek. The items for technical quality were adapted from Sweeney et al. (1999) and are shown in Table 3.7.

Table 3.7: Technical Service Quality Measure

1. SIM's staff really know what they are talking about.

2. SIM can answer all the questions I have as a student.

Regardless of the measure of service quality chosen, some difficulties were expected to arise as many studies have shown service quality and satisfaction are highly correlated (Cronin et al., 2000; Bansal & Taylor, 1999; Spreng & MacKoy, 1996; Taylor & Baker, 1994; Cronin & Taylor, 1992) and, consequently, their inclusion can lead to difficulties in establishing discriminant validity (Fornell & Larker, 1981).

The Social Desirability Measure

The Marlowe and Crowne scale is the oldest and most widely used social desirability bias scale (Crowne & Marlowe, 1960). Prior research has found that the scale is independent of gender and focuses on interpersonal sensitivity and considerateness (Holden & Fekken, 1989). However, the scale may be more a measure of impression management than of self-deception (Paulhus, 1991).

Despite the popularity of the scale, Rudmin (1999) faulted it for its excessive length and unbalanced positive and negative keying. With regards to the second weakness, he noted that positively and negatively keyed items should be equal in number if acquiescence bias, or the tendency to answer "yes", is to be cancelled out. Rudmin (1999) subsequently, developed a social desirability scale without the two noted weakness of the Marlowe-Crowne scale. Further, he found the new scale had additional benefits of a mean nearer the mid-point of the response scale, a larger standard deviation and fewer criticisms of language. Consequently, Rudmin's (1999) scale was used in the current study.

While the reliability of Rubin's (1999) ten-item scale is lower than the Marlowe-Crowne's (1964) scale (Cronbach's alpha of 0.78 for the Marlowe and Crowne scale and 0.65 for the Rudmin scale), the former scale has better inter-item correlations. Further, Halpin and Halpin (1994) noted that the reliability of the scales can be improved when the number of response categories are increased (from true/false response categories to 4-point Likert scale). Indeed, the short version of Marlowe and Crowne's Social Desirability Scale uses a 5-point Likert-type scale. Following these arguments and to be consistent with the response categories of the other constructs, a seven-point Likert-type scale was used to measure these items, which are shown in Table 3.8.

Table 3.8: Social Desirability Measure

1. No matter who I am talking to, I am always a good listener.

2. There have been a few occasions when I took advantage of someone. (R)

3. I sometimes try to get even, rather than forgive and forget. (R)

4. When I don't know something, I don't at all mind admitting it.

5. There have been occasions when I felt like smashing things. (R)

6. I never resent being asked to return a favour.

7. I have almost never felt the urge to tell someone off.

8. I am sometimes irritated by people who ask favours of me. (R)

9. I sometimes think when people have a misfortune they only got what they deserved. (R)

10. I have never deliberately said something that hurt someone's feelings.

   R means reverse coded

Questionnaire Design

Social theory suggests that individuals' actions are motivated by the return those actions are expected to bring (Dillman, 1978; Blau, 1964). Dillman (1978) applied this theory to questionnaire design and noted that respondents are motivated to complete and return questionnaires if reward, cost and trust are appropriate. Respondents must be rewarded for completing and returning the questionnaire and, according to Dillman (1978), rewards can come through showing positive regard, saying thank you, asking for advice, giving tangible rewards, making the questionnaire interesting and giving social validation. To minimise costs, Dillman (1978) suggested avoiding subordinating language, avoiding embarrassment, avoiding inconvenience, making questionnaires short and easy and minimising requests to obtain personal information. Further, he suggested that the survey sponsor should earn the trust of the respondents, with trust being defined as the assurance that what the survey sponsor has promised as a benefit of the study will happen. Dillman (1978) also suggested providing a token of appreciation in advance and sponsorship by a legitimate authority help increase trust. Applying these guidelines, a questionnaire was developed, which is shown in Appendix A. The following section explains how the guidelines discussed previously were used in the design of the questionnaire.

The Covering Letter

Dillman (1978) noted that reward is a critical element in ensuring a high response rate, and that being regarded positively by another person by being asked for help, advise or assistance are ways of providing a sense of reward. The covering letter explained that the results of the survey would help the educational institution improve its level of service and this provided respondents with a sense of reward.

Questionnaire Format

The questionnaire design followed a two-column format with dotted leaders, as Dillman (1978) argued that this format reduces the possibility of skipping instructions. Further dotted leaders helped guide respondents in filling in the questionnaire.

Despite some researchers (e.g. Dillman, 1978) suggesting that grouping items according to topics (construct headings) improved the readability of the questionnaire, it was felt that doing so would introduce bias to the survey, as prior questions could lead subsequent responses. Hence, items were randomly mixed. To ensure respondents knew that questions asked for their perceptions of and attitudes towards the commercial educational institution and not of the university offering their programme, the name of the commercial institution was used wherever possible.

Data Analysis

In the present study, data analysis was divided into three phrases, and the following sections describe the analysis performed in each phrase.

Phase 1: Descriptive Statistics and Data Preparation

In this phase of the analysis, the characteristics of the sample were examined. Univariate statistics, such as means, and variances, were computed to gain a better feel for the data and to identify potential problems that might arise in later analysis. The data set was also examined for the severity of missing data and the presence of missing data patterns as this has implications as to how they should be handled (Hair et al., 1998). Finally, as structural equation modelling, the principal method of analysis used in the present study, is sensitive to non-normality (Hair et al., 1998), the normality of the dataset was examined.

Phase 2: Validation of Measures

As Anderson and Gerbing (1988) have noted that the results of structural model evaluation are not meaningful unless the measurement model is valid, a two-step analysis approach was used in the present study. This approach required an initial evaluation of the measurement model and, if this is valid, the evaluation of the structural model.

The measurement model was evaluated using a commonly used three-stage method (e.g. Dwyer, Schurr & Oh, 1987; Kumar & Dillon, 1987). In the first stage, the single construct measurement model is examined. This analysis phase examined the constructs for unidimensionality, reliability, convergent validity, content validity and social desirability bias.

The confirmatory factor analysis procedure has been suggested as a useful way to approach construct validation. Steenkamp and Hans (1991) noted that the procedure gives a truer estimation of reliability and is a formal test of the unidimensionality of a scale. Support for the procedure as a more rigorous test of reliability stemmed from the use of loading parameters and error variances to determine the reliability of the individual items as well as the reliability of the composite measure formed by the items (known as composite reliability). This contrasts with the alpha coefficient, which is often used as a measure of reliability, which assumes item factor loadings and error variances are equal (Styles, 1998). Consequently, where possible, the composite reliability was used as a measure of reliability and a value exceeding 0.70 would suggest the measure was reliable (Hair et al., 1998). The formula for determining composite reliability was suggested by Fornell and Larker (1981) and is shown in Equation 4.1.

$$\text{Composite Reliability} = \frac{(\sum \text{standardised loading})^2}{(\sum \text{standardised loading})^2 + \sum \varepsilon_i} \qquad \text{Equation 4.1}$$

where $\sum$ indicates a sum, i indicates the ith item of the measure, and ε_i represents the error term of the item i.

With regards to assessing scale unidimensionality, the traditional method of exploratory factor analysis was considered to rely much on judgement and rules of thumb. In contrast, the Chi-square goodness-of-fit index obtained through confirmatory factor analysis tests the hypothesis that the set of indictors are explained by a single underlying construct (unidimensionality), with a large index relative to the degrees of freedom suggesting a rejection of the hypothesis and a small value suggesting a failure to reject unidimensionality (Bagozzi, 1994). By convention, a model is considered acceptable if the p-value is greater or equal to 0.05 (Bagozzi, 1994).

Fornell and Larker (1981) noted that constructs should be examined to determine the amount of variance that is captured in relation to the construct (the information) in relation to the amount of variance due to measurement error. This measure, known as convergent validity, was obtained by computing the Variance Extracted (*VE*) using the formula suggested by Fornell and Larker (1981), which is shown in Equation 4.2.

$$\text{Variance Extracted} = \frac{\sum (\text{standardised loading})^2}{\sum (\text{standardised loading})^2 + \sum \varepsilon_i} \qquad \text{Equation 4.2}$$

where $\sum$ indicates a sum, i indicates the ith item of the measure, and ε_i represents the error term of the item i.

Fornell and Larker (1981) suggested that a *VE* value exceeding 0.50, which indicates that the construct contained less than 50% of error variance, is sufficient to establish convergent validity.

As some items were omitted during the scale purification process to improve the reliability and convergent validity of a measure, it was necessary to ensure the content validity of the construct was not compromised. The final constructs used are presented against their conceptual definitions to satisfy this aspect of validity.

The measures were also examined to ensure they were free from social desirability bias. As noted earlier in this chapter, the short-form of the Marlowe and Crowne Social Desirability (SD) scale was used for this purpose. Respondents who scored highly on the SD scale have a tendency to respond in a socially favourable manner (Morisky et al., 2002). The extent to which each measure was free from social desirability bias was determined by examining the correlations between the SD scale and the various constructs as a low correlation indicated that the construct was free from such a bias.

In the second of the three-stage approach, pairs of constructs were examined to ensure their discriminant validity. Following the procedure suggested by Fornell and Larker (1981), this was done by comparing the *VE* of the construct with the shared variance between the corresponding constructs, with discriminant validity being established if this variance did not exceed the *VE*s of the corresponding constructs.

In the final stage of measurement model evaluation, the complete model that included all of the constructs was evaluated. A number of indices were used to examine model fit. Although the relative chi-square test is a useful measure, Bagozzi and Foxall (1996) have cautioned against a sole reliance on it because of its sensitivity to sample size.

Bagozzi and Foxall (1996) also noted that approaches to determine goodness-of-fit should include the use of an index that is based on the comparison of the fit of the hypothesised model to the fit of a baseline model as such indexes are sample size independent. The best known index that uses such an approach (an incremental fit

index) is the comparative fix index (*CFI*), which was developed by Bentler (1990), with Bagozzi and Baumgartner (1994) suggesting that the index should exceed 0.90.

The *CFI* does not evaluate the parsimony of the hypothesised model as it does not take degrees of freedom into account. As the Tucker-Lewis index (*TLI*), developed by Tucker and Lewis (1973), takes account of the degrees of freedom in a model it was also used. Hoyle (1995) has suggested that a *TLI* exceeding 0.90 indicates good fit. Another fit index used was the Standardised Root Mean Square Residual (*SRMR*), which is the average difference between the predicted and observed variances and covariances in the model. Hu and Bentler (1999) suggested that the value should not exceed 0.08 if the data fits the model. The final fit index used was the root mean square error of approximation (*RMSEA*), which approximates the fit relative to the degrees of freedom that could be expected if the model was estimated in the population and not just from the sample drawn for the estimation. Browne and Cudeck (1993) suggested a value not exceeding 0.08 meant the model fitted the data well.

Phase 3: Assessment of the Structural Model and Path Estimates

The structural model was examined in this phase of the analysis that consisted of two parts. In the first part, the fit of the structural model was examined. The fit indices used were the same as those that were used to assess the measurement model's fit. In the second part of this analysis phase, the hypotheses that were discussed in Chapter Two were tested by examining the size and the significance of the path estimates between the relevant constructs in the model.

Summary

The present chapter discussed the approach used in the current research, explained how the constructs were chosen, described how the questionnaire was developed and discussed the three-phase data analysis process used. The next few chapters present the results of these various analyses.

CHAPTER FOUR

THE MEASUREMENT CHARACTERISTICS
OF THE MODEL'S CONSTRUCTS

Introduction

In Chapter Three, the research approach used in the present study was described. As was noted in that chapter, the data analysis was undertaken in three phases, which included a descriptive statistics and data preparation phase (Phase 1), a construct and measurement model validation phase (Phase 2) and a structural model phase (Phase 3).[6] The results of the first two phases are reported in the present chapter, while that of the estimation of the structural models (Harrison-Walker's (2001) model and the suggested model) are presented in the subsequent two chapters.

As was noted in the first chapter, one objective of the present study was to replicate Harrison-Walker's (2001) research in Singapore's commercial education industry, while another objective was to extend her model to include satisfaction as a mediating construct. The constructs in Harrison-Walker's (2001) model (which was shown in Figure 1.1) were not exactly a subset of those in the suggested extended model (which was shown in Figure 1.2). Her model included a first-order service quality construct. However, in the extended suggested model, service quality was measured as a two dimensional construct with technical and functional dimensions. This meant that when evaluating Harrison-Walker's (2001) model, service quality was examined as second-order latent construct. The following sections provide the results of validating the constructs that were included in both models.

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[6] The various analyses were undertaken using the SPSS 12.0 and AMOS 5.0 programs.

Phase 1: Descriptive Statistics and Data Preparation

The Sample

Two hundred and eighty students from programs within the Singapore Institute of Management were surveyed in the current study, with the questionnaire shown in Appendix A of this report.   A total of two hundred and fifty six usable surveys were obtained, providing a response rate of ninety-two percent, which suggests that non-response biases were not a problem.   Some of the respondents' background characteristics are shown in Table 4.1.

Table 4.1: Profiles of Respondents

Background Variables	N	%
Gender		
Female	185	72.3
Male	71	27.7
Total	256	100
Age		
Younger than 25	131	51.2
25 to 29	80	31.3
30 to 34	30	11.7
35 to 39	9	3.5
Older than 40	6	2.3
Total	256	100.0
Education		
`O' Level	1	0.4
`A' Level	20	7.8
Diploma	228	89.1
Bachelor	6	2.3
Total	225	99.6
Missing	1	0.4
Total	226	100.0

As can be seen from the table, most respondents were females (72%). Not surprisingly, most respondents were less than thirty years of age (83%) and less than 3 percent were older than forty.   The majority of respondents were diploma holders (89%), while

respondents with 'O' and 'A' level qualifications made up less than nine percent of the sample. The sample reflects the type of students who attend part time SIM degree courses and, so, their responses should reflect the views of such students.

Descriptive Statistics for the Individual Items

The suggested model was estimated on responses to forty-six items that measured functional service quality, technical service quality, satisfaction, affective commitment, high-sacrifice commitment, WOM activity and WOM praise. All of the items were measured on a 7-point Likert-type scale and the descriptive statistics for these items are shown in Table 4.2, in which negative items have been reverse recoded so that high values indicated a positive response in each case.

Table 4.2: Descriptive Statistics – Individual Items

Construct and Variables	Mean	Standard Deviation
Construct 1: word-of-mouth activity (N = 256)		
I often mention SIM to others	4.37	1.29
I talk to more people about SIM than I do about most other organisations	4.09	1.32
I seldom miss an opportunity to tell others about SIM	3.53	1.19
When I tell others about SIM, I tend to talk about it in great detail	3.69	1.08
I often mention SIM by name	4.27	1.24
I often have the occasion to mention SIM to others	4.41	1.16
Once I get talking about SIM, it is hard for me to stop	3.00	1.16
Scale mean	3.91	
Construct 2: word-of-mouth praise (N = 256)		
I have only good things to say SIM	3.83	1.25
I am proud to tell others I study at SIM	4.72	1.23
I recommend SIM to others	4.79	1.34
In general, I speak favourably about SIM	4.71	1.22
Scale mean	4.51	
Construct 3: affective commitment (N = 256)		
SIM is one of the best service organisations of its kind	4.69	1.10
I am proud to study at SIM	4.67	1.22
I care about SIM's success	4.11	1.41
I like the way SIM operates	4.21	1.11
I like SIM	4.27	1.17

Construct and Variables	Mean	Standard Deviation
I have a special relationship with SIM	3.55	1.11
I want to help SIM achieve its goals	3.88	1.14
Studying at SIM is enjoyable	4.41	1.00
I study at SIM because I like it	4.19	1.14
I usually agree with SIM's policies and procedures on important matters	4.01	1.12
SIM inspires me to be a good customer	3.89	1.06
Scale mean	4.17	
Construct 4: high-sacrifice commitment (N = 256)		
The longer I study at SIM, the harder it is for me to leave	3.75	1.42
It would be difficult to adapt to a new educational institution if I left SIM	3.84	1.48
My present circumstances would have to change to stop me from studying at SIM	4.13	1.34
I would give up a lot if I stopped studying with SIM	3.83	1.30
Changing to a new educational institution would be impractical for me	4.59	1.26
I remain with SIM only because it would be difficult to make a change to another institution	4.08	1.36
Scale mean	4.04	
Construct 5: functional service quality (N = 256)		
SIM's staff are interested in me as a student	4.27	1.10
I get individual attention at SIM	3.68	1.26
SIM's staff are courteous	4.48	1.21
SIM's staff provide prompt service	4.27	1.22
SIM provides excellent overall service to its students	4.54	1.10
SIM's service is of very high quality	4.42	1.20
SIM provides a high level of service	4.44	1.17
SIM provides superior service to its students	4.25	1.20
SIM's service outcomes are comparable to the best service organisations I know	4.30	1.12
Scale mean	4.29	
Construct 6: technical service quality (N = 256)		
The institution's staff really know what they are talking about	4.30	1.13
SIM can answer all the questions I have as a student	4.16	1.17
Scale mean	4.23	
Construct 7: satisfaction (N = 256)		
My decision to study at SIM was a wise one	4.94	1.13
I think I did the right thing when I decided to study at SIM	4.92	1.17
The services provided by SIM are exactly what I need	4.23	1.12
I am very pleased with SIM's services	4.34	1.20
I am very contented with SIM's services	4.28	1.11
I am very delighted with SIM's services	4.23	1.11
I am very satisfied with SIM's services	4.20	1.13
Scale mean	4.45	

The means for all of the items[7] fell between 3.00 (an item in the word-of-mouth activity scale) and 4.94 (an item in the satisfaction scale), which were mediocre. Students spoke relatively well of SIM (the WOM praise scale mean was 4.51). However, it was apparent that students did not speak often about SIM (the WOM activity scale mean was 3.91). Generally, students reported mediocre affective commitment (the affective commitment scale mean was 4.17), although they felt they had little choice but to stay with SIM (the high-sacrifice commitment mean was 4.04). Students felt the service quality they received was also mediocre (the functional service quality mean was 4.29 and the technical service quality mean was 4.23) and, overall, most students were relatively satisfied with the institution in which they were studying (the satisfaction scale mean was 4.45).

Missing Data

An examination of missing data was undertaken as the severity of missing data and the presence of missing data patterns has implications for the approach used in its treatment. The examination found that, with the exception of one case, no observation had missing data on more than one item. The most common missing value pattern was for the affective commitment item "SIM is one of the best service organisations of its kind" and the functional service quality item "SIM's service is of very high quality", with four missing cases on each of these variables. The very small amount of missing data suggests that this was not a problem in the present study. Further, Little's (Anderson & Gerbing, 1988) test suggested that such data were missing completely at random. Consequently, values were imputed for the missing data using SPSS's EM procedure (Hill, 1997) and the next phase of the analysis was undertaken on the total set

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[7] The ranges of the scores are context dependent and, in this case, are that of a commercial school in Singapore.

of two hundred and fifty six observations with the few missing values imputed prior to the subsequent analysis.

Assessing the Normality of the Data

Structural equation modelling, which is the analytical technique at the heart of the current study, makes a number of assumptions about the data. A major assumption relates to its normality (Hair et al., 1998; Kline, 1998). A preliminary analysis of the observed values found that several variables were not normally distributed, as measured by their skewness and kurtosis (one item in the WOM praise measure, one item in the affective commitment measure, five items in the service quality measures and three items in the satisfaction measure). As was noted in Chapter Two, the relationship between service quality and word-of-mouth activity and between satisfaction and word-of-mouth activity were expected to be non-linear. Such relationships between variables could contribute to the non-normality of the variables. Further, as the current study is limited to zones of neutral to positive satisfactions and perceptions of service quality (noted in Chapter One), cases where the two variables had a majority of low scores (scores of 1 and 2) were removed. Only three cases were removed for this reason.

Another reason that might have contributed to the non-normality of the mentioned variables is the presence of outliers. Consequently, cases whose distance from the centroid (Mahalanobis distance) was significant ($p>0.01$) were also omitted. The final dataset that remained and was used in phase two of the analysis included one hundred and ninety one cases.

Phase 2: Validation of the Constructs

Scale Purification

As noted in the previous chapter, each construct included in the model had to be examined for unidimensionality (having one underlying aspect), reliability (being comparatively free of measurement error), convergent validity (large amount of variance captured in relation to construct in relation to variance due to measurement error) and content validity (measuring what it should). The measures were also evaluated to see the extent to which they were free from social desirability bias by examining their correlations with the short version of Marlowe and Crowne's Social Desirability scale (Rudmin, 1999), with a low correlation suggesting that the construct was free of such bias.

It was also noted in the previous chapter that confirmatory factor analysis was used to assess the measurement properties of each construct, particularly in relation to the estimation of reliability, scale unidimensionality and convergent validity. While the factor loading parameters and error variances allow for such parameters to be determined, the shared variance between two constructs allow for discriminant validity to be tested. Fornell and Larker (1981) suggested that discriminant validity between two construct measures is established when the shared variance (obtained by squaring the correlations between them) between them is less than the variance extracted (*VE*) from either construct. The following sections discuss each of the constructs.

The Word-of-Mouth Activity Construct

There were seven items in the original word-of-mouth activity measure. A preliminary confirmatory analysis showed an unacceptable fit. The Comparative Fit Index (*CFI*)

was 0.86 (which did not meet the minimum cut-off of 0.90) and the Chi-squared statistic was significant (p<0.05).

Further examination showed that two items 'I only rarely mention SIM by name' and 'I rarely have the occasion to mention SIM to others' had very low loadings (0.17 and 0.11 respectively), which suggests they do not belong to the word-of-mouth activity construct. This was not surprising as these same items were rejected in Harrison-Walker's (2001) study. The removal of these items resulted in acceptable loadings for the remaining five items as they ranged from 0.60 to 0.75. While the *CFI* was 0.93, which suggested an acceptable fit (Bagozzi & Baumgartner, 1994), the Chi-square statistic remained significant. A closer examination showed relatively high modification indices between the error term of the items 'I often mention SIM to others' and 'I talk to more people about SIM than I do about most other organisations' (modification index was 11.1). Consequently, the error terms of these two items were allowed to correlate. With this revision, the loading ranged between 0.61 and 0.77, the *CFI* was 0.99 and the Chi-square statistic was not significant (p>0.05), suggesting a good model fit and unidimensionality (Steenkamp & Hans, 1991).

The reliability and convergent validity of the construct were also examined. Following the procedure suggested by Fornell and Larker (1981), the composite reliability of the construct was found to be 0.81, suggesting the construct was reliable. The Variance Extracted (*VE*) was found to be 0.46, which meant that convergent validity of the construct was not established as Fornell and Larker (1981) suggested this value should be at least 0.50. As the reliability of the construct was high and the VE was close to 0.50, it was decided that the construct should be retained for further analysis. The items used to measure the revised word-of-mouth activity construct are shown in Table 4.3, together with a conceptualisation of the construct.

Table 4.3: Assessing Content Validity of Final WOM Activity Items

Word-of-Mouth Activity refers to extent with which an individual engages in word-of-mouth (Harrison-Walker, 2001)	I often mention SIM to others.
	I talk to more people about SIM than 1 do about most other organisations.
	I seldom miss an opportunity to tell others about SIM.
	When I tell others about SIM, I tend to talk about it in great detail.
	Once I get talking about SIM, it is hard to stop.

The Word-of-Mouth Praise Construct

A preliminary confirmatory analysis of the four items used to measure word-of-mouth praise obtained a *CFI* value of 0.84 and significant Chi-square statistic (p<0.05), which meant the data did not fit the model. An examination of the loadings showed that they ranged widely from 0.39 to 0.79. Two of the items ('I have only good things to say about SIM' and 'I am proud to tell others I study at SIM') had very low loadings of 0.39 and 0.46 respectively. Clearly, the items should be removed as they were unreliable. However, the removal of the items meant the loadings of the remaining two items could not be estimated, although when the four items were evaluated, they had acceptable loadings of 0.78 ('Although I study at SIM, I don't recommend it to others') and 0.68 ('In general, I do not speak favourably about SIM') respectively. Interestingly, these were also the two negatively worded items of the scale. If these loading values were used to estimate the composite reliabilities and *VE*, the values would be 0.70 and 0.54, suggesting that the construct was reliable and had convergent validity. As two items can be used to estimate a structural model, it was decided to retain the two items, which are shown in Table 4.4, together with a conceptualisation of the construct.

It should be noted that the final items resulting from the scale purification process in the current study differed from that in Harrison-Walker's (2001) study. The final items

used in her study were 'I have only good things to say about this organisation' and 'I am proud to tell others I use this organisation'.

Table 4.4: Assessing Content Validity of Final WOM Praise Items

| Word-of-Mouth Praise refers to the valence of the word-of-mouth comments (Harrison-Walker, 2001) | Although I study at SIM, I don't recommend it to others. (R) |
| | In general, I do not speak favourably about SIM. (R) |

R denotes the item was reversed coded

The Affective Commitment Construct

Eleven items were used to measure affective and a preliminary examination of the model fit with these items found a *CFI* value of 0.93 and a significant Chi-square statistic (p<0.05), with the latter suggesting improvements could be made to the scale.

Despite acceptable loadings of between 0.63 and 0.83 for the various items, the modification indices (*MI*) between the error term of some items were high (the *MI* between the error term of items 'I want to help SIM achieve its goals' and 'I care about SIM's success' was 29.47, and between the error term of items 'I want to help SIM achieve its goals' and 'I have a special relationship with SIM' was 14.00). When these pairs of error terms were allowed to correlate, the *CFI* value improved to 0.97, but the Chi-square statistic remained significant (p<0.05).

As the error term of the item 'I want to help SIM achieve its goals' was highly correlated to that of the other two items mentioned in the previous paragraph, an option was to remove the item from the scale. However, the Chi-square statistic did not show improvement with this procedure. Given this, and with a large number of original items to begin with, it was decided to set the cut-off threshold of the loadings to 0.68 (instead of the usual 0.60) so that all items with loadings below 0.68 were removed. This resulted in the removal of the items 'I am proud to study at SIM', 'I care about SIM's

success', 'I have a special relationship with SIM' and 'Studying at SIM is enjoyable', with six items remaining in the construct. The loadings of the remaining items ranged from 0.68 to 0.84, the *CFI* value was significantly improved at 1.00 and the Chi-square statistic was not significant (p=0.60). The results suggested that the revised construct was unidimensional.

The composite reliability and the variance extracted were 0.90 and 0.69 respectively suggesting that the construct measure was both reliable (Hair et al., 1998) and had convergent validity (Fornell & Larker, 1981). The final items used and a construct conceptualisation are shown in Table 4.5.

Table 4.5: Assessing Content Validity of Final Affective Commitment Items

Affective Commitment refers to the customer's feelings of belonging and sense of attachment to a service provider (Harrison-Walker, 2001)	SIM is one of the best service organisations of its kind I like the way SIM operates. I like SIM. Studying at SIM is enjoyable. I study at SIM because I like it. SIM inspires me to be a good listener.

The High-Sacrifice Commitment Construct

Using the same procedure as for the earlier constructs, the original high-sacrifice commitment measure was preliminarily examined for model fit. While the *CFI* value was acceptable (0.91), the Chi-square statistic was significant (p<0.05). An examination of the loadings showed they were particularly low, with values ranging between 0.33 and 0.63. Only three of the six items ('It would be difficult for me to adapt to a new educational institution if I left SIM', 'I would give up a lot if I stopped studying with SIM' and 'Changing to a new educational institution would be impractical for me') had loadings above 0.60. The item 'I remain with SIM only because it would be difficult to make a change to another institution', which had a

loading value of 0.33, was removed and the construct was re-examined. However, the Chi-square statistic remained significant (p<0.05). The next smallest loading item ('My present circumstances would have to change to stop me from studying at SIM' with loading 0.50) was removed, but the Chi-square statistic was still significant. The item 'The longer I study at SIM, the harder it is for me to leave', which had a loading of 0.53, was removed, leaving three items with loadings of 0.55, 0.60 and 0.72. The removal of another item would have left only two. Making an assumption that removal of that item does not adversely affect the loading of the remaining items, the composite reliability and *VE* was computed to be 0.61 and 0.44 respectively. Although the recommended cut-off for the two statistic was 0.70 and 0.50 respectively, it was decided to retain this construct for further analysis as Nunnally (1978) had considered reliability values above 0.60 to be acceptable for exploratory studies. The final items used for the measure of high-sacrifice commitment and the conceptualisation of the construct are shown in Table 4.6.

Table 4.6: Assessing Content Validity of Final High-Sacrifice Commitment Items

High-Sacrifice Commitment refers to commitment arising from the perceived costs of leaving an existing service provider and a perceived lack of alternatives (Harrison-Walker, 2001)	It would be difficult for me to adapt to a new educational institution if I left SIM. Changing to a new educational institution would be impractical for me.

The result of the purification of the high-sacrifice commitment measure was unexpected as Harrison-Walker's (2001) final scale had six items and a coefficient alpha of 0.85. Although she did not report convergent validity and unidimensionality test results in her studies, the difference in reliabilities (0.85 in Harrison-Walker's (2001) study and 0.61 in the current study) suggests that this construct was not generalisable to the current study.

The Satisfaction Construct

There were seven items in the original satisfaction measure. A preliminary confirmatory analysis found that the *CFI* value to be 0.91, but the Chi-square statistic was significant (p<0.05). An examination of the loadings showed that one ('My decision to study at SIM was a wise one') did not meet minimum loading requirements. With this item removed, the remaining items had loadings of between 0.62 and 0.92. The *CFI* value increased to 0.99 and the Chi-square statistic was not significant, which suggested the measure formed by the six items were unidimensional (Steenkamp & Hans, 1991).

The final measure had a composite reliability value of 0.94 and a *VE* of 0.72, suggesting it was very reliable and had good convergent validity. The final items and a construct conceptualisation are shown in Table 4.7.

Table 4.7: Assessing Content Validity of Final Satisfaction Items

Satisfaction is the consumer's fulfilment responses, and is therefore a judgement that a product or service feature, or the product or service itself, provided a pleasurable level of consumption-related fulfilment, including levels of under or over-fulfilment (Oliver, 1997).	I think I did the right thing when I decided to study at SIM. The services provided by SIM are exactly what I need. I am very pleased with SIM's services. I am very contented with SIM's services. I am very delighted with SIM's services. I am very satisfied with SIM's services.

The Technical Service Quality Construct

There were two items in the technical service quality measure. With only two items, it was not possible to ascertain unidimensionality and convergent validity using a confirmatory analysis. The coefficient alpha was, however, found to be 0.80, which suggested the construct measure was reliable (Nunnally, 1978). Given this, the two

items were used as a measure of technical service quality. The final items used are shown in Table 4.8 together with a conceptualisation of the construct.

Table 4.8: Assessing Content Validity of Final Technical Service Quality Items

Technical service quality refers to the instrumental performance of a service (Grönroos, 1984)	SIM's staff really know what they are talking about. SIM can answer all the questions I have as a student.

The Functional Service Quality Construct

A preliminary confirmatory analysis of the nine items used to measure the functional service construct found a *CFI* value to be 0.96, although the Chi-square statistic that was significant (p<0.05). While the item loadings ranged from 0.60 to 0.89, some error term pairs had high modification indices (between error term of items 'SIM's staff are courteous' and 'SIM provides superior service to its students' and between 'SIM's staff are courteous' and 'SIM provides a high standard of service'). After the removal of the common item whose error term had a high modification index (i.e. 'SIM's staff are courteous'), the Chi-square statistic was not significant (p=0.20), which suggested the purified scale was unidimensional.

The loadings of the eight items ranged from 0.60 to 0.90 and the composite reliability and *VE* of the measure were 0.92 and 0.60 respectively, which meant the final measure was reliable and had convergent validity. The final items are shown in Table 4.9, together with a construct conceptualisation.

Table 4.9: Assessing Content Validity of Final Functional Service Quality Items

Functional Service Quality refers to the quality of interaction of the service staff (Grönroos, 1984)	SIM's staff are interested in me as a student.
	I get individual attention at SIM.
	SIM's staff provide prompt service.
	SIM provides excellent overall service to its students.
	SIM's service is of very high quality.
	SIM provides a high standard of service.
	SIM provides superior service to its students.
	SIM's service outcomes are comparable to the best organisations I know.

Service Quality as a Second-Order Construct

As noted earlier, service quality was evaluated as a second-order latent construct when replicating Harrison-Walker's (2001) study in the current study. The first-order components were functional service quality and technical service quality. A preliminary confirmatory analysis of the two order construct showed good model fit as the *CFI* value was 0.98 and the *TLI* was 0.98, which were both above the minimum suggested threshold of 0.90. The *SRMR* value was 0.04, which was also well below the maximum suggested threshold of 0.08.

A Summary of the Analysis

Table 4.10 provides a summary of the results obtained from this stage of the analysis.

Table 4.10: Confirmatory Factor Analysis of the Constructs+

Construct	No. of Items	Composite Reliability	Variance Extracted (VE)	X^2	CFI
Word-of-mouth activity	5	0.81	0.46	8.13 (p=0.08)	0.99
Word-of-mouth praise	2	0.70	0.54	-	-
Affective commitment	6	0.90	0.69	7.40 (p=0.69)	1.00
High-sacrifice commitment	2	0.61	0.44	-	-
Satisfaction	6	0.94	0.72	14.30 (p=0.11)	0.99
Technical service quality	2	0.80[+]	-	-	-
Functional service quality	8	0.92	0.60	25.13 (p=0.19)	0.99

+ Coefficient alpha

It can be seen that convergent validity was not established for two of the constructs (word-of-mouth activity and high-sacrifice commitment). Additionally, the high-sacrifice measure did not meet reliability requirements. As there were only two items measuring technical service quality, the loadings, convergent validity and unidimensionality could not be assessed through a confirmatory analysis of this construct. However, acceptable coefficient alpha values obtained for this measure (0.80) suggested that the construct should be retained.

Assessment of Social Desirability Bias

It was noted in Chapter One that some researchers (e.g. Keillor et al., 2001) have argued that, unless measures were free of social desirability bias, their reliability and validity might be compromised. Given this, as an additional test, each construct was assessed for such a bias. Following the procedure suggested by Morisky et al. (2002), the correlation between each construct and the social desirability scale (in this case, the short-form Marlow Crowne scale) was assessed and a non-significant correlation was seen as a suggestion that the measure was free of this bias. Table 4.11 provides the results of this analysis.

Table 4.11: Correlations between the Social Desirability Scale and the Constructs

Construct Measure	Correlation (r)
Word-of-Mouth Activity	0.02 (p=0.98)
Word-of-Mouth Praise	0.13 (p=0.70)
Affective Commitment	0.05 (p=0.53)
High-Sacrifice Commitment	-0.01 (p=0.89)
Satisfaction	-0.03 (p=0.68)
Technical Service Quality	-0.03 (p=0.68)
Functional Service Quality	-0.04 (p=0.55)

No correlation was significant at the 0.05 level

It can be seen that the correlations between the social desirability scale and the various constructs were not significant (p>0.05), which suggest that the measures used in the current study were free of social desirability bias and that concerns raised by social desirability researchers are not an issue in the present case.

Assessing Discriminant Validity between Constructs

The model was next assessed to determine if discriminant validity could be established between all of the constructs in the proposed model. Fornell and Larker's (1981) approach was used for this purpose. They suggested that the shared variance between each construct pair should be compared to the variance extracted (*VE*) of either construct measure. Discriminant validity was said to have been established if the shared variance was less that the *VE*. Table 4.12 shows the shared variance between all of the construct pairs in the suggested model.

Table 4.12: An Assessment of Discriminant Validity
(Variance Extracted and Shared Variance)

Constructs	Variance Extracted	Word-of-mouth activity	Word-of-mouth praise	Affective commitment	High-sacrifice commitment	Satisfaction	Functional service quality
Word-of-mouth activity	0.46						
Word-of-mouth praise	0.54	0.12					
Affective commitment	0.69	0.77*	0.23				
High-sacrifice commitment	0.44	0.37	0.07	0.45*			
Satisfaction	0.72	0.58*	0.15	0.85*	0.29		
Functional service quality	0.60	0.64*	0.14	0.79*	0.26	0.94*	
Technical service quality	-	0.49*	0.12	0.76*	0.16	0.76*	0.69*

* Denotes construct pairs not meeting the requirements of discriminant validity

Table 4.12 suggests that discriminant validity is a major issue in the current study as eleven of the twenty-one construct pairs did not meet discriminant validity requirements. Discriminant validity was not met between word-of-mouth activity and a number of construct measures (satisfaction, both service quality dimensions and affective commitment) primarily because of its low *VE* (as convergent validity was not established). Discriminant validity was not established between the two commitment dimensions as the *VE* of the high-sacrifice commitment measure was low (0.44).

The results also suggested major discriminant validity issues with satisfaction, both dimensions of service quality and affective commitment. The shared variance between the measures exceeded 0.69 and, in one case (satisfaction and functional service quality), was 0.94, which meant items from both constructs measured the same thing.

A Call for Further Examination

The results at this point of the current research clearly showed that Harrison-Walker's (2001) study could not be replicated, nor could the proposed model be estimated with the suggested construct measures. Harrison-Walker's (2001) study could not be replicated because key constructs in her model, which included service quality, commitment and word-of-mouth activity, cannot be discriminated from other suggested measures. The suggested revised model could be examined because satisfaction, which was the additional construct not included in Harrison-Walker's (2001) model, also faced discriminant validity issues.

The convergent validity problems of the word-of-mouth activity and the high-sacrifice commitment measures and the lack of discriminant validity between eleven of the constructs (which were noted in the previous section) meant that the current research could not proceed unless the cause of the problem was determined. The problems encountered could have arisen for one or both of the following reasons:

i)   The student sample at the Singapore Institute of Management was idiosyncratic and the results were related only to the sample obtained.

ii)   The measures that were used cannot be generalised to the current research context and, consequently, the constructs need to be measured in different ways.

To determine which reason created the problem, a test was needed in which the same set of measures were obtained from a different sample. By controlling for the measures (the same set of measures were used), the problem source can be isolated. If the test showed that the measurement issues encountered with the first sample did not arise with the second sample, the problem was with the first sample. Should this be the case, it

would be necessary to examine how response errors can be reduced if SIM samples were to be further used in the current research.

However, if the same problems arose with the second sample, the problems were not unique to the SIM sample. Rather, the measures used were inappropriate for the current research context. In this case, further SIM samples could be used with an alternative set of measures. The result of this test is reported in the next chapter.

Summary

The present chapter discussed the results obtained from an examination of the measurement models that were used to examine convergent and discriminant validity. However, it was clear that there were significant problems as there were many constructs that failed discriminant validity tests, suggesting that a test was needed to determine the cause of the problem. The test involved obtaining the same data students studying at another institution. By examining the extent to which problems encountered with the SIM sample were also found in the second sample, the source of the problem could be isolated. This investigation forms the focus of Chapter Five.

CHAPTER FIVE

AN EXAMINATION OF THE PROBLEM ENCOUNTERED: RESULTS OBTAINED FROM A SECOND DATA SET

Introduction

In Chapter Four, the convergent validity of and discriminant validity between the constructs included in Harrison-Walker's (2001) model and the suggested extended model were examined. This assessment followed the three-step measurement model validation procedure that is commonly used (Dwyer et al., 1987; Kumar & Dillon, 1987). However, the third of the three-step procedure was not undertaken because of convergent and discriminant validity issues that were encountered in the first two steps.

Given these problems, a test was suggested to determine its cause (as discussed in Chapter Four). The test involved performing the same analysis using a second sample from another educational institution. The results obtained from the second sample were compared with those obtained from the SIM sample to see whether the cause was due to the SIM sample or to the measures used. If similar problems did not arise with the second sample, the encountered problems must be due to the nature of the SIM sample. On the other hand, if similar problems were found, it would suggest that there were problems with the measures used, rather than with the SIM sample.

It should be noted that the weaknesses encountered in the current study were not expected as the constructs used, with the exception of service quality, were similar to those used in Harrison-Walker's (2001) study and, in that study, no such problems were reported. Indeed, as an objective of the present study was to replicate Harrison-Walker's (2001) research in the current research context, priority was given to using measures that were similar to her studies to allow for meaningful comparison.

It should also be noted that the intention of the suggested test was to determine the source of the problem and not to alter the original research objectives but, rather, to propose an appropriate remedy to the problem. These additional steps should only serve to improve the validity of the research findings. With this as background, the current chapter presents the results of the analysis obtained from a separate sample of students who were studying at a different institution.

The Background of the New Institution

The institution chosen for this confirmatory analysis was Temasek Polytechnic. The institution is one of five government-funded institutions that provide practical training to GCE 'O' level holders. Unlike their less academically inclined counterparts, who may choose to study at institutes of technical education, students enrolled in Polytechnics have the option of joining the workforce after graduation or furthering their studies at a university.

Temasek Polytechnic currently offers twenty-seven diploma programmes spanning the business, engineering, information technology, and design disciplines. It has a student population of about 13,000 and staff strength of about 1,300 (Polytechnic, 2004) and, so, provided a somewhat different student group than SIM, from which the original dataset was obtained.

The Results of a Second Sample from a Different Educational Institution

The sample used in the second analysis was obtained from a population of full-time students enrolled in the Diploma of Computer Engineering and the Diploma in Info-communication at Temasek Polytechnic. As already noted, the sample used the same set of questionnaire that the first sample (from SIM) had used (as shown in the second

questionnaire in Appendix A). This institution and the courses were chosen because the researcher had access to these students.

Scale Purification

As in the previous analysis, the assessment involved an assessment of the individual constructs and the discriminant validity between construct pairs. The assessment of social desirability bias was, however, not examined in the second sample because similar measures to those in the first sample were used. These measures had been previously assessed to be free of such bias. The following sections present the results for each construct.

The Word-of-Mouth Activity Construct

A preliminary confirmatory analysis of the original measure with seven items found a Comparative Fit Index (*CFI*) of 0.79 and a Chi-square statistic that was significant (p<0.05). The loadings were generally low and ranged from -0.09 to 0.71. Two items 'I rarely have the occasion to mention TP to others' and 'I only rarely mention TP by name' had very low loading values (-0.09 and 0.21), suggesting they do not belong to this construct. Consequently, they were removed.

While the *CFI* value improved to 0.95 with the removal of the two items, the Chi-square statistic remained significant (p<0.05). When the next lowest loading item ('I often mention TP to others' (loading of 0.55)) was dropped, the Chi-square statistic was not significant (p=0.11), suggesting the measure was unidimensional (Steenkamp & Hans, 1991). The *CFI* improved to 0.98, suggesting good model fit (Bagozzi & Baumgartner, 1994), while the four remaining items had loadings that ranged between 0.60 and 0.75.

The composite reliability for the purified measure was 0.75, suggesting that it was reliable (Fornell & Larker, 1981). However, its variance extracted (*VE*) was 0.43, which meant the measure did not meet convergent validity requirements. The items remaining after purification are shown in Table 5.1.

Table 5.1: The Final WOM Activity Items

Word-of-Mouth Activity measure	I talk to more people about TP than 1 do about most other organisations.
	I seldom miss an opportunity to tell others about TP.
	When I tell others about TP, I tend to talk about it in great detail.
	Once I get talking about TP, it is hard to stop.

The purified word-of-mouth measures obtained the first and second sample were similar, although one additional item ('I often mention TP to others') was retained in the SIM sample. The composite reliability and the *VE* of both measures were also similar (composite reliability: SIM measure (0.81), TP measure (0.75) and *VE*: SIM measure (0.46), TP measure (0.43)).

The Word-of-Mouth Praise Construct

An analysis of the measure with the four original items found a *CFI* value of 0.97 and a non-significant Chi-square statistic. However, one item ('I have only good things to say about TP') had a low loading (0.46) and was removed. The removal of this item led to the loading of the item 'I am proud to tell others I study at TP' falling to 0.55, which meant it had to be removed.

As it was not possible to determine the loading values and hence, the composite reliability and *VE* with only two items, the loadings were based on those obtained before the final item was removed, making an assumption that the removal of the final item did not significantly affect the loadings of the remaining items. The composite

reliability and *VE* were 0.67 and 0.51. The final word-of-mouth praise construct is shown in Table 5.2.

Table 5.2: The Final WOM Praise Items

Word-of-Mouth Praise measure	Although I study at TP, I don't recommend it to others. (R)
	In general, I do not speak favourably about TP. (R)

R denotes the item was reversed coded

The purified measure for the word-of-mouth praise construct was identical to that obtained from the first sample and the composite reliability and the *VE* of both measures were also similar (composite reliability: SIM measure (0.70), TP measure (0.67) and *VE*: SIM measure (0.54), TP measure (0.51)).

The Affective Commitment Construct

A preliminary confirmatory analysis of the original eleven items of the construct measure found that, while the *CFI* was acceptable (0.91), the Chi-square statistic was significant (p<0.05). The item 'I usually agree with TP's policies and procedures on important matters' had a low loading of 0.54 and was removed.

An examination of the modification indices (*MI*) suggested that the error terms of the items 'I want to help TP achieve its goals' and 'I care about TP's success' were correlated, which led to the loadings for both items to fall below 0.60. Consequently, they were removed.

The removal of the two items did not result in the Chi-square statistic becoming non-significant. Modification indices between the error terms of two items 'TP is one of the best service organisations of its kind' and 'I am proud to study at TP' were high and, as the first item had a lower loading than the second, it was removed. The six affective commitment items that remained had loadings that ranged from 0.63 to 0.85. The Chi-

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square statistic was now not significant (p=0.15), while the *CFI* value was 0.99, suggesting the data fitted the model well.

The composite reliability and the variance extracted for the purified scale were 0.89 and 0.57 respectively, suggesting the construct measure was both reliable (Hair et al., 1998) and had convergent validity (Fornell & Larker, 1981). The final items retained are shown in Table 5.3.

Table 5.3: The Final Affective Commitment Items

Affective Commitment measure	I am proud to study at TP.
	I like the way TP operates.
	I like TP.
	Studying at TP is enjoyable.
	I study at TP because I like it.
	TP inspires me to be a good listener.

A comparison of the purified affective commitment measures from the SIM sample and the TP sample found that five of the six items were common with the SIM sample. Only the item 'I am proud to study at TP' was not in the SIM measure. While the composite reliabilities of both measures were similar, the convergent validity of the TP measure was lower than the convergent validity of the SIM measure (0.69).

The High-Sacrifice Commitment Construct

A preliminary confirmatory analysis of the six original items found the *CFI* to be 0.90 and Chi-square statistic to be significant (p<0.05). The modification indices suggested that the error term of the item 'The longer I study at TP, the harder it is for me to leave' was correlated with the error terms for the items 'I would give up a lot if I stopped studying at TP' and 'Changing to a new educational institution would be impractical for me', it was removed. The *CFI* of this measure was 0.99 and the Chi-square statistic

was not significant (p=0.67). However, low loadings for the items 'I remain with TP only because it would be difficult to make a change to another institution' (0.19) and 'My present circumstances would have to change to stop me from studying at TP' (0.24) meant convergent validity could not be established with the inclusion of these items. Consequently, they were removed. The remaining three items had loadings of 0.50, 0.59 and 0.84. The removal of the item with the lowest loading ('I would give up a lot if I stopped studying at TP), would have left only two items. If the composite reliability and *VE* were estimated based on the loadings before the removal of the last item (loadings cannot be obtained with two-item measures), the composite reliability and *VE* would have been 0.69 and 0.53 respectively. These values were slightly better than the SIM measure, which had a composite reliability of 0.61 and a *VE* of 0.44. The final items, which were identical to those obtained from the SIM sample, are shown in Table 5.4.

Table 5.4: The Final High-Sacrifice Commitment Items

High-Sacrifice Commitment measure	It would be difficult for me to adapt to a new educational institution if I left TP. Changing to a new educational institution would be impractical for me.

The Satisfaction Construct

The original seven items were examined through a confirmatory factor analysis. The *CFI* value was found to be 0.85 and Chi-square statistic was significant (p<0.05). Very high modification indices was found between the error term of the items 'My decision to study at TP was a wise one' and 'I think I did the right thing when I decided to study at TP' (*MI* was 73.15). When the error terms were correlated, the loading of both items fell to 0.52 and they were removed. An examination of the modification indices

suggested there were still significant correlation between the items 'The services provided by TP are exactly what I need' and 'I am very pleased with TP's services'. When they were correlated the Chi-square statistic was not significant (p=0.07), the *CFI* was 0.99 and the loadings ranged from 0.69 to 0.91. The resulting composite reliability was 0.91 and the *VE* was 0.66, which meant that the measure met both reliability and convergent validity requirements. The final items used for the satisfaction measure are shown in Table 5.5.

Table 5.5: The Final Satisfaction Items

Satisfaction measure	The services provided by TP are exactly what I need.
	I am very pleased with TP's services.
	I am very contented with TP's services.
	I am very delighted with TP's services.
	I am very satisfied with TP's services.

A comparison of the purified satisfaction measures for the SIM and TP samples found that all of the items in the TP measure were common with those used for the SIM measure. Both sets of measures also had high reliability and convergent validity.

The Technical Service Quality Construct

As noted in the previous chapter, this construct measure has two items. Consequently, confirmatory analysis cannot be performed on the measure. The coefficient alpha of this measure was found to be 0.55, suggesting this measure was not reliable in this instance (Nunnally, 1978). The result was unexpected because the construct measure was reliable for the SIM sample (coefficient alpha was 0.80). The two items are shown in Table 5.6.

Table 5.6: The Final Technical Service Quality Items

| Technical service quality measure | TP's staff really know what they are talking about. |
| | TP can answer all the questions I have as a student. |

The Functional Service Quality Construct

Nine items were used to measure the original functional service quality construct. A confirmatory factor analysis found a *CFI* of 0.89 and a Chi-square statistic that was significant (p<0.05). An examination of the modification indices showed a high correlation between the error terms for the item pairs 'TP's staff are interested in me as a student' and 'I get individual attention at TP' (*MI* = 15.00), TP's service is of very high quality' and 'TP provides a high level of service' (*MI* = 19.00), and 'TP's staff are courteous' and 'TP provides superior service to its students' (*MI* = 18.87). The item 'I get individual attention at TP' had a low loading (0.50) and was removed. Similarly, the item 'TP's staff are courteous' in the third pair had a low loading (0.58) and was also dropped. As both items in the second pair had acceptable loadings, the error terms were allowed to correlate. The remaining seven items had loadings that ranged between 0.61 and 0.80. However, the Chi-square statistic was still significant. Consequently, the next lowest loading item 'TP's staff are interested in me as a student' (0.61) was dropped and pairs of items with high *MI* between the error terms were allowed to correlate. The Chi-square statistic was not significant (p=0.77) and the *CFI* was 0.99. The loadings of the six remaining items ranged from 0.67 to 0.84. Composite reliability and *VE* values were 0.88 and 0.56 respectively, suggesting that the measure was reliable and had convergent validity. The items used in this case are shown in Table 5.7.

While the TP measure of functional service quality had fewer items (six items) than the SIM measure (eight items), all of the items in the TP measure were common with the SIM measure. This suggests the construct is invariant to the sample used. Further, it

was found that the composite reliability and the *VE* of the TP measure were similar to those of the SIM measure (0.92 and 0.60 respectively).

Table 5.7: The Final Functional Service Quality Items

Functional Service Quality measure	TP's staff provide prompt service. TP provides excellent overall service to its students. TP's service is of very high quality. TP provides a high standard of service. TP provides superior service to its students. TP's service outcomes are comparable to the best organisations I know.

Service Quality as a Second-Order Construct

As previously explained, service quality was to have been evaluated as a second-order latent construct when replicating Harrison-Walker's (2001) model. The first-order service quality components of this construct were functional service quality and technical service quality. A confirmatory analysis of the two-order construct found a *CFI* of 0.97 and a *TLI* of 0.95, which were both above their minimum suggested values. The results suggest that, as with the SIM dataset, the two-order service quality construct fitted the TP dataset. Table 5.8 provides a summary of the results following the confirmatory factor analyses on the constructs obtained from the TP sample.

Table 5.8: Confirmatory Factor Analysis for All Constructs (Second Dataset)

Construct	No. of Items	Composite Reliability	Variance Extracted (VE)	X^2	CFI
Word-of-mouth activity	4	0.75	0.43	4.48 (p=0.11)	0.98
Word-of-mouth praise	2	0.67	0.51	-	-
Affective commitment	6	0.89	0.57	13.43 (p=0.15)	0.99
High-sacrifice commitment	2	0.69	0.53	-	-
Satisfaction	6	0.91	0.66	8.64 (p=0.07)	0.99
Technical service quality	2	0.55[+]	-	-	-
Functional service quality	6	0.88	0.56	3.27 (p=0.77)	1.00

+ Coefficient alpha

Assessing Discriminant Validity between Constructs

The discriminant validity between the various constructs was examined next using the same procedure as for the SIM sample (the details of which were discussed in Chapter Four). The procedure involved comparing the variance extracted for each construct with the shared variance between them. Discriminant validity is established if the shared variance is smaller than the variance extracted for each construct measure (Fornell & Larker, 1981). Table 5.9 shows the shared variance between all of the construct pairs in the suggested model. It can be seen from Table 5.9 that eight of the twenty-one construct pairs did not meet discriminant validity requirements as the shared variance of these construct pairs exceeded the *VE* of at least one of the construct measures.

Table 5.9: An Assessment of Discriminant Validity
(Variance Extracted and Shared Variance)

Constructs	Variance Extracted	Word-of-mouth activity	Word-of-mouth praise	Affective commitment	High-sacrifice commitment	Satisfaction	Functional service quality
Word-of-mouth activity	0.43						
Word-of-mouth praise	0.51	0.18					
Affective commitment	0.57	0.58*	0.56*				
High-sacrifice commitment	0.53	0.27	0.03	0.21			
Satisfaction	0.66	0.40	0.16	0.60*	0.22		
Functional service quality	0.56	0.37	0.28	0.66*	0.24	1.00*	
Technical service quality	-	0.46*	0.01	0.43	0.24	0.76*	0.79*

* Denotes construct pairs not meeting the requirements of discriminant validity

A Comparison of the SIM Sample and the TP Sample

As noted, the items forming the final measures for both samples were similar in both datasets and, for several measures (word-of-mouth praise, high sacrifice commitment and technical service quality), the items were identical. The comparison also showed that convergent validity for the word-of-mouth measure was not established for either sample, while the high-sacrifice commitment measure did not meet convergent validity requirements for the SIM sample. Additionally, with the exception of the technical service quality measure, the composite reliabilities and variance extracted for the measures of both samples were comparable. A comparison of the construct pairs that did not meet discriminant validity requirements are shown in Table 5.10

Table 5.10: Constructs That Did Not Meet Discriminant Validity Requirements

SIM Sample	TP Sample
Word-of-mouth activity and satisfaction	
Word-of-mouth activity and functional service quality	
Word-of-mouth activity and technical service quality	Word-of-mouth activity and technical service quality
Word-of-mouth activity and affective commitment	Word-of-mouth activity and affective commitment
	Word-of-mouth praise and affective commitment
High-sacrifice commitment and affective commitment	
Satisfaction and functional service quality	Satisfaction and functional service quality
Satisfaction and technical service quality	Satisfaction and technical service quality
Satisfaction and affective commitment	Satisfaction and affective commitment
Functional service quality and technical service quality	Functional service quality and technical service quality
Functional service quality and affective commitment	Functional service quality and affective commitment
Technical service quality and affective commitment	

Table 5.10 shows that of the eleven construct pairs that did not meet discriminant validity requirements in the SIM sample, seven had similar problems in the TP sample. Further, all, except one, of the problematic construct pairs found in the TP sample were also found in the SIM sample. For both samples, the problems centred around the satisfaction, affective commitment and the two dimensions of service quality constructs.

What the Results Mean

As similar problems were encountered in both the SIM sample and the TP sample, it seems the problems were not unique to a particular group of students. The results also suggested the measures used by Harrison-Walker (2001) were not appropriate in the current research context (as the commitment and service quality constructs could not be discriminated). As satisfaction (included in the suggested model) and the service quality and commitment constructs did not have discriminant validity, it seems that the extended model cannot be examined with the existing measures.

It is clear that the problems do not lie with the SIM sample but with the measures themselves. Thus, it was appropriate to obtain alternative measures of the models included in Harrison-Walker's (2001) model and the extended model that was suggested in Chapter One. The exploration of alternative measures is discussed in the next chapter.

Given these findings, the current study was extended to explore the use of an alternative set of measures that is free of the previously noted measurement issues so that the objectives of this thesis can be examined. The development of these measures and the results of their validity will form the focus of Chapter Six.

Summary

In this chapter, the convergent and discriminant validity of the constructs in the proposed model were assessed using an alternative student sample obtained from Temasek Polytechnic. This was part of a procedure to determine if SIM student samples should be further used in the current research to examine the proposed model. The results showed they should, as the problems encountered were not unique to students of this institution.

Given these findings, the current study was extended to explore the use of an alternative set of measures that is free of the previously noted measurement issues so that the objectives of this thesis can be examined. The development of these measures and the results of their validity will form the focus of Chapter Six.

CHAPTER SIX

ALTERNATIVE MEASURES FOR THE PROBLEMATIC CONSTRUCTS

Introduction

The confirmatory factor analyses undertaken on the SIM sample found a number of measurement problems. Two of the constructs (word-of-mouth activity and high-sacrifice commitment) could not be said to have convergent validity. Further, discriminant validity was found between less than half the construct pairs in the suggested model. A similar set of confirmatory factor analyses were undertaken on a sample of students enrolled in another educational institution using the same measures as in the first sample and similar problems were encountered. One construct (word-of-mouth activity) did not have convergent validity, while eight construct pairs did not meet discriminant validity requirements.

The similarity of the problems encountered suggested that measurement issues, rather than sampling issues, were the problem. As was noted in the earlier chapters, these problems were not anticipated as the same measures had been used in other contexts (e.g. hair salon and veterinary contexts) by Harrison-Walker (2001) and these issues did not arise. Further, as an objective of the current study was to replicate Harrison-Walker's (2001) study in an educational context, similar measures to those found in the original study were used to allow for such a comparison. Given these results, an attempt was made to find alternative measures to the problematic constructs and this attempt forms the focus of the present chapter.

A Highlight of the Problems

The previous analysis suggested several problems. In both samples, the word-of-mouth activity measure was problematic as it did not have convergent validity and could not be discriminated from technical service quality in both samples. Additionally, the word-of-mouth praise measure barely met convergent validity requirements for the TP sample.

The service quality measures proved to be a major obstacle. Not only was there a lack of discrimination with satisfaction, there was also a lack of discrimination between its technical and functional dimensions. Finally, discriminant validity was not found between the two commitment dimensions in the SIM sample and between affective commitment and satisfaction in both samples.

Clearly, the problems encountered meant the measures used in the original study (i.e. Harrison-Walker's (2001) study) could not be generalised to the current research context and alternative measures were needed. However, the magnitude of the problems encountered, particularly with regards to discriminant validity between the constructs, might suggest that research has not developed to a point that allows the relationships between the service quality, commitment, satisfaction, and word-of-mouth to be examined in a single model. Before taking this position, alternative measures were considered for the current study, with the following sections explaining their choice.

Commitment

An examination of the original items used for measuring affective commitment and satisfaction showed a high degree of similarity. The original satisfaction measure suggested by Spreng and MacKoy's (1996) contained affective items, including 'being

pleased', 'being contented' and 'being delighted', that could have contributed to discriminant validity not being established with affective commitment. To address this issue, a more cognitive measure of satisfaction was sought.

The earlier measure of high-sacrifice commitment did not have convergent validity. As two of the four original high-commitment items examined had very low factor loadings and were removed, only two items remained after purification. This led to the search for a more complete high-commitment measure. One such measure was developed by Blau (2003), who suggested four occupational commitment dimensions which included affective commitment, normative commitment, accumulated costs commitment and a lack of alternative commitment. He defined affective commitment as a person's emotional attachment to their occupation, normative commitment as a person's sense of obligation to remain in their occupation, accumulated costs commitment as the emotional costs and occupational investment attached to an occupation, and a lack of alternative commitment as a perceived lack of available options for pursuing a new occupation.

It was clear from Blau's (2003) definition of accumulated cost commitment and lack of alternative commitment that both are high-sacrifice commitment components. The comprehensiveness of this measure suggested that it could be used in the current research. As he suggested two high-sacrifice commitment components, one approach was to adopt a second-order model for this construct. The items used to measure the accumulated costs commitment measure and the lack of alternatives commitment measure are shown in Table 6.1 and 6.2 respectively.

Table 6.1: The Accumulated Costs Commitment Measure

1. I have too much time invested in SIM to change institutions.

2. It would be costly for me to switch from SIM.

3. I have too much money invested in SIM to change institutions.

4. Leaving SIM would require me to make a real sacrifice.

Responses were obtained on a 7-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (7).

Table 6.2: The Lack of Alternatives Commitment Measure

1. I have no real alternatives to SIM right now.

2. I could easily find another educational provider if I wished to leave SIM.

3. It would be hard for me to leave SIM right now.

Responses were obtained on a 7-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (7).

Blau's (2003) commitment measures also included a four-item affective commitment scale that were similar to the affective items used in the earlier satisfaction construct that asked about happiness and a sense of belonging. As cognitive items were used to measure the new satisfaction construct, discriminant validity was not expected to be an issue with Blau's (2003) affective commitment measure, which is shown in Table 6.3.

Table 6.3: The Affective Commitment Measure

1. I feel I belong at SIM.

2. I am happy that I chose SIM.

3. I am proud that I chose SIM.

4. I like being a student at SIM.

Responses were obtained on a 7-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (7).

Satisfaction

As noted earlier, it was expected that discriminant validity between satisfaction and the affective commitment would be an issue if an affective measure of satisfaction was used. Consequently, the affective satisfaction items of the previous construct measure that were based on Spreng and MacKoy's (1996) research were removed and two additional items taken from Westbrook and Oliver (1991) were added to the original satisfaction measure. The satisfaction items used in this data collection phase are shown in Table 6.4.

Table 6.4: The Satisfaction Measure

1. I am satisfied with my decision to study at SIM.

2. My choice of SIM was a wise one.

3. I have enjoyed studying at SIM.

4. My time at SIM has been a good experience for me.

5. SIM has met my expectations

6. SIM has provided me with the things I need.

   Responses were obtained on a 7-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (7).

Service Quality

The two service quality dimensions that were of interest in the present study are those suggested by Grönroos (1984) and are known as technical service quality and functional service quality. To provide a brief recapitulation of this concept, which was discussed in detail in Chapter Two, technical quality is the outcome of a service production process and, according to Grönroos (1984), is what customers are 'left with' after the production process and the buyer-seller interactions are over. In the context of the commercial education industry, technical quality could refer to the extent to which

problems are effectively solved by the service provider. For a student, such problems can include obstacles to effective learning. Technical quality is deemed to be high if knowledge is effectively transferred to students and they pass their examinations. Grönroos (1984) suggested that functional service quality is the quality of the service process. The attention and care taken by the service provider are aspects of functional service quality.

In the earlier analysis, which used the service quality items taken from Dabholkar et al. (2000), Oliver (1997) and Sweeney et al. (1999), the two service quality dimensions did not have discriminant validity, although both had acceptable reliability. Further, there was a lack of discriminant validity between satisfaction and affective commitment.

In Dabholkar et al.'s (2000) study, two sets of service quality measures were used to examine what was termed the antecedent model. The global measure of service quality they suggested was used in the earlier analysis presented in Chapter Four. Dabholkar et al.'s (2000) also developed a four-dimensional service quality scale that included reliability (the consistency of the service provider), personal attention (the attention paid to details), comfort (lack of sales pressure and feeling safe dealing with the service provider) and features (tangible signs). As the measures had good measurement properties, it was thought that technical and service quality items derived from these measures would have similar outcomes. Consequently, the new technical and functional service quality measures were adapted from Dabholkar et al.'s (2000) measures. The reliability dimension and the personal attention dimensions referred to the process of service delivery and so measured functional service quality. The adapted items used to measure functional service quality are shown in Table 6.5.

Table 6.5: The Functional Service Quality Measure

1.   SIM provided good service right from the beginning.

2.   SIM's staff are never too busy to respond to my requests.

3.   SIM's staff are courteous.

4.   SIM's staff are willing to help.

5.   When I have a problem, SIM is interested in solving it.

6.   SIM staff give me prompt service.

Responses were obtained on a 7-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (7).

The technical service dimension of service quality was obtained from Dabholkar et al.'s (2000) comfort dimension service quality measure. Two of the items relate to SIM's staff's ability and knowledge to solve problems, and these items, which are shown in Table 6.6, were used to measure technical service quality.

Table 6.6: The Technical Service Quality Measure

1.   SIM's staff have the knowledge to answer my questions.

2.   SIM's staff have the ability to solve my problems.

Responses were obtained on a 7-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (7).

The Third Sample

A total of one hundred and sixty-five students from SIM participated in the third survey[8], of which one hundred and fifty-five were usable because they fell within the service quality and satisfaction zone of interests (as discussed in the next section). The backgrounds of these respondents are shown in Table 6.7. As with the first SIM

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[8] A new questionnaire, using the alternative measures discussed, was used for the third sample (obtained from SIM). The questionnaire is also shown Appendix A.

sample, most respondents were female (70%) and a majority were less than thirty years of age (87%), while less than four percent were older than thirty-five. Most of the respondents were diploma holders (92%), while 'A' level holders formed less than 6 percent of the sample.

Table 6.7: Profiles of Respondents to the Third Survey

Background Variables	N	%
Gender		
Female	109	70.3
Male	46	29.6
Total	155	100
Age		
Younger than 25	86	55.5
25 to 29	49	31.6
30 to 34	14	9.0
35 to 39	4	2.6
Older than 40	1	0.6
Missing	1	0.6
Total	155	100.0
Education		
`A' Level	9	5.8
Diploma	143	92.3
Bachelor	2	1.3
Master	1	0.6
Total	155	100

In determining if the measures used were the cause of the problems encountered in the original analysis, it was necessary to ensure that the background profiles of the respondents were generally similar for the original SIM sample and the new SIM sample as the two samples were collected a year apart. Similar profiles in both samples would ensure that any differences in results could be attributed to the measures, rather than to background differences between the samples. Table 6.8 provides a comparison between respondents in the original sample and in the new sample. The table suggests

that the backgrounds of respondents in both samples were similar. Consequently, differences between the results obtained in this phase of the study and the original phase, which were discussed in Chapter Six, are due to the different measures used.

Table 6.8: A Comparison of Respondents' Profiles

Background Variables	Original Sample (%)	New Sample (%)
Gender		
Female	72.3	70.3
Male	27.7	29.6
Total	100	100
Age		
Younger than 25	51.2	55.5
25 to 29	31.3	31.6
30 to 34	11.7	9.0
35 to 39	3.5	2.6
Older than 40	2.3	0.6
Missing	0	0.6
Total	100.0	100.0
Education		
`O' Level	0.4	0
`A' Level	7.8	5.8
Diploma	89.1	92.3
Bachelor	2.3	1.3
Master	0	0.6
Missing	0.4	0
Total	100.0	100.0

Measurement Model Validation Procedure

As noted in Chapter Two, the relationships between consumer perceptions of service quality and word-of-mouth, and between satisfaction and word-of-mouth are likely to be non-linear. Consequently, the study was limited to examining the relationships in the neutral and positive zones of these antecedents. Eliminating cases in which perceptions of SIM service levels were low or where respondents were dissatisfied

resulted in one hundred and fifty-five cases being used in the subsequent analysis. The smaller number of respondents meant structural equation modelling was a challenge as this procedure required larger sample sizes to achieve appropriate ratios of sample size to parameter estimates (Bagozzi & Foxall, 1996).

One way to overcome this problem was to use the partial disaggregation method suggested by Bagozzi and Heatherton (1994). This method required that items used to measure a construct to be grouped randomly so that each measure contained only two indicators. Bagozzi and Foxall (1996) suggested that an added benefit of this approach its lower sensitivity to measurement error. Consequently, the partial disaggregation method was used in this phase of the analysis.

Procedure for Validating Measurement Model

As the partial disaggregation method suggested by Bagozzi and Foxall (1996) was used to examine the suggested models, their suggested procedure was used to validate the measurement model. The assessment of overall model fit is similar to that used in the previous analyses and included the use of the comparative fit index (*CFI*) (Bentler, 1990), the Tucker-Lewis Index (*TLI*) (Tucker and Lewis, (1973), the Standardised Root Mean Square Residual (*SRMR*) and the Root Mean Square Error of Approximation (*RMSEA*).

Fornell and Larker (1981) suggested that discriminant validity between constructs can be determined from the magnitude of the shared variance among the constructs. They suggested that discriminant validity is established if the shared variance between constructs is less than the variance extracted (*VE*) of each measure.

As with the previous analysis, the convergent validity of each construct was assessed by measuring the variance extracted (*VE*) of the measure, and using a minimum value of 0.50 to suggest the measure had such validity (Fornell & Larker, 1981).

Summary

The present chapter reported the development of alternative measures for replicating Harrison-Walker's (2001) model and for examining the suggested extended model. In particular, the discussion focused on the nature of the measurement problems found in the earlier analysis and provided support for the suggested alternative measures. This chapter also showed the descriptive characteristics of a third sample used for examining the new measurement model. In the next chapter, the results of the examination of the measurement model will be presented.

CHAPTER SEVEN

RESULTS OF ASSESSING THE MEASUREMENT MODELS USING THE ALTERNATIVE MEASURES

Introduction

In Chapter Six, the alternative measures that were used to examine the suggested models were outlined. The measures were affective and high-sacrifice commitment, technical and functional service quality and satisfaction. Additionally, the decision to undertake a partial disaggregation approach to estimate the models (Harrison-Walker's (2001) model and the extended model) was discussed. In the present chapter, the results of the estimation with the alternative constructs are presented.

Measurement Model Validation

Following the measurement model validation approach suggested by Bagozzi and Foxall (1996), the measurement model was assessed for the convergent validity of each construct, for discriminant validity between constructs and for overall measurement model fit.

Stage 1: Purification of Individual Constructs

Before the items that were used to measure each construct were combined as required in the partial disaggregation method, they were assessed for construct unidimensionality. This could be have been done either by using exploratory factor analysis to determine if the items loaded onto one factor or by performing a confirmatory factor analysis on each construct to assess the significance of the Chi-square statistic as a non-significant

value would imply that the measure was unidimensional (Bagozzi, 1994). As with the assessments shown in the earlier chapters, the latter (confirmatory) procedure was used.

The Satisfaction Construct

Six items were used to measure the revised satisfaction measure. A preliminary confirmatory analysis found a significant Chi-square value (p<0.05) and a *CFI* value of 0.86, which suggested the data did not fit the model. The loading of the item 'SIM has provided me with the things I need' did not meet the minimum suggested value of 0.60 and was omitted from the measure. The modification suggested that the error term of the items 'I have enjoyed studying at SIM' and 'My time at SIM has been a good experience for me' were correlated. However, as the latter item had a low loading (0.60), it was also removed. The final four items, which are shown in Table 7.1, had a non-significant Chi-square value (p=0.75) and a *CFI* value of 0.99, which suggested good model fit.

Table 7.1: The Final Satisfaction Items

Satisfaction measure	I am satisfied with my decision to study at SIM.
	My choice of SIM was a wise one.
	I have enjoyed studying at SIM.
	SIM has met my expectations.

The Word-of-Mouth Activity Construct

Seven items were used to measure the word-of-mouth activity construct and a confirmatory factor analysis found a significant Chi-square statistic (p<0.05). Two items ('I often mention SIM to others' and 'I always mention SIM by name') had low loadings (0.47 and 0.53 respectively) and were removed. With their removal, the loading of another item ('I talk to more people about SIM than I do about most other organisations') also fell below 0.60 and this was removed. The remaining four items,

which are shown in Table 7.2, had a non-significant Chi-square statistic (p=0.13) and a *CFI* of 0.99.

Table 7.2: The Final WOM Activity Items

Word-of-Mouth Activity measure	I seldom miss an opportunity to tell others about SIM.
	When I tell others about SIM, I tend to talk about it in great detail.
	I always have the occasion to mention SIM to others.
	Once I get talking about SIM, it is hard for me to stop.

The Word-of-Mouth Praise Construct

The original word-of-mouth praise measure had four items and confirmatory analysis showed good measurement properties. Its Chi-square value was not significant (p = 0.24) and the *CFI* was 0.99. Given this, the four items, which are shown in Table 7.3, were used in the subsequent analysis.

Table 7.3: The Final WOM Praise Items

Word-of-Mouth Praise measure	I have only good things to say about SIM.
	I am proud to tell others I study at SIM.
	I often recommend SIM to others.
	In general, I speak favourably about SIM.

The Affective Commitment Construct

Four items were used to measure the alternative affective commitment measure and a confirmatory analysis found a non-significant Chi-squared statistic (p = 0.08), a *CFI* of 0.99, while the loadings of the items were greater than 0.60. As the model fitted well, all of the items, which are shown in Table 7.4, were used in the subsequent analysis.

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Table 7.4: The Final Affective Commitment Items

Affective Commitment measure	I feel I belong at SIM.
	I am happy I chose SIM.
	I am proud that I chose SIM.
	I like being a student at SIM.

The High-Sacrifice Construct

The alternative high-sacrifice commitment measure was formed by combining items from the lack-of-alternative commitment measure and the accumulated costs commitment measure suggested by Blau (2003). It was suggested that this construct might be examined as a second-order model. Indeed, an exploratory factor analysis of the combined items showed a two-factor structure that accounted for fifty nine percent of the variance. However, one item did not load as expected. While three of the four accumulated costs items loaded onto one factor, the remaining item ('Leaving SIM would require me to make a real sacrifice') loaded onto the second factor, together with the two lack-of-alternative commitment items.

A confirmatory factor analysis of the first factor showed it had poor measurement properties. Only one item ('I have too much money invested in SIM to change institutions') had a loading that exceeded 0.70. The loadings of the other two items did not exceed 0.60, which suggested that the measure did not have convergent validity. Consequently, this factor was not included for further analysis.

A confirmatory factor analysis of the second factor of three items found one item ('I have no real alternatives to SIM right now') with a low loading (0.48), which was removed. The two remaining items, which are shown in Table 7.5, had high loadings of 0.83 and 0.84 respectively and were used to measure high-sacrifice commitment.

Table 7.5: The Final High-Sacrifice Commitment Items

High-Sacrifice Commitment measure	Leaving SIM would require me to make a real sacrifice. It would be hard for me to leave SIM right now.

The Functional Service Quality Construct

As noted earlier, the functional service quality measure was developed by combining the reliable dimension and the personal attention dimension from Dabholkar et al.'s (2000) service quality scale. An exploratory factor analysis of these items found one factor. Additionally, a confirmatory factor analysis of the six items found a non-significant Chi-square statistic (p>0.05) and a *CFI* value of 0.99.   However, one item ('SIM's staff are never too busy to respond to my requests') had a low loading (0.46) and was removed. The remaining five items, shown in Table 7.6, had loadings that exceeded 0.60 and were used to measure the functional service quality measure

Table 7.6: The Final Functional Service Quality Items

Functional Service Quality measure	SIM provided good service right from the beginning. SIM's staff are courteous. SIM's staff are willing to help. When I have a problem, SIM is interested in solving it. SIM staff give me prompt service.

The Technical Service Quality Construct

As noted in the previous chapter, the technical service quality items were adapted from the comfort dimension within Dabholkar et al.'s (2000) service quality scale. While confirmatory factor analysis cannot be undertaken on a measure with only two items,

the alpha reliability of the two-item measure was 0.81, which is well above the cut-off value of 0.70 suggested by Nunnally (1978). Given this, the two items, which are shown in Table 7.7, were used to measure technical service quality.

Table 7.7: The Final Technical Service Quality Items

| Technical Service Quality measure | SIM's staff have the knowledge to answer my questions. |
| | SIM's staff have the ability to solve my problems |

Stage 2: An Assessment of the Individual Constructs' Properties

Two tests were undertaken to assess the measurement properties of each construct. This included an examination of each constructs' composite reliability and convergent validity, with variance extracted (*VE*) being used to assess convergent validity (Fornell & Larker, 1981).

Table 7.8: A Summary of the Assessed Measures

Construct	Composite Reliability	Variance Extracted (VE)
Word-of-mouth activity	0.84	0.73
Word-of-mouth praise	0.94	0.89
Affective commitment	0.79	0.67
High-sacrifice commitment	0.81	0.69
Satisfaction	0.87	0.77
Functional service quality	0.88	0.78
Technical service quality	0.83	0.72

The results of these assessments are provided in Table 7.8, which shows that all of the measures exceeded the suggested minimum value of 0.70, which meant they were reliable. Further, the *VE* of each construct exceeded the minimum value of 0.50 suggesting they also had convergent validity (Fornell & Larker, 1981).

Stage 3: An Assessment of Discriminant Validity between Constructs

The discrimination between the construct measures was assessed next. As discussed in Chapter Six (and also in Chapter Three), the procedure suggested by Fornell and Larker (1981) involved examining the shared variance between the construct pairs and the *VE* of the measures. They suggested discriminant validity was achieved when the *VE* of the construct pair was larger than the shared variance between them.

Assessing for Discriminant Validity between Constructs of the Extended Model

The *VE* and the shared variance between each construct pair of the extended model are shown in Table 7.9. It can be seen that the shared variance between every construct pair in the suggested extended model is less than the *VE* of the corresponding measures. According to Fornell and Larker (1981), this implied that the construct measures in the extended suggested model had discriminant validity between them.

Table 7.9: An Assessment of Discriminant Validity
(Variance Extracted and Shared Variance)

Constructs	Variance Extracted	Word-of-mouth activity	Word-of-mouth praise	Affective commitment	High-sacrifice commitment	Satisfaction	Functional service quality
Word-of-mouth activity	0.73						
Word-of-mouth praise	0.89	0.48					
Affective commitment	0.67	0.27	0.66				
High-sacrifice commitment	0.69	0.11	0.12	0.14			
Satisfaction	0.77	0.25	0.62	0.64	0.10		
Functional service quality	0.78	0.04	0.26	0.32	0.03	0.22	
Technical service quality	0.72	0.03	0.24	0.18	0.01	0.19	0.58

Assessing the Discriminant Validity between Harrison-Walker's (2001) Constructs

As noted earlier, service quality was considered a second-order construct when replicating Harrison-Walker's (2001) model. Though technical service quality and functional service quality (first-order constructs) were found to have discriminant validity with the other constructs in the suggested extended model, it cannot be assumed that the second-order construct would also have this form of validity. Consequently, it was necessary to show that service quality (as a second-order construct) had discriminant validity with the other construct measures in Harrison-Walker's (2001) model. The construct pairs involving service quality and the other constructs were examined and the results presented in Table 7.10.

Table 7.10: Shared Variance between Service Quality and Other Constructs in Harrison-Walker's (2001) Model

Constructs	Service quality	Word-of-mouth activity	Word-of-mouth praise	Affective commitment	High-sacrifice commitment
Variance Extracted	0.72	0.73	0.89	0.67	0.69
Service quality		0.05	0.30	0.36	0.03

Table 7.10 shows that service quality had discriminant validity with the other construct pairs in Harrison-Walker's (2001) model as the shared variance between the pairs were less that the *VE* of the corresponding measures. With this established, the overall measurement properties were assessed.

Stage 4: Assessment of Overall Model Fit

Following the procedure suggested by Bagozzi and Heatherton (1994), which was discussed in Chapter Six, the final items for each construct were randomly combined so there were only two indicators for each measure. As noted previously, the overall model fit was assessed using the comparative fit index (*CFI*) (Bentler, 1990), the Tucker-Lewis index (*TLI*) (Tucker & Lewis, 1973), the standardised root mean square residual (*SRMR*) and the root mean square error of approximation (*RMSEA*) . The Chi-square statistic was not used in the overall model assessment because of its sensitivity to sample size. As two models were examined (i.e. Harrison-Walker's (2001) model and the extended model), both measurement models were assessed and the following sections discuss the results obtained in each case.

An Assessment of the Extended Model

The *CFI* value for the overall suggested extended model was 0.95, which was well above the cut-off of 0.90 suggested by Bagozzi and Baumgartner (1994). The *TLI* value was 0.93, which was also above the cut-off of 0.90 suggested by Hoyle (1995). The Standardised Root Mean Square Residual (*SRMR*) of 0.05 was below the maximum value of 0.08 suggested by Hu and Bentler (1999). The Root Mean Square Error of Approximation (*RMSEA*) was 0.07, which was also below the maximum value of 0.08 (Browne & Cudeck, 1993). As the fit indices were within that suggested for good model fit, it is apparent that the data fitted the suggested model well.

An Assessment of Harrison-Walker's (2001) Model

Harrison-Walker's (2001) model had only one service quality construct. Consequently, in replicating her study, service quality was examined as a second-order construct, with technical service quality and functional service quality as first-order components. The measurement model had a *CFI* of 0.97, a *TLI* of 0.95, a Standardised Root Mean Square Residual (*SRMR*) of 0.04 and a Root Mean Square Error of Approximation (*RMSEA*) of 0.07. All of these values were within the suggested limits.

With both measurement models i.e. Harrison-Walker's (2001) model and the suggested extended model validated, the structural models were next examined, the results of which forms the focus of the next two chapters.

Summary

The present chapter reported the results of an assessment of the two measurement models in the current study. The new measurement models were different from those discussed in Chapter Three. This arose because several of the original construct measures were found to not have discriminant validity and new measures had to be used. These new measures had good measurement properties and consequently, would be used for examining Harrison-Walker's (2001) model and the suggested extended model. The results of the examination will be discussed in Chapter Eight and Chapter Nine respectively.

CHAPTER EIGHT

ASSESSING HARRISON-WALKER'S (2001) STRUCTURAL MODEL

Introduction

As noted in Chapter One, two models were assessed in the present study, namely Harrison-Walker's (2001) model and the suggested extended model. Harrison-Walker's (2001) model was replicated in the present research because it was the basis of the suggested extended model. The models were not assessed with the original measures as they did not have acceptable measurement properties. Alternative measures of commitment, service quality and satisfaction were used and Chapter Seven provided the results of the assessment of the revised measures. As the constructs had acceptable convergent validity, discriminant validity and good overall measurement model fit, the structural models were estimated and the current chapter provides the results of the estimation of the first of the two structural models (i.e. Harrison-Walker's (2001) model).

A Brief Background to Harrison-Walker's (2001) Study

The focus of Harrison-Walker's (2001) research was an examination of the impact of affective commitment, high-sacrifice commitment and service quality on word-of-mouth activity and word-of-mouth praise. The research framework, which was shown in Chapter One as Figure 1.1, is reproduced in the present chapter as Figure 8.1.
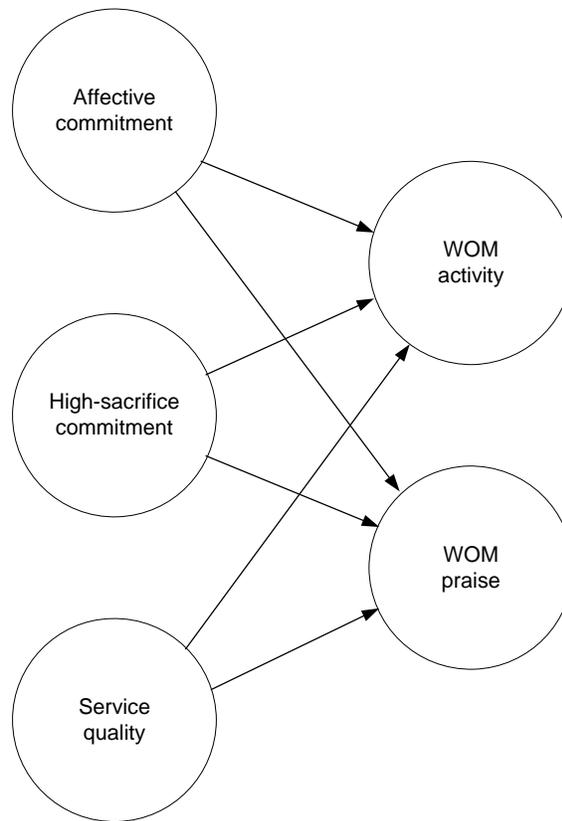
Figure 8.1: Harrison-Walker's (2001) Research Framework

The key findings in Harrison-Walker's (2001) study, which formed the basis of the comparison with the results obtained in the current study, were:

1. Affective commitment had a significant positive effect on word-of-mouth activity and word-of-mouth praise,

2. High-sacrifice commitment did not have a significant effect on either word-of-mouth activity or word-of-mouth praise,

3. Service quality had a significant positive effect on word-of-mouth praise in the veterinary industry, but not in the hair salon industry, and

4. Service quality had a significant negative effect on word-of-mouth activity in the veterinary industry, but not in the hair salon industry.

The Results Found in the Present Study

As noted in the Chapter Seven, service quality was measured as a two-dimensional construct with functional and technical dimensions in the present study, but was considered as a first-order construct in Harrison-Walker's (2001) original study. To allow for a meaningful comparison with the original study, the construct was assessed as a second-order construct in the replication, with the following sections providing the results of this modelling approach.

Assessing the Structural Model

As noted in Chapter Three, the fit of structural model was assessed by examining a number of indices. This included the Chi-square statistic. However, several researchers (e.g. Browne & Mels, 1992; Bentler, 1990; Jöreskog, 1969) have suggested that this statistic should not be used to reject a model because it is very sensitive to sample size, and, consequently, other fit indices were also used to assess the model. These included the widely used comparative fit index (*CFI*) developed by Bentler (1990) that is based on the comparison of the fit of the hypothesised model to that of a baseline model. The *CFI* was preferred because of its insensitivity to sample size. The Tucker-Lewis index (*TLI*), developed by Tucker and Lewis (1973) and the normed Chi-square, which evaluates the parsimony of the hypothesised model, were also used. Finally, the Standardised Root Mean Square Residual (*SRMR*) and the Root Mean Square Error of approximation (*RMSEA*) were examined.

The estimated structural model had a Chi-square statistic that was significant (χ^2 = 67.17, df = 43, p < 0.05). However, as noted, its sensitivity to sample size suggests that other more reliable indices be given greater weight. The normed Chi-square value is 1.56, which was below the threshold of 3.0 that has many have argued suggests a good model fit (Brooke, Russell & Price, 1988; Hoelter, 1983). The model also had a *CFI* of

0.99, a *TLI* of 0.97, a *SRMR* of 0.06 and an *RMSEA* of 0.06, which are all acceptable, suggesting that the structural model in this case fitted the data well. Consequently, the path estimates in the structural model were assessed and the results obtained are shown in Figure 8.2.
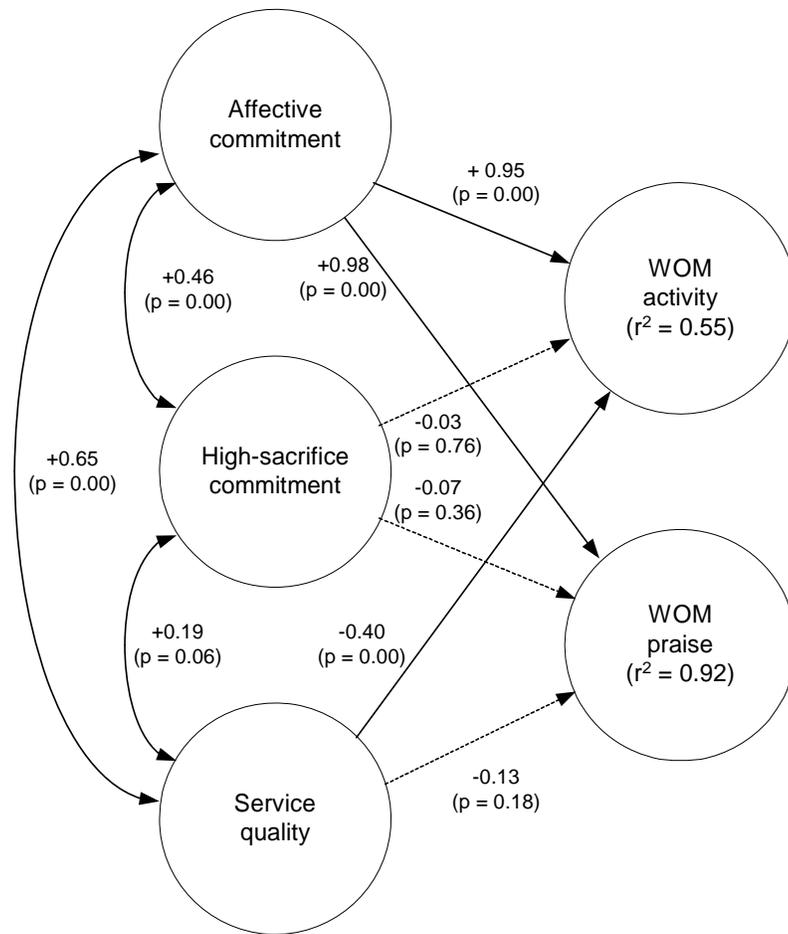
Dashed lines indicate non-significant paths

**Figure 8.2: The Path Estimates between the Constructs in
Harrison-Walker's (2001) Model**

The Path Estimates

Figure 8.2 suggests that affective commitment had a very significant impact on both word-of-mouth praise and word-of-mouth activity. This is consistent with Harrison-Walker's (2001) research as she found these path estimates were significant in both a

hair-salon and a veterinary context. Also consistent with the original study, high-sacrifice commitment did not have a significant impact on either of the word-of-mouth dimensions.

The present study found that service quality did not impact on word-of-mouth praise, which was similar to Harrison-Walker's (2001) finding in the hair salon industry, although it had been significant in the veterinary context. Service quality, had a significant negative impact on word-of-mouth activity, which was similar to Harrison-Walker's (2001) finding in the veterinary context but not in the hair salon context, in which service quality did not impact word-of-mouth activity.

These findings suggest some similarity between the commercial educational industry and the industries examined by Harrison-Walker (2001) insofar as the impact of affective commitment and high-sacrifice commitment on the word-of-mouth dimensions are concerned.

Before bringing the current discussion to a close, it is necessary to highlight a difficulty faced in this study that relates to the similarity of the models being compared. There was no information provided in original study as to whether the independent constructs were allowed to correlate, although the diagrams provided (Figure 3 and Figure 4) in Harrison-Walker's (2001) paper suggested that they were not. Yet, it can be seen in Figure 8.2 that the correlations between two of the three independent constructs were significant. This suggests that, if the independent constructs were not allowed to correlate, the path estimates obtained would differ from those shown in Figure 8.2. This posed a dilemma. If the independent constructs were allowed to correlate, the path estimates obtained would be valid, but provide for a less meaningful comparison. On the other hand, if the constructs were not allowed to correlate, the path estimates obtained would not be valid, but would allow for a better comparison. As it was felt

that validity was the more important consideration, the constructs were allowed to correlate.

Summary

In the present chapter, Harrison-Walker's (2001) study, on which the current research was largely based, was replicated to see whether the results obtained in the current educational context were similar to those obtained in the original hair-salon and veterinary contexts. The results suggested some differences, implying word-of-mouth may be created differently in different service contexts. In the next chapter, the results obtained in estimating the extended model (which was shown in Figure 1.2), which formed the other focus of the current study, are presented.

CHAPTER NINE

EVALUATING THE EXTENDED MODEL

Introduction

Chapter Seven provided an assessment of the two measurement models that were evaluated in the current study. Alternative measures to those that were originally suggested were used to estimate these models because of the measurement issues that were encountered with the original measures. Chapter Eight discussed the results of the estimation of the first structural model (Harrison-Walker's (2001) model), while the present chapter outlines the results of the estimation of the extended model.

Assessing the Fit of the Structural Model

The suggested structural model, which was presented in Chapter 1, is reproduced in the present chapter as Figure 9.1.
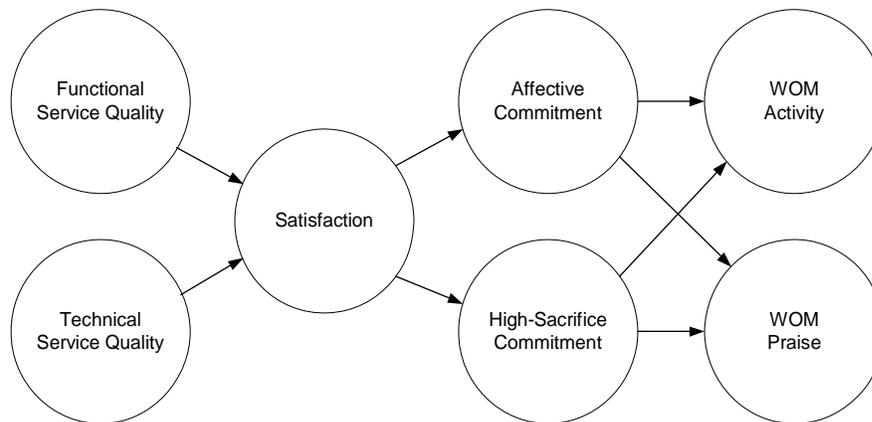
Figure 9.1: The Suggested Extended Model

As with Harrison-Walker's (2001) model, the extent of suggested model to data fit was evaluated using the comparative fit index (*CFI*), the Tucker-Lewis index (*TLI*), the

Standardised Root Mean Square Residual (*SRMR*) and the Root Mean Square Error of Approximation (*RMSEA*). Following the suggestion of several researchers (e.g. Browne & Mels, 1992; Bentler, 1990; Jöreskog, 1969), the Chi-squared statistic was given less emphasis because of its sensitivity to sample size.

Although the Chi-square statistic obtained was significant ($p < 0.05$), the normed Chi-square statistic was 1.93, which was below the suggested maximum value of 3.00. Consequently, it seems that the model fits the data well (Brooke et al., 1988; Hoelter, 1983). Further, the comparative fix index (*CFI*) was 0.96, the Tucker and Lewis index (*TLI*) was 0.94, the Standardised Root Mean Square Residual (*SRMR*) and the Root Mean Square Error of Approximation (*RMSEA*) were 0.05 and 0.07 respectively, all of which suggested there was a good fit.

The Structural Path Coefficients

It seems that the suggested model fitted the data well and, consequently, the estimated structural path coefficients were examined and the relationships discussed. The results obtained are shown in Figure 9.2.
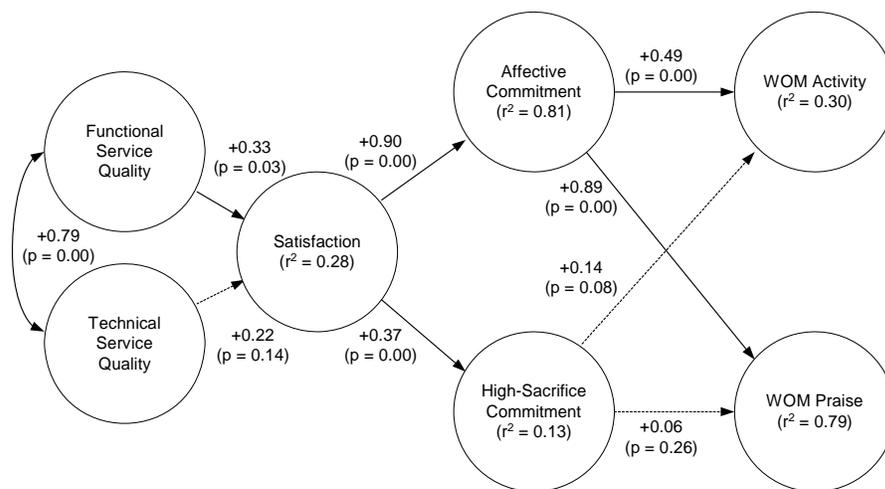
Dashed lines indicated insignificant paths

Figure 9.2: The Path Estimates between the Constructs in the Proposed Model

The Commitment – Word of Mouth Relationship

Hypotheses one and two suggested that students with higher levels of affective commitment would engage in more word-of-mouth activity and word-of-mouth praise. These relationships were supported in the present study, as this form of commitment impacted significantly on both word-of-mouth dimensions ($p<0.01$). Educational institutions that want positive word-of-mouth from their students must first develop their affective commitment.

Hypothesis three suggested that affective commitment would have a larger impact on word-of-mouth activity than high-sacrifice commitment, while hypothesis four suggested the same situation was true for word-of-mouth praise. These hypotheses were also supported as the high-sacrifice commitment did not have a significant impact on either of the word-of-mouth dimensions.

Although aspects of consumer commitment, particularly affective commitment, were found to have significant direct effects on word-of-mouth formation in the present study, other researchers (e.g. Reichheld & Sasser, 1990) have suggested that other marketplace outcomes (e.g. customer loyalty) are also important predictors of word-of-mouth. Further research into the formation of word-of-mouth should examine the relationships between commitment, loyalty and word-of-mouth.

The Satisfaction – Commitment Relationship

Hypothesis five suggested that higher satisfaction levels lead to higher levels of affective commitment. This hypothesis was supported as satisfaction had a significant impact on affective commitment ($p<0.01$).

Hypothesis six suggested that satisfaction impacts affective commitment more than it impacts on high-sacrifice commitment. This hypothesis was supported in the present study as the standardised path coefficient between satisfaction and affective commitment (0.90) was considerably larger than the coefficient between satisfaction and high-sacrifice commitment (0.37), although both relationships were significant ($p<0.01$). This shows that what is true in the organisational context with regards to the relationship between satisfaction and commitment is also true for consumers of educational services. In both contexts, satisfaction has a positive impact on commitment.

The Service Quality – Satisfaction Relationship

Hypotheses seven and eight suggested that students who perceived technical and functional service quality to be high would have high levels of satisfaction. Only hypothesis eight was supported in the present study, as functional service quality significantly affected satisfaction ($p<0.05$).

Further discussion of the relative impacts of the two service quality dimensions on satisfaction is provided in Chapter Ten. However, in the current study, it is noteworthy that the significant effect of functional service quality on commitment is consistent to other studies that have examined the relationship between these constructs (e.g. Cronin et al., 2000).

Examining Overall Impact

To better understand the relative importance of each construct, the total effects, which include the direct and indirect effects, need be examined. The results obtained from their computation are shown in Table 9.1.

Table 9.1: Standardised Total Effects on the Endogenous Constructs

Effect of ↓	Effect on →				
Construct	Satisfaction	Affective commitment	High-sacrifice commitment	WOM activity	WOM praise
Functional service quality	0.33	0.30	0.12	0.16	0.27
Technical service quality	0.22	0.20	0.08	0.11	0.18
Satisfaction		0.90	0.37	0.49	0.80
Affective commitment				0.49	0.87
High-sacrifice commitment				0.14	0.06

The results suggest satisfaction had a greater influence on WOM praise (0.80) than it did on WOM activity (0.49), although both effects were significant. Both functional service quality and technical service quality had a greater impact on WOM praise than they did on WOM activity, while functional service quality had a greater influence on word-of-mouth formation than did technical service quality.

However, this cannot be taken to mean that service providers need not focus on the intended outcomes of the service (technical service quality) because, as Oliver (1997) has noted, variables that are less important for one outcome may be important for another outcome (e.g. loyalty).

The squared multiple correlations, which are shown in Figure 9.2, suggested that 79% of the variance in word-of-mouth praise was explained by the constructs in the suggested model. However, only 30% of the variance in word-of-mouth activity was explained by the model's constructs. Further, while affective commitment was well explained by satisfaction and service quality (81%), high-sacrifice commitment was not so well explained (13%).

With the exception of word-of-mouth praise and affective commitment, the model explained less than forty percent of the variance in the other endogenous constructs. Of the endogenous constructs that had low variance explained, one that deserves comment is word-of-mouth activity (30%). From a management standpoint, both word-of-mouth dimensions are necessary and complement each other. Without word-of-mouth activity, information, spread will be slow. Without word-of-mouth praise, consumer behaviour is not likely to be affected. Although only a small part of high-sacrifice commitment was influenced by its antecedent constructs (which means little is known about its formation), it is not a serious weakness in this study because of its insignificant role on the formation of word-of-mouth.

An Evaluation of Competing Models

Several researchers (e.g. Hair et al., 1998; Morgan & Hunt, 1994) have suggested that, as a final approach to model assessment, a suggested model should be compared with some alternative models, which might be seen as alternative explanations to the model. Several studies (e.g. Harrison-Walker, 2001) had suggested that service quality had a direct effect on word-of-mouth. Indeed, in the current study, and as shown in Chapter Eight, where Harrison-Walker's (2001) study was replicated in the current research context, service quality had a significant direct effect on word-of-mouth activity. Consequently, as an alternative model, a direct relationship between the two service quality dimensions and the two word-of-mouth dimensions were introduced. While the model fit indices (*CFI, TLI, SRMR, RMSEA*) remained unchanged from that of the suggested model, the service quality - word-of-mouth relationships were not significant (functional service quality on word-of-mouth praise was -0.02 (p = 0.84), functional service quality on word-of-mouth activity was -0.04 (p = 0.76), technical service quality on word-of-mouth praise was 0.08 (p=0.40), and technical service quality on word-of-mouth activity was -0.12 (p = 0.40)). Further, there was no significant increase in the

variance explained for the word-of-mouth activity constructs (34% compared to the original 30%) or the word-of-mouth praise construct (79% compared to the original 78%). This suggests the alternative model was not a better explanation of the data.

As a second alternative, the commitment constructs could be considered as exogenous constructs (as with technical service quality and functional service quality), with direct effects on word-of-mouth activity and word-of-mouth praise. Satisfaction mediates the effects of the service quality on word-of-mouth formation. The approach of treating commitment as exogenous with direct effects on word-of-mouth formation was found in Harrison-Walker's (2001) study. However, all of the fit indices in this case were either equal or lower than the suggested model. The *CFI* value was 0.95 (originally it was 0.96), *TLI* was 0.93 (originally it was 0.94), *SRMR* was 0.05 (originally it was 0.05), and *RMSEA* was 0.09 (originally it was 0.07)). The second alternative model did not perform better than the suggested model.

Summary

The results of the evaluation of the extended structural model were presented in the present Chapter. The fit of the structural model was examined first to ensure that the model fitted the obtained data. As this was found to be the case, the path estimates between the model's various constructs were examined and their total impact on the two WOM dimensions were determined. Chapter Ten, which is the final chapter of the thesis, provides a discussion of the key findings and their implications.

CHAPTER TEN

CONCLUSIONS AND IMPLICATIONS

Introduction

The results of the various phases of the present study were presented in Chapter Four to Chapter Nine. In particular:

- Chapter 4 provided some descriptive results and examined the constructs contained in the two models of interest (Harrison-Walker's (2001) model and the suggested extended model). As a consequence of this analysis, it was found that there were measurement issues with some of the constructs that required further examination.

- Chapter 5 provided the results of an examination of a second dataset obtained from students studying at a different educational institution, which was used to see whether the measurement problems were specific to the educational institution in which the data were collected or whether they were more general. The analysis found similar problems in the second institution, which suggested the measurement issues were related to the scales used, rather than to anything specific to the educational institution in which the first dataset was collected. This suggested the need to measure the constructs differently.

- Chapter 6 discussed the alternative measures that were used to overcome measurement issues that were of concern.

- Chapter 7 provided an assessment of the measurement properties of the alternative measures.

- Chapter 8 reported the results of a replication of Harrison-Walker's (2001) research, on which the extended model was based, using the alternative measures.

- Chapter 9 discussed the evaluation of the suggested extended model that was estimated using the alternative measures.

The present chapter discusses the implications of these results after a summary of the current research, which is provided in the following section.

A Brief Summary of the Present Study

The current study replicated and extended Harrison-Walker's (2001) word-of-mouth research into a commercial education services context. Harrison-Walker's (2001) study examined the direct effects of affective commitment, high-sacrifice commitment, and service quality on word-of-mouth activity and word-of-mouth praise within the hair-salon industry and the veterinary industries. The present study suggested a more comprehensive model of word-of-mouth formation than had been suggested by Harrison-Walker (2001), as it included satisfaction as a mediating construct and service quality as a two-dimensional construct, as suggested by Grönroos (1984). The resulting model, which was shown in the first chapter, is also shown here as Figure 10.1.
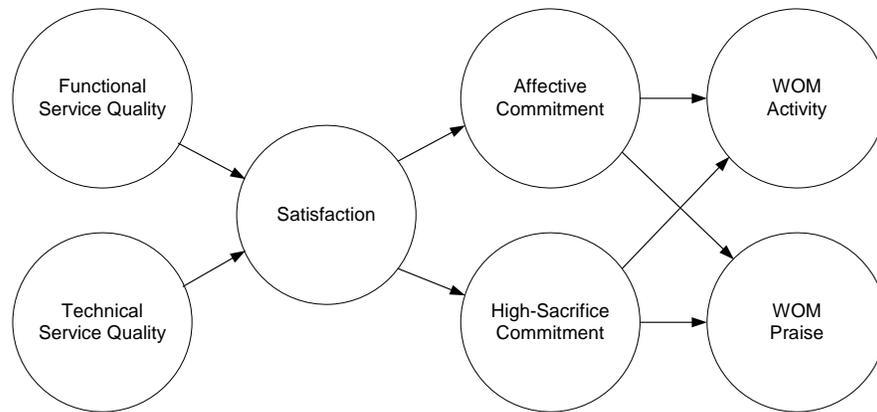
Figure 10.1: The Original Research Framework

Measurement problems encountered during the analysis suggested a need to identify the cause so an appropriate approach could be used to achieve the study's intended objectives. This involved collecting and analysing a second dataset from students at another educational institution. Similar problems were encountered with this dataset, which suggested that the problems were not unique to the original sample that was obtained from students studying at the Singapore Institute of Management (SIM). Consequently, alternative measures were introduced for the problematic constructs (satisfaction, commitment and service quality) that did not have discriminant validity in the original datasets and a third dataset was obtained from a new set of students studying at SIM.

An assessment of the convergent and the discriminant validity of the new constructs and of the measurement properties of the overall measurement model suggested that the new constructs were acceptable. Consequently, the structural models of interest (i.e. the model suggested by Harrison-Walker (2001) and the suggested extended model) were estimated. The results obtained were examined in Chapter Eight and Chapter Nine respectively. In the sections that follow, their implications are discussed.

Implications of the Research

As already noted, two structural models were assessed in the current study, namely:

1.   Harrison-Walker's (2001) model (which was shown in Figure 1.1).

2.   The proposed extended model (which was shown in Figure 1.2).

The present section discusses the role of consumer commitment, satisfaction and service quality on word-of-mouth formation, taking into account the results obtained from the estimation of the two models.

The Role of Commitment

The results obtained from Harrison-Walker's (2001) model and the extended model were consistent, as both showed affective commitment was the only commitment dimension that had a significant impact on word-of-mouth praise or word-of-mouth activity formation. This finding was consistent with Harrison-Walker's (2001) research in both the hair salon industry and veterinary industry.

The importance of affective commitment as a driver of word-of-mouth formation suggests that greater organisational effort needs to be focussed on bringing about this form of commitment. Studies to date have mainly focused on the impact of customer attitudes and perceptions on commitment (e.g. Bansal et al.'s (2004) examination of trust). Unfortunately, as this is a relatively new area of study, there is little research into the types of organisational initiatives that might lead to the formation of this form of commitment. In one of few customer commitment studies, Adamson et al. (2003) found firms that adopted customer-centred marketing strategies and had a long-term orientation towards their customers were more likely to generate customer commitment.

More specifically, Bettencourt (1997) noted that customer voluntary performance can also generate consumer affective commitment, although it is not expected that such activities will be possible in all service industries. Clearly, in service contexts, such as motor repair or medical services, these activities are not relevant. However, within an education services context such opportunities abound. Students voluntarily helping to organise activities for freshmen or representing their institutions in various forms of competition are likely to develop affective commitment. Many institutions have such programmes in place for their students, but they may not be aware of the longer term benefits these programmes have on the formation of positive word-of-mouth. As already noted, this form of participation is not relevant to all service organisations and, hence, alternative organisational initiatives that generate this form of commitment should be examined. As word-of-mouth has a significant influence on customer purchase decisions, particularly within service industries (Bansal & Voyer, 2000; Still et al., 1984), there is a clear need for further research in this area to identify such strategies.

The present research suggested that consumer behaviour and organisational behaviour had much in common, as Mowday et al. (1979) also found that affective commitment led to positive outcomes in organisations. Despite the seemingly obvious comparison, any inference as to the similarity between these two fields of research (organisational commitment and consumer commitment) must be made with care. An important assumption that must be made for this comparison to be meaningful is that, as with organisational commitment, the full spectrum of consumer commitment dimensions was considered. However, when the current study was undertaken, almost all prior studies had adopted consumer commitment dimensions from their more established organisational cousins (e.g. Harrison-Walker, 2001). Where these dimensions were

"borrowed", the items used for the dimensions were also either "borrowed" or adapted (e.g. Harrison-Walker, 2001).

The problem with this approach is that the comparison between organisational commitment and consumer commitment can only be made for the common commitment dimensions. To illustrate, while it could be inferred that affective commitment brings significant positive behavioural outcomes for both organisational commitment and consumer commitment, it cannot be suggested that affective commitment is the only significant commitment dimensions because the adopted dimensions of organisational commitment might not represent all the dimensions of consumer commitment (as is shown in Figure 10.2).

This argument seeks an answer to a previously unanswered question. How similar are organisational commitment and customer commitment dimensions? Until researchers have an answer to this question, a comparison between the two areas of study cannot be properly made.

Organisational
Commitment

Consumer
Commitment
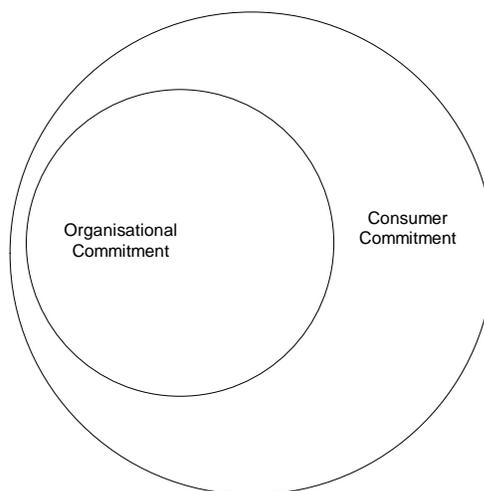
Figure 10.2: Overlap of Organisational Commitment and Consumer Commitment

There is a need for customer commitment researchers to determine the components that make up this construct. It is suggested that they do this through a systematic approach,

and Sweeney and Soutar (2001) provided an example of how this might be done in their development of the perceived value (PERVAL) scale.

While almost all of the prior studies in the area of consumer commitment included affective commitment as a dimension, other forms of commitment are also likely to be present. Recently, Bansal et al. (2004) found that normative commitment played a mediating role between affective commitment and consumer switching intentions. In the present study, forms of consumer commitment other than affective and high-sacrifice commitment were not examined as the aim was to assess an extended model based on Harrison-Walker's (2001) framework but with satisfaction included as a mediating construct. As consumer switching intentions and word-of-mouth praise, which are both important marketplace outcomes, are likely to be highly correlated, it can be argued that normative commitment is likely to play an important role in the formation of word-of-mouth and future research should be undertaken to better understand the role of the various commitment dimensions on this form of communication.

With Singapore poised to become the educational hub of Asia (Davie, 2004), many commercial education institutions have capitalised on this opportunity and recently set up schools in the country. They include the PSB Academy and the Nanyang Institute of Management. Those that have been in the industry earlier, such as the Singapore Institute of Management, the TMC Academy and Informatics, are expanding their operations. The focus for many of these institutions, however, seemed to be in attracting potential students, rather than building affective commitment in existing students.

In October 2003, thirty-eight students filed various complaints against the Nanyang Institute of Management, which is a major player in Singapore's commercial education

industry and, in April 2004, the institution was investigated by the Commercial Affairs Department for offering places to four Nepalese students in nursing programmes that were not yet approved (Davie, 2004). While acquiring new students is important, the present findings suggest commercial education institutions must also try to improve affective commitment among their existing students.

The Role of Satisfaction

Valuable insights into the role of satisfaction in word-of-mouth formation can be obtained from the present results. While Harrison-Walker's (2001) model did not include satisfaction, the extended model showed that satisfaction had significant indirect effects on both word-of-mouth dimensions. This reminder to companies of the fundamental need to satisfy their customers comes at a time when some look towards loyalty programmes as a way to retain customers. These companies have responded to studies that suggested that customer satisfaction is no guarantee for customer loyalty (Mittal & Lassar, 1998). Clearly, the result of the present study suggests otherwise, as there are important marketplace outcomes that are more likely to be achieved through customer satisfaction.

With affective commitment playing a major role in the formation of word-of-mouth activities and word-of-mouth praise, it is imperative that attention be on the formation of this important construct. The current study showed that satisfaction had a significant effect on affective commitment, with eighty one percent of the variance in the latter construct explained by its antecedents which includes satisfaction. This result lends further support to the need for companies to focus on satisfying their customers. The major role of satisfaction in affective commitment and word-of-mouth formation means commercial education service providers should make student satisfaction a key organisational objective.

Interestingly, satisfaction was also found to have significant effects on high-sacrifice commitment, a relationship that was unexpected. Despite the significant relationship between the two constructs, it is clear that it was affective commitment, rather than high-sacrifice commitment, which mediated the relationship between satisfaction and word-of-mouth formation, as only affective commitment generated this form of communication.

The importance of satisfaction in delivering positive customer behavioural outcomes has led many companies to put effort in improving customer satisfaction. Some researchers (e.g. Berry et al., 2002) have suggested the need to manage customers' total experience by focusing on the "clues" customers are given when they come in contact with a service provider. Others (e.g. Morgan & Rao, 2003) have gone a step further, suggesting companies need to make customers' experiences fun. Clearly, in the context of the current study, these suggestions are well supported.

Unfortunately, prior research (e.g. Morgan & Rao, 2003) suggests that, with the exception of a few educational institutions (e.g. Franklin University), most organisations that have put an effort into improving customer experiences are not from the education industry. The education scene in Singapore has changed dramatically over the years. Where there were two major universities (National University of Singapore and the Nanyang Technological University) and a handful of commercial educational service providers in the past, there are now eight institutes of higher learning (National University of Singapore, Nanyang Technological University, Singapore Management University, Singapore Institute of Management (appointed by the Ministry of Education to run the Open University Degree Programme), INSEAD, John Hopkins, University of Chicago Graduate School of Business, Universitas 21 Global) and more than a hundred registered commercial schools operating in Singapore (Singapore, 2004). The universities operating in Singapore have been "handpicked" by

the Singapore government and are seen as reputable and of high quality. Consequently, the opportunity for differentiating one university from another on the basis of reputation is limited. The current study suggests a new perspective for educational institutions competing in this highly competitive industry, in which success comes through student satisfaction.

The Role of Service Quality

The results obtained from replicating Harrison-Walker's (2001) study in a commercial education context showed that service quality was not important to the formation of word-of-mouth praise. As noted previously, this result was consistent to Harrison-Walker's (2001) finding for the hair-salon industry, but not for the veterinary industry. She explained that the unexpected result (in the hair-salon industry) could have been due to the nature of the service quality instrument used as it was based on Parasuraman et al.'s (1988) SERVQUAL scale, which focuses on service delivery, rather than on outcomes. She further explained that service quality was important to the formation of word-of-mouth activities in the veterinary industry as this industry was high in credence qualities (Lovelock, 1991) as most consumers lack the medical knowledge needed to judge veterinary service outcomes, even after the service had been completed.

She argued that this was not the case for the hair-salon industry as these services are high in experience qualities (Lovelock, 1991). As consumers were able to evaluate service quality both during and after the service consumption, she argued that service quality evaluations in such industries were likely to be based on the outcome of the service, rather than on the service delivery process.

Are students in a commercial educational institution able to judge educational service outcomes? As the students who were surveyed were working adults currently enrolled in degree programmes, they should be competent judges of service quality outcomes,

even if they have not graduated from their programme. If this were not the case, student feedback evaluations (which often used to evaluate technical service outcomes e.g. effectiveness of the lecturer) would not be valid. Following Harrison-Walker's (2001) argument, technical service quality, which was not examined in her study, should impact on customer satisfaction. The results obtained from the extended model, however, did not support this argument.

A more plausible explanation for this discrepancy is provided by Mittal and Lassar (1998), who suggested that functional service quality was the driving force for customer satisfaction in high contact service contexts (i.e. those services with greater opportunities for interpersonal contact). They compared healthcare services to car repair services and noted that the former provided greater opportunities for interpersonal contact and, consequently, functional service quality was important for satisfaction (and word-of-mouth praise). In the case of car repair services, where such opportunities are absent, technical service quality was more likely to lead to the formation of word-of-mouth. Students in commercial educational institutions have many opportunities to interact with their service providers. Thus, following Mittal and Lasser's (1998) argument, it was not surprising that functional service quality had a more significant effect on word-of-mouth formation.

This result has important implications for commercial educational institutions, as it suggests there is a need for them to improve and benchmark themselves against other institutions on this service quality aspect. There is no lack of literature in this area, with researchers addressing both the qualitative aspects (e.g. Berry et al., 2002) and the quantitative aspects (e.g. Soteriou & Chase, 2000) of service quality management.

While a plausible explanation was provided for functional service quality's importance, it is unclear why technical service quality did not have a significant impact on

satisfaction or word-of-mouth formation. This unexpected result could have been due to the relationship between the two constructs. Zeithaml et al. (1996) noted that the relationship between perceived service quality and loyalty is not linear, depending on its position in relation to a "zone of tolerance", which is the zone within which a service provider meets a customer's expectation. They noted that significant loyalty payoffs result only when the zone of tolerance is exceeded. Although Zeithaml et al.'s (1996) research examined customer loyalty as a behavioural outcome, there is nothing to suggest the results would not hold for other behavioural outcomes, such as word-of-mouth formation. The suggested relationship between service quality and word-of-mouth praise formation can be shown as in Figure 10.3.
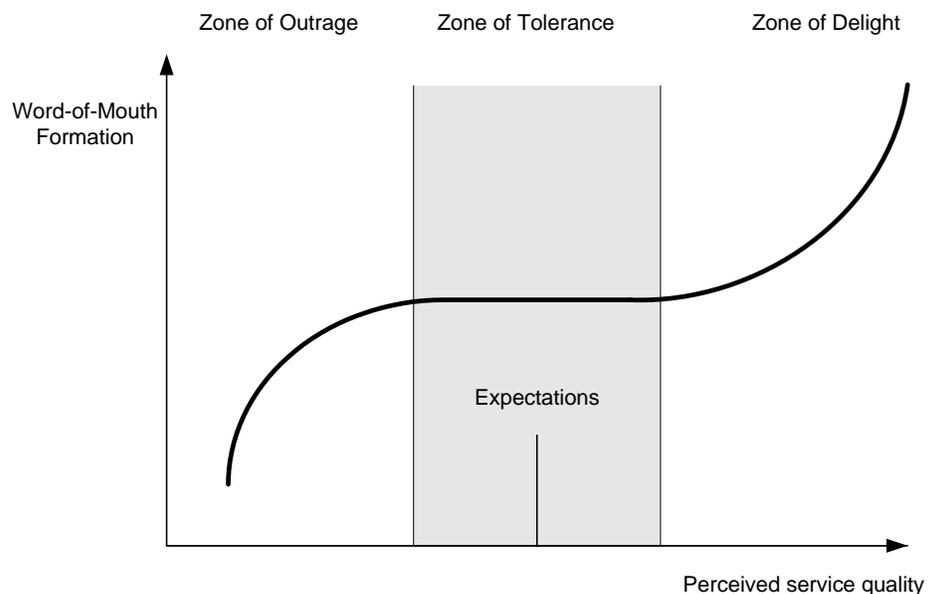
Figure 10.3: Operation of a Tolerance Zone in Word-of-Mouth Formation

Figure 10.3 shows three zones into which consumers' perceptions of service quality may fall (the zone of outrage, the zone of tolerance, and the zone of delight). The zone of tolerance, which lies on both sides of a consumer's expectations, is the zone in which service quality perception has little effect on word-of-mouth formation. Within this zone, the service quality-expectation difference is too small for word-of-mouth

communication to be triggered. As the service quality-expectation gap widens so that service quality falls into the zone of delight, word-of-mouth communication is triggered, and service quality will have a positive effect on word-of-mouth. Negative word-of-mouth communication is similarly triggered when service quality falls into the zone of outrage. Given this, organisation need to ensure their service level falls in the zone of delight so positive behavioural consequences result. Yet, a few questions remain unanswered. What determines the boundaries of this zone? Is a score of 5 on a seven-point service quality scale sufficient to generate positive behavioural outcomes? Unless these questions are answered, developing strategies to encourage word-of-mouth communication will be difficult.

Although Zeithaml et al. (1996) noted the presence of the zone of tolerance, they did not suggest the factors that might influence the width of the zone. One factor might be the level of interest a subject generates within a social group and this, in turn, is determined by the extent to which the subject is relevant to the group (Rogers, 1983). In short, the zone of tolerance is likely to be wide when a subject is low in relevance to a social group and narrow when relevance is high. To illustrate, as seven out of ten people in Singapore own a mobile-phone (Tan, 2004), the degree of interest in mobile phone services is high and, consequently, the zone of tolerance can be expected to be narrow. Service levels that exceed a consumer's expectation even slightly might be sufficient to trigger word-of-mouth communication. Unlike mobile phones, not many people within a given social group (e.g. office colleagues) are involved in commercial education services, suggesting the level of interest in the subject is low. Given this, a level of service quality far above a customer's expectation may be needed to trigger word-of-mouth communication. The zone of tolerance for mobile phones and commercial education services might be as shown in Figure 10.4.

In summary, technical service quality's lack of impact on word-of-mouth praise in the current research might be attributed to a wide zone of tolerance, with students' service experiences falling within this zone.
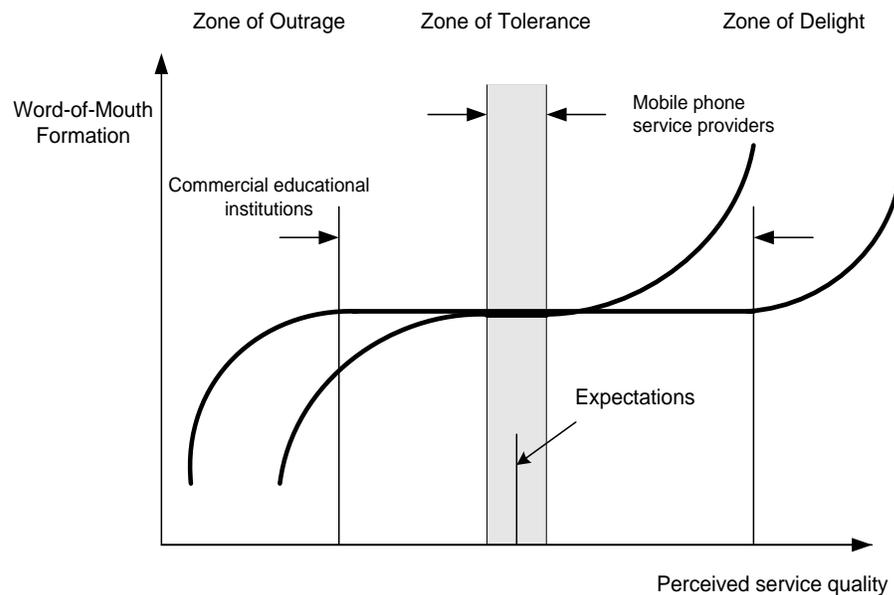
Figure 10.4: Zone of Tolerance in Different Industries

A second plausible explanation of the results obtained can be found in Folkes et al.'s (1987) study. They noted that consumers do not like to contradict other people's perceptions. They suggested that, if a firm's that was widely regarded as reputable fell below consumers' expectation (although not necessarily reaching a point of complaint), consumers might attribute the blame to themselves or some other situational factors, rather than to the firm. Given the excellent standing the Singapore Institute of Management enjoys in the commercial education industry, suggesting its students expect good service, a technical service level that is perceived to be slightly lower than expected might not reduce the level of word-of-mouth communication, explaining the weak relationship between technical service quality and word-of-mouth praise found in the present study.

The explanation provided for the weak impact of technical service quality on word-of-mouth formation introduces major challenges to organisations trying to obtain positive behavioural outcomes. The explanation provided by the above theory suggests the technical service level must be so high that that it falls into the zone of delight. Given the already high level of technical service provided by many service providers, and from which customers of commercial education institution form their expectations, elevating technical service quality levels into the zone of delight may prove a difficult task.

As elevating the level of service quality into the zone of delight may be one that is difficult to achieve, a more practical approach to achieving a similar outcome is needed, and prior literature suggests this may be perceived value. Sweeney and Soutar (2001) showed that the four dimensions of perceived value (emotional value, social value, value for money and quality) had a significant impact on word-of-mouth.[9] The study also found that 62 percent of word-of-mouth was explained by the four perceived value dimensions.

Although Sweeney and Soutar's (2001) study was undertaken in a durable goods context, there is nothing to suggest this result would be not hold for the educational service context. A review of prior literature suggest the relationship between perceived value and word-of-mouth would be magnified (becomes more significant) in a services context as service purchases are riskier than tangible goods purchases (Bansal & Voyer, 2000) and, therefore, consumers rely more on word-of-mouth when purchasing services (Murray & Schlacter, 1990; Bristor, 1990).

As no research had been undertaken to compare the impact of perceived value on word-of-mouth formation and of service quality on word-of-mouth formation, the suggestion

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[9] Word-of-mouth was measured with an item "I would recommend this item to friends or relatives".

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that perceived value's impact is more significant remains an untested hypothesis. Very important managerial implications arise from such knowledge. Consequently, it is important that future research focus on comparing the relative impact of service quality and perceived value on word-of-mouth formation in a variety of industries.

Social Desirability Issues

A major question the present study sought to answer was the extent to which the measures used were free of social desirability bias. While social desirability has not been an issue with marketing researchers, there is a growing concern about findings resulting from measures that are not free of this form of bias (Ones & Viswesvaran, 1998). The results presented in Chapter Four dispelled any such concerns. All of the measures were free of this form of bias.

Despite these results, researchers should be cautioned against inferring that the results suggest the construct measures are free of social desirability bias in all contexts. The present finding only suggests that the construct measures are free of social desirability bias when applied to an educational context. It does not suggest that the construct measures will remain free of this form of bias in a different situation, particularly when prior studies suggest that social desirability bias can be in issue in a different context (Sloan III, Bodapati & Tucker, 2004) and with certain respondent groups (Ray & Lovejoy, 2003; Novotny, Rumpler, Riddick & Hebert, 2003). Consequently, the author suggests that, as with the present study, researchers validate that constructs measures used are free of this form of bias in industries other than education.

Summary

The present study was motivated by a lack of research in the commercial education industry, particularly relating to the three research questions that, until now, have

remained unanswered. Presented in Chapter One, these questions are again shown below.

1. *What are the relative impacts of different service quality dimensions on customer satisfaction in a commercial education context?*

As noted previously, the Singapore education industry has been given significant Government support. However, there are no studies into the drivers of customer satisfaction in this industry. Given the 'confusion' as to the appropriate service quality measure, Grönroos's (1984) service quality dimensions was used for the current study. The problems encountered (discrimination validity issues) with the original measure led to an alternative service quality measure being used, one that was suggested by Dabholkar et al. (2000). Contrary to what was expected, not all dimensions of service quality affected satisfaction. It was the process-related service quality (functional) that has a significant impact on satisfaction. Another important lesson learnt from the current study was the lack of generalisability concerning service quality measures. What is suitable in one industry does not suggest what can be used in other industries.

2. *Does commitment mediate the relationship between service quality and satisfaction and WOM activities in a commercial education context?*

Not all commitment dimensions have significant effects on word-of-mouth. Based on commitment dimensions adapted from organisational research, the results show only affective commitment to have significant effects on the latter. High-sacrifice commitment did not significantly affect word-of-mouth formation, suggesting that only affective commitment was the mediating construct.

3. What is the extent of the generalisability of Harrison-Walker's (2001) model?

The results of the present study clearly show that Harrison-Walker's (2001) study was not generalisable to the context of commercial education services. There were two areas where the results of the current study were inconsistent to that of the original study, namely, the measurement model and the relationship between service quality and consumer commitment.

4. Are consumers' responses to the construct measured in the current study (i.e. satisfaction, service quality, commitment and WOM) affected by social desirability?

The findings from the current study showed all measures used were free of social desirability bias. This outcome, received with much relief, suggests that the results of prior studies that used these measures (of which there are many) remained valid.

The results of the present study were not obtained without difficulties. The original planned one-phase study to examine the proposed model shown in Figure 1.2 was complicated by discriminant validity issues between several constructs. In resolving these issues, the study included Phase Two and Phase Three that determined the following:

Phase Two: Are the discriminant validity problems encountered unique only to the sample from the Singapore Institute of Management?

This was examined using a separate student sample from another institution (Temasek Polytechnic). The results showed that the original problems remained even with this sample, suggesting the problems did not originate from the student sample but from inappropriate measures used. This formed the focus of Phase Three.

Phase Three: Would the situation be improved with a new set of service quality and
customer commitment measures being used?

The results obtained from this phase of the analysis (from a new sample of students studying at the Singapore Institute of Management) showed inappropriate measures to be the likely cause of the original problem, as many of the issues were resolved when alternative measures used.

Important managerial and academic implications came from the current study, and these were discussed at length in the present chapter. The findings provide insights to managers as to the activities commercial educational institutions could use to develop customer satisfaction and obtain commitment from their students, as this would lead to positive word-of-mouth.

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Appendices

Cover Letter and Questionnaire Used For The First Sample

GRADUATE SCHOOL OF MANAGEMENT

Dear Student

I would really appreciate a few minutes of your time, to help me with a research study I am doing as part of my Doctoral studies.

The purpose of the study is to gain your perceptions of your educational institution. Specifically, I hope to collect information from you on your level of satisfaction of the institution, your perception of its service quality, and the extent to which you engage in word-of-mouth activities regarding the institution. Your views will help your institution better understand students' needs and wants, which in turn will mean future services will be better designed to meet these preferences.

I expect the survey will take only 15 minutes of your time. Please note that I am interested in the results as a whole, and therefore your individual responses will be treated anonymously and confidentially.

If you have any questions about the survey or the study, please call my telephone at 6780 5464 or e-mail me at raymondteock@hotmail.com.

Thank you very much for your participation.

_____
Raymond Teo

The following questions ask about your feelings and reactions to the Singapore Institute of Management (SIM) Please circle the number that best reflects your view.

	Strongly Disagree						Strongly Agree
Q1. SIM's staff are interested in me as a student.	1	2	3	4	5	6	7
Q2. SIM provides excellent overall service to its students.	1	2	3	4	5	6	7
Q3. My decision to study at SIM was a wise one.	1	2	3	4	5	6	7
Q4. The longer I study at SIM, the harder it is for me to leave.	1	2	3	4	5	6	7
Q5. SIM is one of the best service organisations of its kind.	1	2	3	4	5	6	7
Q6. I have only good things to say about SIM.	1	2	3	4	5	6	7
Q7. I often mention SIM to others.	1	2	3	4	5	6	7
Q8. I get individual attention at SIM.	1	2	3	4	5	6	7
Q9. SIM's service is of very high quality.	1	2	3	4	5	6	7
Q10. I think I did the right thing when I decided to study at SIM.	1	2	3	4	5	6	7
Q11. It would be difficult for me to adapt to a new educational institution if I left SIM.	1	2	3	4	5	6	7
Q12. I am proud to study at SIM.	1	2	3	4	5	6	7
Q13. I am pleased when I tell others I study at SIM.	1	2	3	4	5	6	7
Q14. I talk to more people about SIM than I do about most other organisations.	1	2	3	4	5	6	7
Q15. SIM provides a high level of service.	1	2	3	4	5	6	7
Q16. The services provided by SIM are exactly what I need.	1	2	3	4	5	6	7
Q17. I care about SIM's success.	1	2	3	4	5	6	7
Q18. I seldom miss an opportunity to tell others about SIM.	1	2	3	4	5	6	7
Q19. SIM's staff are courteous.	1	2	3	4	5	6	7
Q20. SIM provides superior service to its students.	1	2	3	4	5	6	7
Q21. I am very pleased with SIM's services.	1	2	3	4	5	6	7
Q22. My present circumstances would have to change to stop me studying at SIM.	1	2	3	4	5	6	7
Q23. I like the way SIM operates.	1	2	3	4	5	6	7
Q24. Although I study at SIM, I don't recommend it to others.	1	2	3	4	5	6	7
Q25. When I tell others about SIM, I tend to talk about it in great detail.	1	2	3	4	5	6	7
Q26. SIM's staff really know what they are talking about.	1	2	3	4	5	6	7
Q27. I am very contented with SIM's services.	1	2	3	4	5	6	7
Q28. I would give up a lot if I stopped studying with SIM.	1	2	3	4	5	6	7
Q29. I like SIM.	1	2	3	4	5	6	7
Q30. I only rarely mention SIM by name.	1	2	3	4	5	6	7
Q31. SIM can answer all the questions I have as a student.	1	2	3	4	5	6	7
Q32. I am very delighted with SIM's services.	1	2	3	4	5	6	7
Q33. SIM inspires me to be a good customer.	1	2	3	4	5	6	7
Q34. Changing to a new educational institution would be impractical for me.	1	2	3	4	5	6	7
Q35. I have a special relationship with SIM.	1	2	3	4	5	6	7
Q36. I rarely have an occasion to mention SIM to others.	1	2	3	4	5	6	7
Q37. Studying at SIM is enjoyable.	1	2	3	4	5	6	7
Q38. SIM's staff provide prompt service.	1	2	3	4	5	6	7
Q39. SIM's service outcomes are comparable to the best service organisations I know.	1	2	3	4	5	6	7

Q40. I am very satisfied with SIM's services.	1	2	3	4	5	6	7
Q41. I remain with SIM only because it would be difficult to make a change to another institution.	1	2	3	4	5	6	7
Q42. I want to help SIM achieve its goals.	1	2	3	4	5	6	7
Q43. In general, I don't speak favourably about SIM.	1	2	3	4	5	6	7
Q44. Once I get talking about SIM, I find it hard to stop.	1	2	3	4	5	6	7
Q45. I study at SIM because I like it.	1	2	3	4	5	6	7
Q46. I usually agree with SIM's policies and procedures on Important matters	1	2	3	4	5	6	7

Please circle the number that best reflects your perception of yourself	Strongly	Disagree					Strongly Agree
Q47. No matter who I'm talking to, I am a good listener.	1	2	3	4	5	6	7
Q48. There have been a few occasions when I took advantage of someone.	1	2	3	4	5	6	7
Q49. I sometimes try to get even, rather than forgive and forget.	1	2	3	4	5	6	7
Q50. When I don't know something, I don't mind admitting it.	1	2	3	4	5	6	7
Q51. There have been occasions when I felt like smashing things.	1	2	3	4	5	6	7
Q52. I never resent being asked to return a favour.	1	2	3	4	5	6	7
Q53. I have almost never feel the urge to tell someone off.	1	2	3	4	5	6	7
Q54. I am sometimes irritated by people who ask favours of me.	1	2	3	4	5	6	7
Q55. I sometimes think that, when people have a misfortune, they only got what they deserved.	1	2	3	4	5	6	7
Q56. I don't deliberately say things to hurt someone's feelings	1	2	3	4	5	6	7

To which age group do you belong?

[   ] Younger than 25   [   ] 25 to 29   [   ] 30 to 34   [   ] 35 to 39   [   ] 40 or older

What is your gender?

[   ] Female   [   ] Male

Which of the following best describes the industry you work in? (Please tick one of the following.)

a. Chemical	b. Civil service/Stat. Board	c. Consumer packaged goods	d. Recreation/Travel/ Entertainment/Hospitality
e. Financial services/ Insurance/ Real estate	f. Healthcare	g. Consulting	h. Advertising/Marketing
i. Wholesale distribution	j. Media/ Publishing	k. Automotive	l. Non-profit
m. Pharmaceutical	n. Retail	o. Technology services	p. Technology (Hardware/ software/ solutions)
q. Telecommunications	r. Utilities	s. Education	t. Others

What is your occupation?   _____.

What is your highest educational level attained?

[   ] 'O' Level   [   ] 'A' Level   [   ] Diploma   [   ] Bachelor's degree   [   ] Master's degree

**I APPRECIATE THE TIME YOU HAVE TAKEN TO PARTICIPATE IN THIS SURVEY
THANK YOU**

Questionnaire Used For The Second Sample

The following questions ask about your feelings and reactions to Temasek Polytechnic (TP).
Please circle the number that best reflects your view.

		Strongly Disagree						Strongly Agree
Q1.	TP's staff are interested in me as a student.	1	2	3	4	5	6	7
Q2.	TP provides excellent overall service to its students.	1	2	3	4	5	6	7
Q3.	My decision to study at TP was a wise one.	1	2	3	4	5	6	7
Q4.	The longer I study at TP, the harder it is for me to leave.	1	2	3	4	5	6	7
Q5.	TP is one of the best service organisations of its kind.	1	2	3	4	5	6	7
Q6.	I have only good things to say about TP.	1	2	3	4	5	6	7
Q7.	I often mention TP to others.	1	2	3	4	5	6	7
Q8.	I get individual attention at TP.	1	2	3	4	5	6	7
Q9.	TP's service is of very high quality.	1	2	3	4	5	6	7
Q10.	I think I did the right thing when I decided to study at TP.	1	2	3	4	5	6	7
Q11.	It would be difficult for me to adapt to a new educational institution if I left TP.	1	2	3	4	5	6	7
Q12.	I am proud to study at TP.	1	2	3	4	5	6	7
Q13.	I am pleased when I tell others I study at TP.	1	2	3	4	5	6	7
Q14.	I talk to more people about TP than I do about most other organisations.	1	2	3	4	5	6	7
Q15.	TP provides a high level of service.	1	2	3	4	5	6	7
Q16.	The services provided by TP are exactly what I need.	1	2	3	4	5	6	7
Q17.	I care about TP's success.	1	2	3	4	5	6	7
Q18.	I seldom miss an opportunity to tell others about TP.	1	2	3	4	5	6	7
Q19.	TP's staff are courteous.	1	2	3	4	5	6	7
Q20.	TP provides superior service to its students.	1	2	3	4	5	6	7
Q21.	I am very pleased with TP's services.	1	2	3	4	5	6	7
Q22.	My present circumstances would have to change to stop me studying at TP.	1	2	3	4	5	6	7
Q23.	I like the way TP operates.	1	2	3	4	5	6	7
Q24.	Although I study at TP, I don't recommend it to others.	1	2	3	4	5	6	7
Q25.	When I tell others about TP, I tend to talk about it in great detail.	1	2	3	4	5	6	7
Q26.	TP's staff really know what they are talking about.	1	2	3	4	5	6	7
Q27.	I am very contented with TP's services.	1	2	3	4	5	6	7
Q28.	I would give up a lot if I stopped studying with TP.	1	2	3	4	5	6	7
Q29.	I like TP.	1	2	3	4	5	6	7
Q30.	I only rarely mention TP by name.	1	2	3	4	5	6	7
Q31.	TP can answer all the questions I have as a student.	1	2	3	4	5	6	7
Q32.	I am very delighted with TP's services.	1	2	3	4	5	6	7
Q33.	TP inspires me to be a good customer.	1	2	3	4	5	6	7
Q34.	Changing to a new educational institution would be impractical for me.	1	2	3	4	5	6	7
Q35.	I have a special relationship with TP.	1	2	3	4	5	6	7
Q36.	I rarely have an occasion to mention TP to others.	1	2	3	4	5	6	7
Q37.	Studying at TP is enjoyable.	1	2	3	4	5	6	7
Q38.	TP's staff provide prompt service.	1	2	3	4	5	6	7
Q39.	TP's service outcomes are comparable to the best service organisations I know.	1	2	3	4	5	6	7
Q40.	I am very satisfied with TP's services.	1	2	3	4	5	6	7

	1	2	3	4	5	6	7
Q41. I remain with TP only because it would be difficult to make a change to another institution.	1	2	3	4	5	6	7
Q42. I want to help TP achieve its goals.	1	2	3	4	5	6	7
Q43. In general, I don't speak favourably about TP.	1	2	3	4	5	6	7
Q44. Once I get talking about TP, I find it hard to stop.	1	2	3	4	5	6	7
Q45. I study at TP because I like it.	1	2	3	4	5	6	7
Q46. I usually agree with TP's policies and procedures on important Matters	1	2	3	4	5	6	7

What is your gender?

[   ] Female   [   ] Male

I APPRECIATE THE TIME YOU HAVE TAKEN TO PARTICIPATE IN THIS SURVEY
THANK YOU

<u>Cover Letter and Questionnaire Used For The Third Sample</u>

THE UNIVERSITY OF WESTERN AUSTRALIA

GRADUATE SCHOOL OF MANAGEMENT

Dear Student

I would really appreciate a few minutes of your time, to help me with a research study I am doing as part of my Doctoral studies.

The purpose of the study is to gain your perceptions of your educational institution. Specifically, I hope to collect information from you on your level of satisfaction of the institution, your perception of its service quality, and the extent to which you engage in word-of-mouth activities regarding the institution. Your views will help your institution better understand students' needs and wants, which in turn will mean future services will be better designed to meet these preferences.

I expect the survey will take only 15 minutes of your time. Please note that I am interested in the results as a whole, and therefore your individual responses will be treated anonymously and confidentially.

If you have any questions about the survey or the study, please call my telephone at 6780 5464 or e-mail me at raymond@class.sim.edu.sg.

Thank you very much for your participation.

_____
Raymond Teo

The following questions ask about your feelings and reactions to the Singapore Institute of Management (SIM) Please circle the number that best reflects your view.

	Strongly Disagree						Strongly Agree
Q1. When SIM's staff promise to do something by a certain time, they do it.	1	2	3	4	5	6	7
Q2. I have too much time invested in SIM to change institutions.	1	2	3	4	5	6	7
Q3. I am satisfied with my decision to study at SIM.	1	2	3	4	5	6	7
Q4. I often mention SIM to others.	1	2	3	4	5	6	7
Q5. SIM's staff are never too busy to respond to my requests.	1	2	3	4	5	6	7
Q6. SIM's staff have the knowledge to answer my questions.	1	2	3	4	5	6	7
Q7. It would be too costly for me to switch from SIM.	1	2	3	4	5	6	7
Q8. My choice of SIM was a wise one.	1	2	3	4	5	6	7
Q9. I talk to more people about SIM than I do about most other organisations.	1	2	3	4	5	6	7
Q10. SIM's building is appealing.	1	2	3	4	5	6	7
Q11. SIM maintains error free records.	1	2	3	4	5	6	7
Q12. I have no real alternatives to SIM right now.	1	2	3	4	5	6	7
Q13. I feel obliged to continue studying at SIM.	1	2	3	4	5	6	7
Q14. I have enjoyed studying at SIM.	1	2	3	4	5	6	7
Q15. I seldom miss an opportunity to tell others about SIM.	1	2	3	4	5	6	7
Q16. I have only good things to say about SIM.	1	2	3	4	5	6	7
Q17. SIM's staff are courteous.	1	2	3	4	5	6	7
Q18. SIM's staff have the ability to solve my problems.	1	2	3	4	5	6	7
Q19. I could easily find another educational provider if I wished to leave SIM.	1	2	3	4	5	6	7
Q20. I feel a responsibility to continue studying at SIM.	1	2	3	4	5	6	7
Q21. My time at SIM has been a good experience for me.	1	2	3	4	5	6	7
Q22. When I tell others about SIM, I tend to talk about it in great detail.	1	2	3	4	5	6	7
Q23. SIM provided good service right from the beginning.	1	2	3	4	5	6	7
Q24. The equipment in SIM's lecture theatres are of high quality.	1	2	3	4	5	6	7
Q25. I feel I belong at SIM.	1	2	3	4	5	6	7
Q26. Even if I could, I don't think it would be right to leave SIM.	1	2	3	4	5	6	7
Q27. SIM has met my expectations.	1	2	3	4	5	6	7
Q28. I often mention SIM by name.	1	2	3	4	5	6	7
Q29. I am proud to tell others I study at SIM.	1	2	3	4	5	6	7
Q30. SIM's staff are willing to help.	1	2	3	4	5	6	7
Q31. I am happy I chose SIM.	1	2	3	4	5	6	7
Q32. The lecturers at SIM are very professional.	1	2	3	4	5	6	7
Q33. SIM's staff did not pressure me to enrol with the institution.	1	2	3	4	5	6	7
Q34. I have too much money invested in SIM to change institutions.	1	2	3	4	5	6	7
Q35. I would feel guilty if I left SIM.	1	2	3	4	5	6	7
Q36. I often have the occasion to mention SIM to others.	1	2	3	4	5	6	7
Q37. When I have a problem, SIM is interested in solving it.	1	2	3	4	5	6	7
Q38. I have confidence in SIM's staff.	1	2	3	4	5	6	7
Q39. It would be hard for me to leave SIM right now.	1	2	3	4	5	6	7
Q40. SIM has provided me with the things I need.	1	2	3	4	5	6	7

VIII

Q41. Once I get talking about SIM, it is hard for me to stop.	1	2	3	4	5	6	7
Q42. I often recommend SIM to others.	1	2	3	4	5	6	7
Q43. SIM's staff give me prompt service.	1	2	3	4	5	6	7
Q44. I am proud that I chose SIM.	1	2	3	4	5	6	7
Q45. I feel safe in dealing with SIM.	1	2	3	4	5	6	7
Q46. Leaving SIM would require me to make a real sacrifice.	1	2	3	4	5	6	7
Q47. In general, I speak favourably about SIM.	1	2	3	4	5	6	7
Q48. I like being a student at SIM.	1	2	3	4	5	6	7
Q49. The administrative staff at SIM are very professional.	1	2	3	4	5	6	7

Q50.   To which age group do you belong?

[   ] Younger than 25   [   ] 25 to 29   [   ] 30 to 34   [   ] 35 to 39   [   ] 40 or older

Q51.   What is your gender?

[   ] Female   [   ] Male

Q52. What is your highest educational level attained?

[   ] 'O' Level   [   ] 'A' Level   [   ] Diploma   [   ] Bachelor's degree   [   ] Master's degree

I APPRECIATE THE TIME YOU HAVE TAKEN TO PARTICIPATE IN THIS SURVEY
THANK YOU

Ethics Committee Approval

THE UNIVERSITY OF
WESTERN AUSTRALIA

Research Ethics
Research Services
M459

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RA/4/1/0816

12 November, 2003

Professor G Soutar
Graduate School of Management - M404
UWA

Dear Professor Soutar

Project: The Effect of Service Quality, Customer Satisfaction and Commitment on Word-of-Mouth in a Commercial Education Context

Please be advised that ethical approval of the above project has been granted by the Human Research Ethics Committee.

Whilst the Committee is satisfied that the protocol as submitted has adequate safeguards to protect the rights of individual participants it is the responsibility of the researcher to advise the Committee of any departure from the original protocol which could impact on this ethical approval. Please note that as a condition of this approval you are required to inform the Committee, giving reasons, if the research project is discontinued before the expected date of completion.

The Committee is bound by NHMRC Guidelines to monitor the progress of all approved projects until completion to ensure that they continue to conform to approved ethical standards. Therefore, you will be required to submit annual reports on the human rights aspects of your study. You will also be required, at this stage, to submit copies of advertisements that have been used to recruit subjects for your project. An annual report form will be sent to you twelve months from this date.

Please note that approval has been granted for a period of four years. Initial approval is for a period of one year, and, thereafter for future periods of one year at a time subject to the receipt of satisfactory annual reports. At the end of the four-year period you will be required to complete a new *"Application to Undertake Research Involving Human Subjects"* should you wish to continue with your research. However, in special circumstances, the Chair has the authority to extend the approval period for up to six months in order to complete a project.

Please quote Project No 0816 on all correspondence associated with this study.

Yours sincerely

KATE KIRK
Administrative Officer
(Human Research Ethics Committee)

HREC/APP-PROJ.up