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**Assessing the Behavioural Intentions of Spa Customers:
An Empirical Analysis**

A thesis
submitted in partial fulfilment
of the requirements for the Degree of
Doctor of Philosophy

at
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by
Thitiya Thongkern

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by

Thitiya Thongkern

The spa industry has become a major player in the hospitality and leisure sector in Thailand. Despite the economic turndown, the spa industry has continued to grow at a robust pace. Specifically, the day spa industry is developing services to support urban and city living lifestyles. Currently, day spas are in a very competitive marketing environment in Thailand. Hence, in this environment, generating and maintaining behavioural intentions is an important strategy for retaining a competitive advantage. The main aim of this study is to gain an understanding of the dimensionality and determinants of behavioural intentions. Further, this study adopted a comprehensive hierarchical modelling approach as a framework for identifying the primary dimensions and sub-dimensions of service quality and to examine the interrelationships between the five higher-order marketing constructs (service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions) and their determinants in the day spa context.

This study presents a comprehensive hierarchical modelling approach as a framework to identify the primary dimensions and sub-dimensions of service quality, to analyse the interrelationships between the five higher-order marketing constructs, and then to analysis the differences in the five higher-order constructs and dimensions of service quality, within the demographic factors. This study uses mix method research to analyse the data.

The findings of this study were based on the analysis of a sample of 620 spa customers who had experienced a day spa in Chiang Mai, or Khon Kaen provinces or Bangkok City, Thailand, during June to August, 2013. Three focus group interviews and a pre-test preceded the data collection process. This study mainly used a self-administered survey. In addition, Exploratory Factor Analysis, Confirmatory Factor Analysis, Structural Equation Modelling, and ANOVA were used to analyse the data.

The findings support a comprehensive hierarchical structure of service quality for day spas that comprises nine first-order sub-dimensions (communication skills, friendliness, atmosphere, tangibles, timeliness, operation, programme variety, outcome, and staff expertise), four second-order primary dimensions (interpersonal quality, environment quality, administrative quality, and technical quality), and overall service quality. The sub-dimensions and primary dimensions vary in terms of their importance. Nevertheless, administrative quality is the most important primary dimension for overall service quality performance.

Moreover, the findings also reveal that customer satisfaction is the key determinant of behavioural intentions. Service quality and perceived value are two important descriptors of customer satisfaction. Service quality is the most important determinant of customer satisfaction, which is the most significant antecedent of behavioural intentions. Service quality also is a significant determinant of perceived value and perceived switching costs. Customer satisfaction plays a partial mediating role on the relationship between service quality and behavioural intentions, and perceived value and behavioural intentions. Lastly, customer perceptions of the constructs were mostly influenced by the “age” group and “type of customer” group.

This study will enable day spa managers to develop and implement a marketing strategy in order to achieve a high quality of service, upgrade the level of customer satisfaction and perceived value, increase perceived switching costs, and create favourable future behavioural intentions.

Keywords: Thailand, Day Spas, Service Quality, Customer Satisfaction, Perceived Value, Perceived Switching Costs, Behavioural Intentions, Comprehensive Hierarchical Model, and Structural Equation Modelling.

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Table of Contents

| | |
|---|-------------|
| Acknowledgements | iv |
| Table of Contents | v |
| List of Tables | viii |
| List of Figures | x |
| | |
| Chapter 1 Introduction | 1 |
| 1.1 Problem Setting | 1 |
| 1.2 Day Spa in Thailand | 3 |
| 1.3 The Higher-Order Marketing Constructs..... | 3 |
| 1.4 Comprehensive Hierarchical Modelling in the Day Spa Industry | 4 |
| 1.5 Research Gaps | 5 |
| 1.6 Research Objectives | 6 |
| 1.7 Contributions of this research | 6 |
| 1.8 Structure of Thesis | 7 |
| | |
| Chapter 2 Literature Review | 9 |
| 2.1 Introduction..... | 9 |
| 2.2 Conceptualisation of service quality | 9 |
| 2.2.1 The Nordic Model..... | 10 |
| 2.2.2 The SERVQUAL Model..... | 11 |
| 2.2.3 The Three-Component Model..... | 12 |
| 2.2.4 The Multilevel Model..... | 13 |
| 2.2.5 The Integrated Hierarchical Model..... | 14 |
| 2.3 Hierarchical Modelling | 16 |
| 2.4 Comparative Studies on the Global Spa Industries..... | 18 |
| 2.5 Service Quality Dimensions for Day Spas | 23 |
| 2.5.1 Interpersonal Quality..... | 24 |
| 2.5.2 Environment Quality..... | 24 |
| 2.5.3 Administrative Quality | 24 |
| 2.5.4 Technical Quality | 25 |
| 2.6 The Relationships between the Five Higher-Order Constructs..... | 25 |
| 2.6.1 Behavioural Intentions..... | 26 |
| 2.6.2 Customer Satisfaction | 28 |
| 2.6.3 Perceived Value | 30 |
| 2.6.4 Perceived Switching Costs..... | 31 |
| 2.7 Applying a Comprehensive Hierarchical Model..... | 33 |
| | |
| Chapter 3 Conceptual Research Model and Hypotheses Development | 34 |
| 3.1 Introduction..... | 34 |
| 3.2 Model Development | 34 |
| 3.3 Hypotheses Relating to Research Objective 1 | 35 |
| 3.4 Hypotheses Relating to Research Objective 2 | 37 |
| 3.4.1 Interpersonal Quality..... | 37 |
| 3.4.2 Environment Quality..... | 38 |

| | | |
|--|---|------------|
| 3.4.3 | Administrative Quality | 38 |
| 3.4.4 | Technical Quality | 39 |
| 3.4.5 | Overall Perceived Service Quality..... | 39 |
| 3.5 | Hypotheses relating to Research Objective 3..... | 40 |
| 3.6 | Hypotheses relating to Research Objective 4..... | 40 |
| Chapter 4 Research Methodology | | 43 |
| 4.1 | Introduction..... | 43 |
| 4.2 | Research Design..... | 43 |
| 4.3 | Survey Instrument Development..... | 44 |
| 4.3.1 | Construct Operationalisation | 44 |
| 4.4 | Sampling Method and Data Collection Procedures | 52 |
| 4.4.1 | Sample Derivation | 52 |
| 4.4.2 | Sample Size..... | 52 |
| 4.4.3 | Sampling Design | 53 |
| 4.4.4 | The Data Collection Procedure..... | 54 |
| 4.5 | Data Analysis Procedure..... | 54 |
| 4.5.1 | Preliminary Data Analysis..... | 55 |
| 4.5.2 | The Exploratory Factor Analysis (EFA) | 56 |
| 4.5.3 | Structural Equation Modelling (SEM) | 61 |
| Chapter 5 Data Analysis and Results | | 71 |
| 5.1 | Introduction..... | 71 |
| 5.2 | Response Rate and Preliminary Data Analysis | 71 |
| 5.2.1 | Missing Data..... | 71 |
| 5.2.2 | Outliers..... | 71 |
| 5.2.3 | Normality Test | 72 |
| 5.3 | Respondents' Demographic Characteristics..... | 73 |
| 5.4 | Data Analysis Interpretation..... | 74 |
| 5.4.1 | The Exploratory Factor Analysis Results for the Four Primary Dimensions..... | 75 |
| 5.4.2 | Confirmatory Factor Analysis for the Primary Dimensions..... | 80 |
| 5.4.3 | Second-Order Confirmatory Factor Analysis for the Primary Dimensions | 94 |
| 5.4.4 | Confirmatory Factor Analysis for Service Quality..... | 98 |
| 5.4.5 | Confirmatory Factor Analysis Model for the Higher-Order Constructs | 103 |
| 5.4.6 | Mediating Variable Analysis Results | 109 |
| 5.4.7 | The Analysis of Variance Results | 112 |
| Chapter 6 Discussion and Conclusion | | 118 |
| 6.1 | Introduction..... | 118 |
| 6.2 | Summary of study's most important findings | 118 |
| 6.3 | Summary of study's research objectives and hypotheses | 118 |
| 6.4 | The Interrelationships between the Higher-Order Constructs (Research Objective 1).. | 120 |
| 6.4.1 | Behavioural Intentions..... | 120 |
| 6.4.2 | Perceived Value | 123 |
| 6.4.3 | Customer Satisfaction | 123 |
| 6.4.4 | Perceived Switching Costs..... | 124 |
| 6.4.5 | Summary of the Findings of the Causal Model | 124 |
| 6.5 | Conceptualisation of Service Quality for Day Spas (Research Objective 2) | 125 |
| 6.5.1 | Interpersonal Quality..... | 125 |

| | | |
|-------|--|------------|
| 6.5.2 | Environment Quality..... | 126 |
| 6.5.3 | Administrative Quality..... | 127 |
| 6.5.4 | Technical Quality..... | 128 |
| 6.6 | The Relative Importance of the Sub-dimensions and Primary Dimensions of Service Quality for Day Spas (Research Objective 3)..... | 128 |
| 6.6.1 | The Most Important Primary Dimension..... | 129 |
| 6.6.2 | The Most Important Sub-dimension..... | 130 |
| 6.7 | The Effects of Demographic Factors on Customers' Perceptions of the Five Marketing Constructs (Research Objective 4)..... | 131 |
| 6.8 | Contributions..... | 133 |
| 6.8.1 | Theoretical Contributions..... | 133 |
| 6.8.2 | Practical Contributions..... | 136 |
| 6.9 | Limitations of This Research..... | 139 |
| 6.10 | Directions for Future Research..... | 140 |
| | Appendix A Questionnaire..... | 141 |
| | Appendix B..... | 147 |
| B.1 | Skewness and Kurtosis (Sample 1)..... | 147 |
| B.2 | Skewness and Kurtosis (Sample 2)..... | 149 |
| | Appendix C..... | 151 |
| C.1 | Correlation Matrix (Interpersonal Quality)..... | 151 |
| C.2 | Anti-Image Correlation Matrix (Interpersonal Quality)..... | 151 |
| C.3 | Factor Extraction Table (Interpersonal Quality)..... | 152 |
| C.4 | Rotated Component Matrix with VARIMAX rotation (Interpersonal Quality)..... | 152 |
| | Appendix D..... | 153 |
| D.1 | Correlation Matrix (Environment Quality)..... | 153 |
| D.2 | Anti-Image Correlation Matrix (Environment Quality)..... | 153 |
| D.3 | Factor Extraction Table (Environment Quality)..... | 154 |
| D.4 | Rotated Component Matrix with VARIMAX rotation (Environment Quality)..... | 154 |
| | Appendix E..... | 155 |
| E.1 | Correlation Matrix (Administrative Quality)..... | 155 |
| E.2 | Anti-image Correlation Matrix (Administrative Quality)..... | 155 |
| E.3 | Factor Extraction Table (Administrative Quality)..... | 156 |
| E.4 | Rotated Component Matrix with VARIMAX rotation (Administrative Quality)..... | 156 |
| | Appendix F..... | 157 |
| F.1 | Correlation Matrix (Technical Quality)..... | 157 |
| F.2 | Anti-image Correlation Matrix (Technical Quality)..... | 157 |
| F.3 | Factor Extraction Table (Technical Quality)..... | 158 |
| F.4 | Rotated Component Matrix with VARIMAX rotation (Technical Quality)..... | 158 |
| | References..... | 159 |

List of Tables

| | |
|---|-----|
| Table 4.1 Instrument Items and Sub-dimensions for Measuring the Interpersonal Quality | 48 |
| Table 4.2 Instrument Items and Sub-dimensions for Measuring the Environment Quality | 49 |
| Table 4.3 Instrument Items and Sub-dimensions for Measuring the Administrative Quality..... | 49 |
| Table 4.4 Instrument Items and Sub-dimensions for Measuring the Technical Quality..... | 50 |
| Table 4.5 Instrument Items for Measuring Service Quality, Customer Satisfaction, Perceived Value, Perceived Switching Costs, and Behavioural intentions..... | 51 |
| Table 4.6 Guidelines for Identifying Significant Factor Loadings Based on Sample Size..... | 60 |
| Table 4.7 Model fit indices and recommended thresholds..... | 66 |
| Table 5.1 Demographic Profile of the Total Sample (N=620)..... | 73 |
| Table 5.2 Goodness-of-Fit Results of First–Order Confirmatory Factor Analysis Model of Interpersonal Quality | 82 |
| Table 5.3 The Standardised Solutions of First–Order Confirmatory Factor Analysis Model for Interpersonal Quality | 83 |
| Table 5.4 Average Variance Extracted and Construct Reliability Results of the First-Order Confirmatory Factor Analysis Model for Interpersonal Quality..... | 83 |
| Table 5.5 Goodness-of-Fit Results of the Preliminary First–Order Confirmatory Factor Analysis Model for Environment Quality | 85 |
| Table 5.6 Suggestions for Improving Model-fit-indices from the Modification Index..... | 85 |
| Table 5.7 Goodness-of-Fit Results of the Modified First–Order Confirmatory Factor Analysis Model for Environment Quality | 87 |
| Table 5.8 The Standardized Solutions of the Modified First–Order Confirmatory Factor Analysis Model for Environment Quality | 88 |
| Table 5.9 Average Variance Extracted and Construct Reliability Results of the Modified First-Order Confirmatory Factor Analysis Model for Environment Quality | 88 |
| Table 5.10 Goodness-of-Fit Results for First–Order Confirmatory Factor Analysis Model for Administrative Quality..... | 90 |
| Table 5.11 The Standardized Solutions of First–Order Confirmatory Factor Analysis Model for Administrative Quality..... | 91 |
| Table 5.12 Average Variance Extracted and Construct Reliability Results of the First-Order Confirmatory Factor Analysis Model for Administration Quality | 91 |
| Table 5.13 Goodness-of-Fit Results for First–Order Confirmatory Factor Analysis Model for Technical Quality..... | 93 |
| Table 5.14 The Standardized Solutions of First–Order Confirmatory Factor Analysis Model for Technical Quality..... | 94 |
| Table 5.15 Average Variance Extracted and Construct Reliability Results of the First-Order Confirmatory Factor Analysis Model for Technical Quality..... | 94 |
| Table 5.16 Goodness-of-Fit Results for Second–Order Confirmatory Factor Analysis Model for Primary Dimensions | 96 |
| Table 5.17 The Standardized Solutions of Second–Order Confirmatory Factor Analysis Model of Primary Dimensions | 97 |
| Table 5.18 Goodness-of-Fit Results for First–Order Confirmatory Factor Analysis Model for Service Quality | 99 |
| Table 5.19 The Standardized Solutions for First–Order Confirmatory Factor Analysis Model of Service Quality | 100 |
| Table 5.20 Average Variance Extracted and Construct Reliability Results for the First-Order Confirmatory Factor Analysis Model for Service Quality | 100 |
| Table 5.21 Goodness-of-Fit Results for Second–Order Confirmatory Factor Analysis Model of Service Quality | 102 |
| Table 5.22 The Standardized Solutions for Second–Order Confirmatory Factor Analysis Model of Service Quality | 102 |
| Table 5.23 Structural Parameter Estimates..... | 103 |

| | | |
|------------|--|-----|
| Table 5.24 | Goodness-of-Fit Results for First-Order Confirmatory Factor Analysis Model for the Five Higher-Order Constructs | 105 |
| Table 5.25 | The Standardized Solutions for First-Order Confirmatory Factor Analysis Model for the Five Higher-Order Constructs | 106 |
| Table 5.26 | Average Variance Extracted and Construct Reliability Results for the First-Order Confirmatory Factor Analysis Model for the Five Higher-Order Constructs | 106 |
| Table 5.27 | Goodness-of-Fit Results for the Structural Equation Model | 107 |
| Table 5.28 | The Standardized Solutions of the Structure Equation Model | 107 |
| Table 5.29 | Standardized Causal Effects of the Structural Equation Model and Hypotheses Assessments..... | 108 |
| Table 5.30 | Standardized Causal Effect of the Direct Effect of Service Quality on Behavioural Intentions..... | 110 |
| Table 5.31 | Standardized Mediating Effect of Customer Satisfaction on the Relationship between Service Quality and Behavioural Intentions..... | 110 |
| Table 5.32 | Standardized Causal Effect of the Direct Effect of Perceived Value on Behavioural Intentions..... | 111 |
| Table 5.33 | Standardized Mediating Effect of Customer Satisfaction on the Relationships between Customer Perceived Value and Behavioural Intentions..... | 112 |
| Table 5.34 | ANOVA Results Relating to Hypothesis 20 | 113 |
| Table 5.35 | ANOVA Results Relating to Hypothesis 21 | 113 |
| Table 5.36 | ANOVA Results Relating to Hypothesis 22 | 114 |
| Table 5.37 | Summary of Hypotheses Testing | 116 |

List of Figures

| | |
|---|-----|
| Figure 2.1 The Nordic Model of Perceived Service Quality Model..... | 11 |
| Figure 2.2 The SERVQUAL Model..... | 12 |
| Figure 2.3 The Three-Component Model of Service Quality..... | 13 |
| Figure 2.4 The Structure of the Multilevel Model of Retail Service Quality | 14 |
| Figure 2.5 The Integrated Hierarchical Model..... | 15 |
| Figure 3.1 Proposed Research Model and Hypotheses for Day Spas in Thailand | 42 |
| Figure 5.1 Scree Plot (Interpersonal Quality) | 76 |
| Figure 5.2 Scree Plot (Environment Quality) | 77 |
| Figure 5.3 Scree Plot (Administrative Quality) | 78 |
| Figure 5.4 Scree Plot (Technical Quality)..... | 80 |
| Figure 5.5 The Preliminary First-Order Confirmatory Factor Analysis Model for Interpersonal Quality | 81 |
| Figure 5.6 The Preliminary First-Order Confirmatory Factor Analysis Model for Environment Quality | 84 |
| Figure 5.7 The Modified First-Order Confirmatory Factor Analysis Model for Environment Quality | 86 |
| Figure 5.8 First-Order Confirmatory Factor Analysis Model for Administrative Quality | 89 |
| Figure 5.9 First-Order Confirmatory Factor Analysis Model for Technical Quality..... | 92 |
| Figure 5.10 Second-Order Confirmatory Factor Analysis Model for the Primary Dimensions..... | 95 |
| Figure 5.11 First-Order Confirmatory Factor Analysis Model for Service Quality..... | 98 |
| Figure 5.12 Second-Order Confirmatory Factor Analysis Model for Service Quality..... | 101 |
| Figure 5.13 The First-Order Confirmatory Factor Analysis Model for the Five Higher-Order Constructs..... | 104 |
| Figure 5.14 Structural Equation Model for the Five Higher-Order Constructs (Service Quality, Customer Satisfaction, Perceived Value, Perceived Switching Costs, Behavioural Intentions) | 109 |
| Figure 5.15 The Direct Effect of Service Quality on Behavioural Intentions | 110 |
| Figure 5.16 The Mediating Effect of Customer Satisfaction on the Relationship between Service Quality and Behavioural Intentions | 111 |
| Figure 5.17 The Direct Effect of Customer Perceived Value on Behavioural Intentions..... | 111 |
| Figure 5.18 The Mediating Effect of Customer Satisfaction on the Relationships between Perceived Value and Behavioural Intentions..... | 112 |

Chapter 1

Introduction

1.1 Problem Setting

Thailand's economic base is evolving and its manufacturing and services sectors are growing (Languépin, 2015). Thailand's social structure is also changing from an agricultural to an industrial society. Many people are migrating from agricultural areas to work in the cities. Unfortunately, modern city lifestyle patterns are affecting the physical health of the people due to the changes in their lifestyles; from low-stress rural lifestyles to stressful and hectic urban lifestyles. In addition, the polluted urban physical environment is taking a toll on people's health (Global Spa & Wellness Economic Monitor, 2013). For example, more people now are desk-bound and face the stresses of modern living, causing illnesses such as muscle aches, respiratory disease, and heart disease (Ansar, & Ghosh, 2016). Consequently, people in the modern cities are looking to care for their health in order to prevent illness as well as promote beauty. Happily, the spa industry, which is a service industry, is perfectly positioned to meet this need.

The spa industry, recognized as being part of the health care industry, has been found to be an effective, alternative way to maintain people's health balance. Spas are normally commercial establishments that offer a variety of health and beauty treatments through numerous service products that are tailored to customer needs (Global Spa & Wellness Economic Monitor, 2013). Several international studies report that relaxation, pampering, improving one's appearance and beautification are the main motivations for people who visit spas (Loureiro, et al., 2013, Kucukusta et al., 2013, Tsai et al., 2012). The consequent strong demand for spa has largely contributed to the growth in the spa industry in Thailand (Purateera, et al., 2011).

Since 2004, Thailand has earned a reputation for being the spa capital of Asia (Department of Trade Negotiations, 2008). The spa industry in Thailand uses traditional and ancient wisdom methods in a modern designer ambience that offers customers a remarkable experience; in particular traditional Thai massage and Thai herbal healing (Georgiev and Vasileva 2010, Apivantanaporn and Walsh 2012). In addition, Thai culture, which has historically been influenced by Indian culture, has a long-standing tradition of massage and wellness techniques. Thus, Thai massage follows a centuries-old practice that is based on stimulating the flow of life through the body via the six senses, or energy lines (Department of Trade Negotiations, 2008). For these reasons, Thai massage is seen as a unique

service which is the most popular service in Thai spas. In fact, traditional Thai massage and Thai herbal healing are known and followed worldwide.

The spa industry in Thailand is vibrant and is one of the fastest growing components of Thailand's local economy. Also, the spa industry has become a huge part of an increasing national income (Wannaree & Surarak, 2013). In 2007, income from the spa industry was 12.5 million Thai Baht. In 2012, income from the spa industry increased to 16 billion Thai Baht (Thai Spa Association, 2013). In 2013, income from the spa industry increased to 22 billion Thai Baht. In 2014, the spa industry generated more than 32.44 billion Thai Baht in revenue. In 2015, the spa industry grew by approximately 15% (Thai Spa Association, 2015; Ministry of Commerce, 2014).

The major reason for the rapid growth of the spa industry is its popularity with an increasingly aging population (Global Spa & Wellness Economic Monitor, 2013), the older-aged customers find that spa therapy, pampering and relaxation are beneficial to their well-being (Kucukusta, Pang et al. 2013, Karagülle, Kardeş et al. 2016). These older-aged customers are a growing market segment. For example, in 2010, the segment aged 60 or older was estimated at 8.5 million people, representing 11.4% of Thailand's population. By 2016, this number is expected to be over 9.7 million, representing 12.3% of Thailand's population (Thai Office of the National Economic & Social Development Board, 2015). Since the population is rapidly aging, the Thai spa industry is expected to expand with it.

In addition, the service liberalization agreement among the ASEAN member nations (Cambodia, Laos, Malaysia, Indonesia, Myanmar, Singapore, Brunei Darussalam, Vietnam, Philippines, and Thailand) directs to liberalize trade in services in the region, in conjunction with the vision of developing the ASEAN Economic Community (AEC). This agreement is having a positive impact on the spa industry in Thailand, as it provides the opportunity for Thai Spa Operators to expand their professional spa business model, as international spa chains as well as attracting ASEAN-based investors. However one of the expected results of this process of expansion and internationalisation is that Thailand's spa industry will face an increasingly competitive environment (Thai Spa Association, 2012).

According to the International Spa Association (2004), spas are categorized into seven types of spas; (1) club spas, (2) cruise ship spas, (3) day spas, (4) mineral spring spas, (5) resort/hotel spas, (6) medical spas, and (7) destination spas. Day spas/city spas, are the most popular types of spas in Thailand, followed by resort and hotel spas, medical spas, and destination spas (Thai Department Export Promotion, 2011). Preliminary data from Global Spa and Wellness Economic Monitor's 2013 survey shows a total of 2,088 spas in Thailand, of which 1,420 are day spas (O'Fallon and Rutherford

2011). The prominence of day spas means they are more likely to face stronger competition than other types of spas. The current study focuses only on day spas.

1.2 Day Spa in Thailand

Day spas are mostly found in metropolitan areas (e.g. in shopping malls, in airports, and in commercial buildings), where, unlike resort/hotel spas, they are convenient and accessible (Voigt, Laing et al. 2010). Day spas primarily target the local market rather than the international tourism market because day spas are designed to provide a service of healing, beautifying, or pampering experience, where customers spend a short time period per visit, but they are likely to return on a regular basis (Purateera, Khamanarong et al. 2011, O'Fallon and Rutherford 2011). Thus day spas suit the majority of people living in a modern city who have busy, stressful lifestyles.

The day spa category has the largest number of spas and also has capacity for more customers than other types of spas (Thai Department of Health Service, 2012). A significant reason for the rapid growth of day spas is that day spas have few financial barriers to entry, especially when compared with the high capital investment associated with resort/hotel spas and destination spas (Tabacchi 2010).

This current study concentrates on day spas, the dominant type of spa in the major Thai population centres of Bangkok city and the Chiang Mai and Khon Kaen provinces. As has been discussed above, the day spa market is expected to become more competitive. In this intense environment, day spa entrepreneurs need to investigate, establish, and then implement successful marketing strategies in order to remain competitive and profitable, in order to ensure their survival. One way to achieve this is for day spa entrepreneurs to gain a better understanding of how customer experiences and attitudes lead to the higher order marketing constructs including satisfaction, perceived value and whether customers intend to return to the day spa.

1.3 The Higher-Order Marketing Constructs

Developing deeper insights into the interrelationships between the higher-order marketing constructs relevant to the spa industry, such as service quality, customer satisfaction, perceived value, perceived switching cost, and behavioural intentions, is essential for the spa industry in general, but is also very important for day spas if they are going to flourish in a very competitive environment (González, Comesaña et al. 2007, Choi, Kim et al. 2015). In addition, academics consider that perceived switching costs is another important marketing construct that influences the perceptions of service quality and behavioural intentions (Lam, Shankar et al. 2004, Chou and Lu

2009). Therefore, the perceived switching costs construct is used in this current study to examine the interrelationships between the higher-order marketing constructs for the day spa industry. To date, the interrelationships between the higher-order marketing constructs (service quality, customer satisfaction, perceived value, perceived switching costs, behavioural intentions) in the day spa industry have not been investigated.

1.4 Comprehensive Hierarchical Modelling in the Day Spa Industry

As the day spa industry continues to expand with an increasing number of people receiving day spa services, the issue of service quality has received more attention (Snoj 2002, González, Comesaña et al. 2007, Giritlioglu, Jones et al. 2014, Lo, Wu et al. 2014). Numerous academics suggest that service quality is a multi-dimensional and hierarchical construct and that it comprises various sub-dimensions (Brady & Cronin, 2001, Clemes et al., 2014, Dagger, Sweeney, & Johnson, 2007, Prakash & Mohanty, 2013). A multi-dimensional and hierarchical approach has been applied in various service industries and cultural settings. For example, Clemes, Shu and Gan(2014) applied a multi-dimensional and hierarchical approach to conceptualise service quality for mobile phone services. Dagger, Sweeney et al.(2007) also applied a multi-dimensional and hierarchical approach to conceptualise service quality for healthcare services. Moreover, Clemes, Brush and Collins (2011) applied a multi-dimensional and hierarchical approach to conceptualise service quality for professional sport services. However, a multi-dimensional and hierarchical modelling approach to conceptualise service quality has not been applied in the day spa context. Hedonic aspects such as physical well-being and peace of mind may affect the variation in the number of service quality primary dimensions and sub-dimensions for health services (Dagger, Sweeney et al. 2007).

Recently, comprehensive hierarchical modelling has been applied in service marketing studies for the purpose of determining the types and numbers of dimensions of service quality, and for determining the interrelationships between service quality and the other higher marketing constructs, in a path model. In order to apply comprehensive hierarchical modelling in this current study, the service quality measurement model and the interrelationships between the higher order constructs in a service setting are simultaneously analysed, using the perceptions from a single sample (Clemes, Brush et al. 2011). However, comparatively little research has developed and tested comprehensive hierarchical models. To date, no published studies have focused on day spas (See Section 2.6). Consequently, a comprehensive hierarchical model is applied in the current study as a framework for identifying the sub-dimensions and primary dimensions of service quality for the day spa industry in Thailand (a third order conceptualization). A comprehensive hierarchical model is also applied in the current study in order to examine the interrelationships between the five higher-

order marketing constructs (service quality, customer satisfaction, perceived value, perceived switching costs, behavioural intentions).

1.5 Research Gaps

The first research gap relates to adopting the multi-dimensional and hierarchical approach for measuring customers' perceptions of service quality (Brady and Cronin 2001). Brady and Cronin (2001) take the view that this approach overcomes some of the weaknesses of the SERVQUAL instrument and its replications. However, to date, no published research has identified the service quality dimensions and tested how these dimensions have an effect on customers' perceptions of service quality in day spas in Thailand. Several service marketing academics have stressed the need to further investigate the multi-dimensional and hierarchical modelling approach within different service industries for the purpose of validating this type of model (Brady and Cronin 2001, Leisen Pollack 2009, Prakash and Mohanty 2013, Clemes, Shu et al. 2014).

The second research gap relates to a lack of published empirical research that identifies the importance ranking of the service quality primary dimensions as perceived by Thai day spa customers in Thailand. Identifying a set of service quality primary dimensions and testing the order of importance as perceived by day spa customers will enable day spa managers to efficiently allocate resources and appropriately develop strategic planning (Clemes, Wu et al. 2009, Clemes, Shu et al. 2014).

The third research gap relates to applying and testing a comprehensive hierarchical model in the day spa industry. Although a comprehensive hierarchical model has been developed and tested for classification for resort hotels in Thailand (Channoi 2014), this model has not been investigated in the day spa context. In addition, no study has measured the important and complex interrelationships between the higher-order service marketing constructs: service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions, using a single, causal path model on day spas located in Thailand. Moreover, none of the published studies have tested the mediating role of customer satisfaction on the relationships between service quality, perceived value, and behavioural intentions for day spas. These relationships may not be stable within industries, across industries, or across cultures (Howat and Assaker 2013, Clemes, Shu et al. 2014)

The fourth research gap relates to measuring the impact of different demographic characteristics on customer perceptions of the dimensions of service and the service marketing constructs. To date, none of the published studies in the day spa industry have investigated the impact of demographic

characteristics on service quality, customer satisfaction, perceived value, perceived switching costs, behavioural intentions, and the primary dimensions and sub-dimensions of service quality. Several studies have supported measuring the impact of different demographic characteristics on customer perceptions of the dimensions of service and the service marketing constructs, for the purpose of developing appropriate strategies for specific customer segments (Clemes, Ozanne et al. 2001, Wu 2009, Clemes, Cohen et al. 2013).

1.6 Research Objectives

The main purpose of this study is to develop and examine a comprehensive hierarchical model in order to analyse the interrelationships between the primary dimensions of service quality, and the interrelationships between the higher order constructs (overall service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions) for day spas in Thailand.

The four specific research objectives are:

1. To examine the interrelationships between the higher order marketing constructs (service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions), as perceived by Thai day spa customers in Thailand, using a comprehensive hierarchical model.
2. To identify primary dimensions of service quality, as perceived by Thai day spa customers in Thailand.
3. To identify the importance ranking of service quality primary dimensions, as perceived by Thai day spa customers in Thailand.
4. To examine the effects of demographic factors on behavioural intentions and related constructs, as perceived by Thai day spa customers in Thailand.

1.7 Contributions of this research

This study will make contributions to the service marketing literature from both a theoretical perspective and a practical perspective by satisfying the four research objectives.

Although scholars have investigated healthcare in Australia and health spas in Spain, no empirical research has been done on health spas in Thailand. Nor have any of the previous studies included a broader analysis that includes marketing constructs such as perceived value, perceived switching cost. Therefore, this is a valuable contribution as it provides a better understanding of customers' perceptions of service quality and the interrelationships between service marketing constructs

(service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions) in the Thai day spa industry.

Second, this study will make a contribution to the service marketing literature by adopting the multidimensional and hierarchical approach for conceptualising customers' perceptions of service quality for the day spa industry. This approach provides a more precise method for measuring service quality in the day spa sector as it helps to overcome some of the weaknesses of traditional measurement methods (SERVQUAL, SERVPERF, LODGQUAL, HOLSERV, and LODGSERV).

Third, this study will also contribute to the marketing literature by providing an evaluation of the mediating role of customer satisfaction on the relationship between service quality and behavioural intentions, and the relationship between perceived value and behavioural intentions. This is valuable information that will help to improve the overall understanding of the comprehensive and complex interrelationships between the five higher-order constructs (service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions) in the Thai day spa context.

Fourth, this study will benefit practitioners (e.g., day spa entrepreneurs, managers, and marketers) in the healthcare sector. For instance, the research findings will provide practical information about what customers from the different groups; "age" group or "type of spa customer" group, consider important in their assessments of service quality, and the other important marketing constructs associated with behavioural intentions. These findings are important as they may assist practitioners to develop and implement appropriate services marketing strategies, in order to provide a high quality of spa service, which will lead to increasing levels of customer satisfaction. Higher levels of customer satisfaction achieved through applying the proper marketing strategies should enhance favourable behavioural intentions.

1.8 Structure of Thesis

The structure of this research comprises six chapters in order to meet the research objectives outlined in Section 1.6.

Chapter 1 presents the background of the research which comprises the global spa market, overview of spa in Thailand, research gaps, research objective, theoretical contribution and practical contribution.

Chapter 2 reviews the literature related to the comprehensive hierarchical modelling that includes service quality, other higher service marketing constructs related to behavioural intentions(customer

satisfaction, perceived value, and perceived switching costs) and applying the comprehensive hierarchical modelling.

Chapter 3 presents the discussion of the proposed theoretical frame work in this study and the discussion of the literature relevant to all the service marketing constructs used to develop the 18 hypotheses in order to satisfy research objectives.

Chapter 4 details the research methodology including: instrument development, data collection procedures and data analysis procedures.

Chapter 5 describes the results of the analysis undertaken in this study that begins with the result of testing the response rate and the preliminary data analysis, the characteristics of the samples, the exploratory factor analysis (EFA) of each primary dimension (interpersonal quality, environment quality, administrative quality, and technical quality), the Structural Equation Modelling (SEM) which includes three analyses: the confirmatory factor analysis (CFA), the path analysis, and the mediating analysis, and the Analysis of Variance (ANOVA).

Chapter 6 offers the conclusions of this study, the discussion related to the conceptualisation of service quality for day spas, the relative importance of primary dimensions, and the interrelationships between the higher order constructs, the theoretical implications, the managerial implications, the limitations, and the directions for future research based on the results presented in Chapter 5.

Chapter 2

Literature Review

2.1 Introduction

This chapter provides a review of the literature regarding the conceptualisation of service quality, service quality studies relating to day spa services, the sub-dimensions and the primary dimensions of day spa service quality, customer satisfaction, perceived value, perceived switching costs, behavioural intentions, the potential interrelationships among these marketing constructs, and the relationships between demographic characteristics and these marketing constructs.

2.2 Conceptualisation of service quality

Service quality is defined as a consumer's judgment of the overall superiority of the service (Parasuraman, Zeithaml et al. 1988, Carman 1990, Cronin Jr and Taylor 1992). A number of studies on service quality have undertaken to conceptualise service quality, measure service quality, and develop a corresponding model. However, there is little consensus on the conceptualisation and measurement of service quality, the dimensions of service quality, and the content of those dimensions (Zeithaml, Berry et al. 1996, Brady and Cronin 2001, Ladhari 2008). This lack of agreement is attributed to the unique characteristics of services: intangibility, heterogeneity, and the inseparability of production and consumption (Parasuraman, Zeithaml et al. 1985, Rust and Oliver 1994).

Although perceived service quality and satisfaction are similar in meaning and are closely related, they differ in some respects (Bitner 1990, Rust and Oliver 1994, Bansal and Taylor 1999). Service quality relates to a long-run overall evaluation (Parasuraman, Zeithaml et al. 1988) and also involves general attitudes and impressions of the superiority or inferiority of the service and the service providers; whereas customer satisfaction stems from individual and global transactions (Bitner 1990, Bitner and Hubbert 1994).

As reviewed in the service marketing literature, there are two main perspectives for the conceptualisation of service quality: the Nordic perspective proposed by Grönroos (1984) and the American perspective proposed by Parasuraman, Zeithaml et al. (1988). Moreover, Rust and Oliver (1994) proposed a third component of service quality, and other researchers suggest that customers evaluate the perceptions of service quality not only using multiple dimensions, but with a

hierarchical structure (Dabholkar, Thorpe et al. 1996, Brady and Cronin 2001, Clemes, Gan et al. 2010).

The two service quality perspectives (the Nordic and American perspectives) have led to the further development of several conceptual models of service quality, either based on the Nordic approach or the American approach, or combinations of both perspectives. The detail of the five service quality models (the Nordic model, the SERVQUAL model, the three-component model, the multilevel model, and the integrated hierarchical model) are discussed in the following sections.

2.2.1 The Nordic Model

The Nordic Model was developed and tested by Grönroos (1984), and was the original perceived service quality model. This model proposes that perceived service quality emerges from the comparison between perceived service and expected service (Grönroos 1984). Grönroos (1984) identified two service quality dimensions: technical quality and functional quality. Technical quality relates to the outcome of service quality, or what customers receive after the service delivery process in the buyer-seller interaction (Grönroos 1984, Brady and Cronin 2001). Functional quality relates to how a service is provided and delivered to customers (Grönroos 1984, Ladhari 2008). Functional quality defines customers' perceptions of the interactions between employees and customers during service delivery (see Figure 2.1). In addition, as shown in the model, the technical and functional qualities of service have a direct impact on an organization's image (Grönroos 1984).

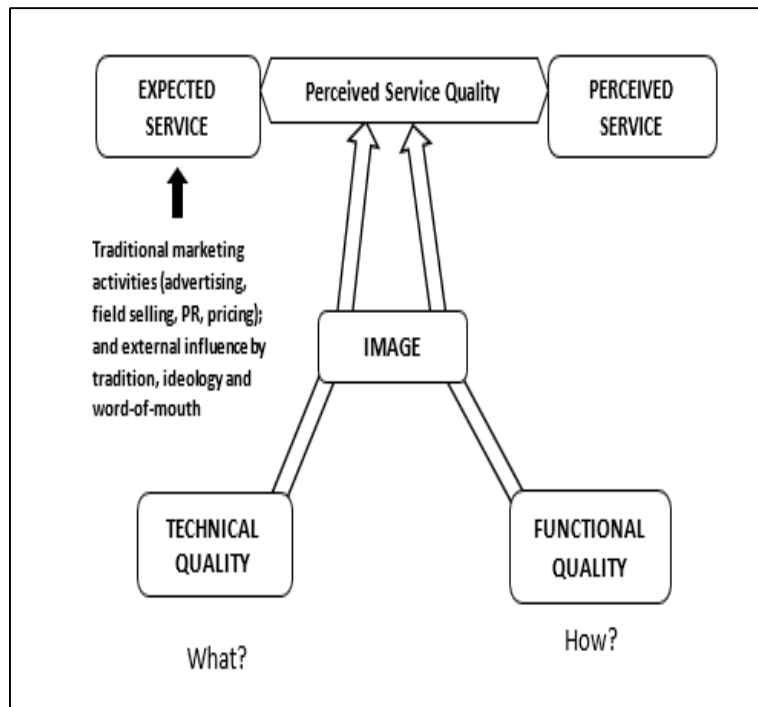


Figure 2.1 The Nordic Model of Perceived Service Quality Model
Source: Grönroos(1984)

The Nordic Model provided a good foundation theory that researchers continue to build upon. The SERVQUAL Model was then developed to address some of the shortcomings of Nordic Model and is discussed in the following section.

2.2.2 The SERVQUAL Model

Parasuraman et al. (1985) developed the concept of expectations and perceptions of service quality based on Grönroos's (1984) study, and is known as the SERVQUAL Model. The original model developed by Parasuraman, Zeithaml et al. (1985) comprises ten service quality dimensions: access, communication, competence, courtesy, credibility, reliability, responsiveness, security, tangibles and understanding/knowing the customer. In a further study, the initial ten dimensions were reduced to five service quality dimensions (reliability, responsiveness, empathy, assurance, and tangibles) (Parasuraman, Zeithaml et al. 1985, Parasuraman, Zeithaml et al. 1988, Zeithaml, Berry et al. 1996) as shown in Figure 2.2. The method of measurement did not change; the model still shows that perceived service quality is the outcome of the gap between customers' perceptions of service and expectations of service performance (Parasuraman, Zeithaml et al. 1988). The five service quality dimensions are each defined by Parasuraman et al. (1988) as follows:

Reliability: ability to perform the promised service dependably and accurately.

Responsiveness: willingness to help customers and provide prompt service.

Empathy: caring, individualized attention which the firm provides to its customers.

Assurance: knowledge and courtesy of employees and their ability to inspire trust and confidence.

Tangibles: physical facilities, equipment, and appearance of personnel.

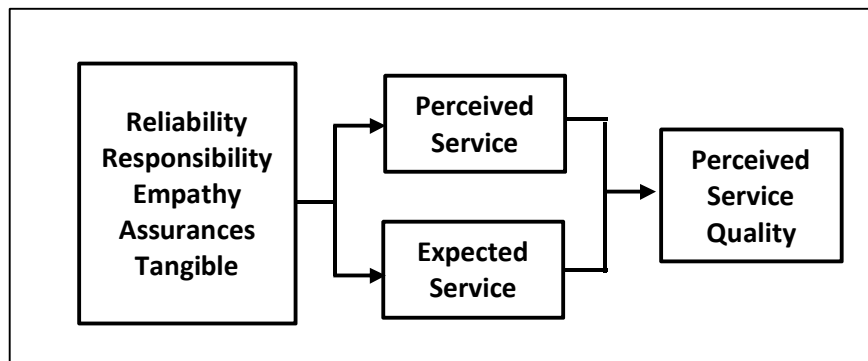


Figure 2.2 The SERVQUAL Model
Source: Parasuraman et al. (1988)

The SERVQUAL Model identified five service quality dimensions to conceptualize service quality. However, Rust and Oliver (1994) developed the Nordic model in a different direction when they developed their three-component model and identified three service quality dimensions. The detail of the Rust and Oliver (1994) Model is discussed in the following section.

2.2.3 The Three-Component Model

The Three-Component Model proposed by Rust and Oliver (1994) was an expansion of the Nordic Model developed by Grönroos (1984) as shown in Figure 2.3. The Three-Component model is based on customers' evaluations through three service quality dimensions: the service product (technical quality), the service delivery (functional quality), and the service environment. Rust and Oliver (1994) included the service environment as a new dimension.

The three-component model illustrates that the 'service product' is the outcome of the service performance, 'service delivery' is the consumption process that occurs during the service act, and 'service environment' is the internal and external atmosphere that is viewed as having an integrated role in the development of customer perceptions (Rust and Oliver 1994). Although Rust and Oliver (1994) did not empirically test their proposed model, similar models were empirically tested and the authors found support for Rust and Oliver's (1994) conceptual research model in the health care and retail banking industries (McAlexander, Kaldenberg et al. 1994, McDougall and Levesque 1995).

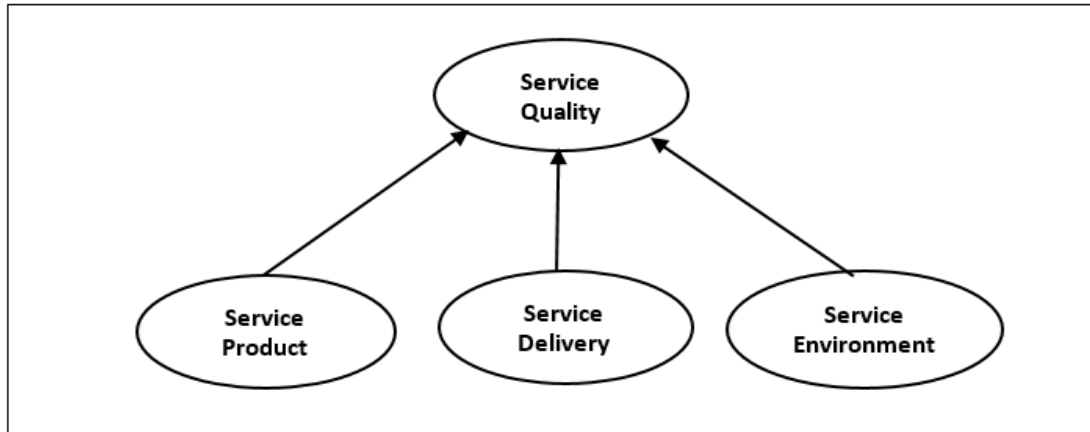


Figure 2.3 The Three-Component Model of Service Quality
Source: Rust and Oliver(1994)

The Three-Component model identifies three dimensions (service product, service delivery, service environment) that lead to customers' overall perceptions of service quality. Other researchers have explored the multiple levels of dimensions and how the dimensions could be used to evaluate the overall perceptions of service quality (Brady & Cronin, 2001; Clemes, Brush, et al., 2011; Dabholkar et al., 1996). The detail of the multilevel model developed by Dabholkar, Thorpe et al. (1996) is discussed in the following section.

2.2.4 The Multilevel Model

Dabholkar, Thorpe et al. (1996) provided empirical evidence that the service quality construct and its dimensions are complex and need to be evaluated at several levels. For example, Dabholkar, Thorpe et al. (1996) claim that customers evaluate the perceptions of service quality, not only using multiple dimensions, but also using multilevel dimensions. Dabholkar, Thorpe et al. (1996) model suggests that customers form their perceptions of retail service quality at three ordered or hierarchical levels: (1) customers' overall perceptions of service quality, (2) primary dimensions, and (3) sub-dimensions.

The second level has five dimensions (physical aspects, reliability, personal interaction, problem-solving and policy) that result the customers' overall perceptions of retail service quality. The third level, or sub-dimension level, includes six attributes (appearance, convenience, promise, do it right, inspiring confidence, and courtesy) (see Figure 2.4).

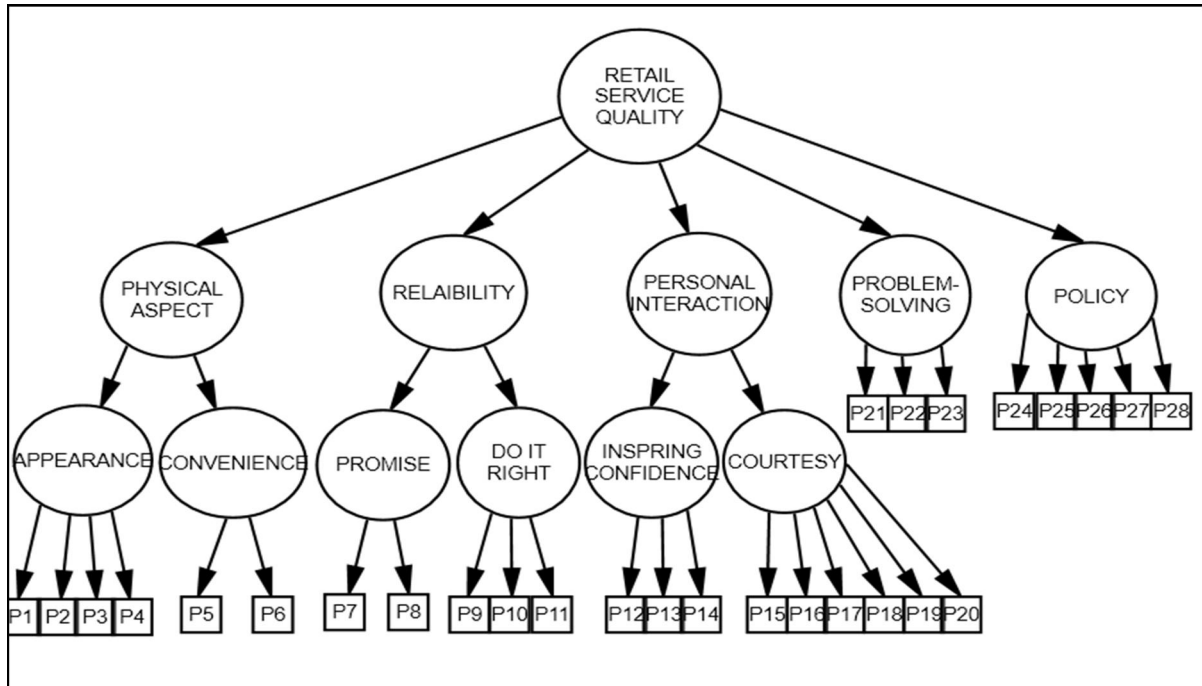
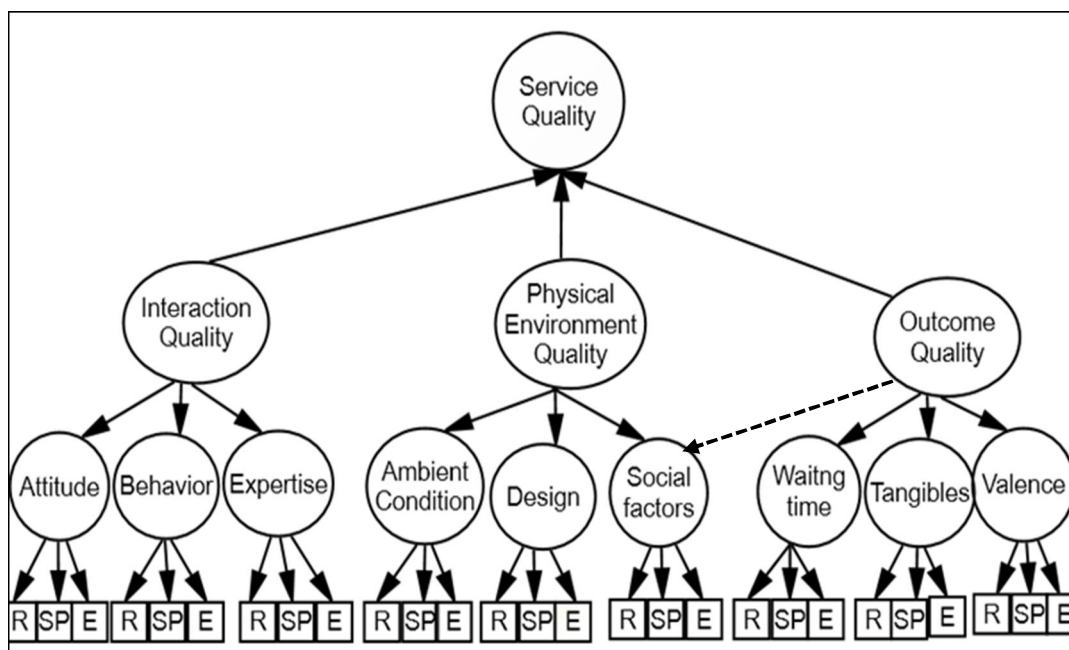


Figure 2.4 The Structure of the Multilevel Model of Retail Service Quality
 Source: Dabholkar et al.(1996)

Researchers continue to use Dabholkar et al.’s (1996) multi-level model as a framework to conceptualize service quality. Several service marketing scholars have also noted that conceptualizing service quality should be done on a multidimensional and hierarchical level (Brady & Cronin, 2001; Clemes, Brush, et al., 2011; Clemes, et al. 2014; Dagger et al. 2007).

2.2.5 The Integrated Hierarchical Model

In view of prior literature (Dabholkar et al., 1996; Rust and Oliver, 1994; Bitner, 1992; Carman, 1990; Gronroos, 1982, 1984), Brady and Cronin (2001) developed and tested an integrated hierarchical model (see Figure 2.5). The integrated hierarchical model incorporates and expands Dabholkar et al. (1996) multilevel model of retail service quality (see Section 2.2.4), and Rust and Oliver (1994) three component model (see Section 2.2.3).



Note: R = reliability, SP = responsiveness, E = empathy, The broken line indicates that the path was added as part of model respecification.

Figure 2.5 The Integrated Hierarchical Model
Source: Brady and Cronin(2001)

Brady and Cronin (2001) suggest that service quality is not only multidimensional but also hierarchical in nature. Customers assess service quality by aggregating a variety of sub-dimensions to form their perceptions of service quality on each of the primary dimension (Dabholkar, Thorpe et al. 1996, Brady and Cronin 2001, Clemes, Wu et al. 2009, Clemes, Shu et al. 2014). Brady and Cronin (2001) proposed that the service quality construct conforms to the structure of a third-order factor model. The authors suggest that the service quality construct is explained by a combination of service quality perceptions of three distinct primary dimensions: interaction quality, physical environment quality, and outcome quality (see Figure 2.5). Each primary dimension comprises three relevant sub-dimensions: (a) interaction quality: attitude, behaviour, and expertise; (b) physical environment quality: ambient conditions, design, and social factors; and (c) outcome quality: waiting time, tangibles, and valence.

Brady and Cronin (2001) show that customers aggregate their evaluations of the nine sub-dimensions to form their perceptions of service performance based on each of the three primary dimensions. These perceptions form their overall service quality perceptions (Brady and Cronin 2001). Brady and Cronin (2001) conducted a survey across four industries: fast-food, photograph

developing, amusement parks, and dry-cleaning, in order to demonstrate empirical support for this conceptualisation of service quality using the integrated hierarchical model. The hierarchical and multi-dimensional approach is believed to offer an improved explanation of the complexities of human reactions to a service experience (Dabholkar, Thorpe et al. 1996, Brady and Cronin 2001).

A hierarchical model can reflect the hierarchical nature of service quality (Ladhari 2008).

Therefore, hierarchical modelling is seen as a more fine grained analysis compared with the other approaches (Cronin & Taylor, 1992). Accordingly, this study applies a hierarchical modelling approach to conceptualize service quality. The following section discusses the hierarchical approach in detail.

2.3 Hierarchical Modelling

A hierarchical and multidimensional model conceptualizing perceived service quality as a third-order factor model in which service quality perceptions are explained by at least three primary dimensions (interaction quality, physical environmental quality and outcome quality) and corresponding sub-dimensions has been empirically tested in several studies (Brady & Cronin, 2001; Clemes et al., 2013; Clemes et al., 2014; Dagger et al., 2007; Howat & Assaker, 2013; Pollack, 2009). Customers are expected to assess service quality through multiple sub-dimensions (at a sub-dimensional level), and aggregate their perceptions of each sub-dimension to form their perceptions of three primary dimensions and then the perceptions of all primary dimensions are combined, to reflect the customer's overall service quality perceptions (Brady & Cronin, 2001; Clemes et al., 2013; Clemes, Gan, et al., 2011; Clemes et al., 2014; Clemes et al., 2009; Dagger et al., 2007; Howat & Assaker, 2013; Pollack, 2009).

Brady and Cronin (2001) claim that the hierarchical approach overcomes some weaknesses of the traditional service quality instruments, such as SERVQUAL, SERVPERF, LODGQUAL, HOLSERV and LODGSERV measures previously used in the conceptualization of service quality. Licata, Mowen, Harris, and Brown (2003) note that the hierarchical model outperforms single level multi-factor models when investigating complex consumer behaviour. Likewise, Clemes, Brush et al. (2011) assert that the hierarchical model is a valuable approach for measuring service quality, as this model supports an improvement in the understanding of a wide range of complex consumer behaviours in situations involving multiple levels of evaluation.

Several academics note that service quality assessment is a complex process because perceived value occurs at multiple levels in a service setting. The complexity of service quality assessment can be accommodated by a hierarchical model, as the service quality construct in diverse service settings

may be comprised of at least three similar primary dimensions. However, these primary dimensions are based on different sub-dimensional structures in dissimilar service contexts (Clemes et al., 2011; Yuksel, Philip, & Graham, 2008; Karatepe, Yavas, & Babakus, 2005).

Recently, the advantages of hierarchical modelling have led to a broad modification and adaptation of the hierarchical and multidimensional approach to conceptualise perceptions of service quality in a variety of industries and cultural settings such as mobile phone services (Clemes, Shu et al. 2014), education (Clemes, Gan et al. 2007, Clemes, Cohen et al. 2013), hotel stays (Clemes, Wu et al. 2009), motel stays (Clemes, Gan et al. 2010), ski resorts (Kyle, Theodorakis et al. 2010), professional sport (Clemes, Brush et al. 2011), national parks (Chen, Lee et al. 2011), travel agencies (Caro and García 2008), outdoor aquatic centres (Howat and Assaker 2013), hairdresser/barber services and local phone service subscribers (Pollack 2009), life insurance (Mittal, Gera et al. 2013), and mobile health (Akter, D'Ambra et al. 2010).

Dagger, Sweeney et al. (2007) developed a hierarchical model and empirically tested a multidimensional hierarchical scale for measuring health service quality in Australia. The authors also examined the scale's ability to predict customer satisfaction and behavioural intentions. Dagger, Sweeney et al.'s (2007) results support the notion that customers assess service quality at an overall level through a primary dimensional level, and at a sub-dimensional level. Dagger, Sweeney et al.'s (2007) hierarchical model of health service quality is composed of four primary dimensions: interpersonal quality, technical quality, environment quality and administrative quality. Each primary dimension is composed of at least two sub-dimensions. The first primary dimension, interpersonal quality, was composed of two sub-dimensions, interaction and relationship. The second primary dimension, technical quality was composed of two sub-dimensions, outcome and expertise. The third primary dimension, environment quality, also consisted of two sub-dimensions, atmosphere and tangibles. Finally, the fourth primary dimension, administrative quality, was comprised of three sub-dimensions, timeliness, operation, and support. Dagger, Sweeney et al. (2007) conclude that the results of their study provide an improved understanding of how customers assess health service quality. In addition, the authors also identify that health service quality is an important determinant of patient satisfaction and behavioural intentions.

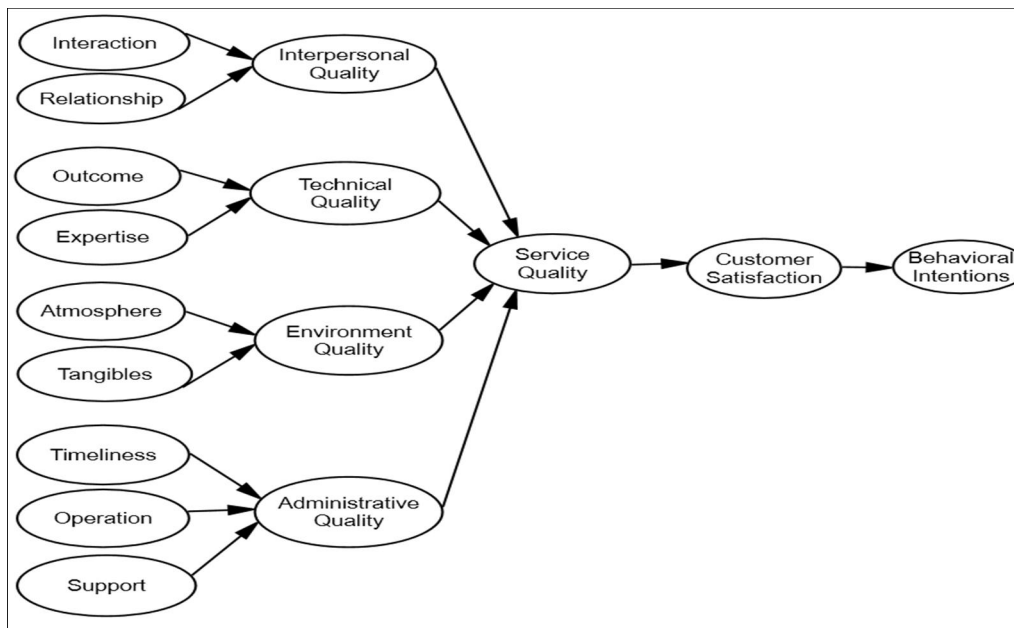


Figure 2.6 Hierarchical Model of Health Service Quality

Source: Dagger et al. (2007, p. 131)

Dagger, Sweeney et al.'s (2007) hierarchical model of health service quality provides a valuable framework for conceptualizing and measuring service quality in the Thai day spa industry. However, to date, no published study has developed and empirically tested a hierarchical model in order to confirm the dimensions of service quality in the context of day spas.

Day spas that offer a range of services have share some commonalities with overall health care services. In many cultures, a spa treatment is a recognized as an intricate component of overall health care (Hall, & Hudson, 2003). Mak, Wong, and Chang (2009) note that relaxation and relief, escape, self-reward and indulgence, and health and beauty are important factors that motivate customers to visit spas. The following section presents an overview of the existing studies on the spa industries worldwide.

2.4 Comparative Studies on the Global Spa Industries

González and Brea (2005) developed a model to depict how service quality and customer satisfaction affect behavioural intentions. The authors utilized the SERVQUAL instrument to measure the service quality of health spas in Spain. However, there are some weaknesses in the SERVQUAL instrument. For example, the SERVQUAL model fails to reflect the hierarchical nature of service quality (Ladhari 2009), as service quality is multidimensional and has a hierarchical structure (Dabholkar, Thorpe et al. 1996, Brady and Cronin 2001, Wilkins, Merrilees et al. 2007, Prakash and Mohanty 2013). González and Brea's (2005) findings indicate that service quality functions as an antecedent of

satisfaction. In addition, the authors also empirically claim that service quality and customer satisfaction have an impact on behavioural intentions.

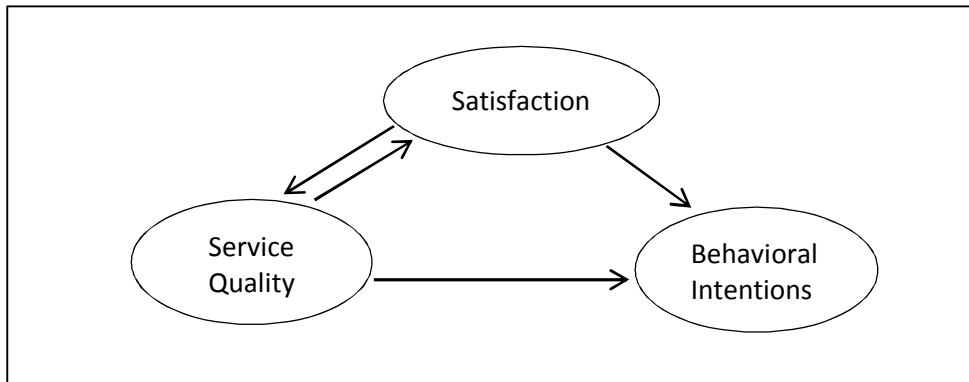


Figure 2.7 The Conceptual Research Model of Health Spas in Spain
Source: González and Brea (2005)

Hsieh, Lin et al. (2008) adopted a research framework on the basis that service quality consists of five major dimension (tangibles, reliability, responsiveness, assurance, and empathy) as developed by Parasuraman, Zeithaml et al. (1985) in order to measure service quality as perceived by visitors in hot spring hotels in Taiwan. Hsieh, Lin et al. (2008) study used Analysis Network Process (ANP) to find the relative weights among the criteria and to focus on the interdependent relationships, thus increasing the accuracy of the evaluation results. ANP is an analysis method that was developed by Saaty (1996). ANP has been applied in diverse fields such as tourism management, forest management, and engineering management, to avoid errors in the evaluation resulting from interdependent relationships among the evaluation criteria (Bernhard, Vacik, & Lexer, 2005; Meade & Presley, 2002). Hsieh, Lin et al. (2008) conclude that the service quality evaluation framework and evaluation results can be used as a guide for hot spring hotel owners to review, develop, and improve service planning and service quality. Hsieh, Lin et al. (2008) findings identified that the most important service quality dimension in relation to customer’s expectations in hot spring hotels is “reliability”, followed by “responsiveness”, “assurance”, and “empathy.”

Tsai, Suh et al. (2012) note that male spa-goers are a growing customer segment in Hong Kong hotel spas. Therefore, the authors only attempted to understand male spa-goers’ perceptions regarding hotel spas. The Tsai, Suh et al. (2012) findings provide empirical support for the performance factors (environment, service experience, augmented service quality, value, and reliability) that influence male hotel spa-goers’ overall satisfaction, likelihood to revisit, and likelihood to recommend to others.

Lo, Qu et al. (2013) investigated mainland Chinese tourists’ perceptions of spa visitations as a tourism experience by adopting Pine and Gilmore’s (1999) realms (or dimensions) of experience and

Aho's (1999) realms of tourism experience. The Lo, Qu et al. (2013) findings indicate that tourists' spa experiences comprise the realms of escapism, aesthetics, education, cure, transformation, and reward and recognition. Lo et al.'s (2013) findings suggest that to improve spa localized themes and environment, products and treatments, personalized and value-added services, and professional skills and attitudes of the therapists were essential factors. In addition, in Lo, Qu et al. (2013) findings, spa managers also suggested that the diversity of facilities and interaction and communication with customers prior to visitation are important while spa customers see cleanliness of facilities, privacy, and service distance as essential factors.

Giritlioglu, Jones et al. (2014) noted that the service quality of the food and beverage provision is one of the most important in spa hotels. Giritlioglu, Jones et al. (2014) identified six key dimensions of service quality in spa hotels' food and beverage provision, including; assurance and employee knowledge; healthy and attractive food; empathy; tangibles; responsiveness and service delivery; and reliability. The authors also identified that the most important service quality dimension in relation to customer expectation in these spa hotels is "tangibles", followed by "assurance and employee knowledge" and "reliability". Giritlioglu, Jones et al. (2014) study sampled customers who were staying at a spa hotel for the first time and had no previous spa service experience. Consequently, asking customers about their expectations before receiving a spa service, and then again immediately after receiving services may have contributed to measurement error (Fu and Parks 2001, Kouthouris and Alexandris 2005).

Choi, Kim et al. (2015) note that in previous studies on service marketing and tourism, the framework of and the relationships between the constructs of "quality, perceived value, satisfaction, and behavioural intentions" have been extensively used to explain the decision-making processes of tourist experiences for future behaviour. However, little research has been conducted on the wellness-value associated with physical, mental, and social health benefits from spa experiences. Choi, Kim et al. (2015) examined the role of perceived value (functional and wellness values) in the spa experience and tested the interrelationships between quality, perceived value, satisfaction, and behavioural intentions in the context of spa tourism for the Red Ginseng Spa in Korea (see Figure 2.8). The Choi, Kim et al. (2015) findings reveal that spa quality dimensions (spa facilities, spa programmes, staff, and uniqueness) are positively associated with perceived value. In addition, the findings also illustrate that perceived value plays a mediating role on the relationships between service quality and behavioural intentions, and satisfaction and behavioural intentions. More specifically, the Choi, Kim et al. (2015) findings suggest that satisfaction and behavioural intentions are more strongly affected by the perceptions of physical and mental health benefits than that of

monetary and utilitarian rewards. However, Choi, Kim et al. (2015) study has several limitations. For example, their study only examine the mediating role of perceived value (functional and wellness values) on the relationship between service quality and behavioural intention while customer satisfaction can also act as a mediator variable on the relationship between service quality and behavioural intention (Caruana, 2002; Ekinci et al. 2008; Osman and Sentosa, 2013). Choi, Kim et al. (2015) is based solely on one particular spa in Korea limiting the generalisability of the results.

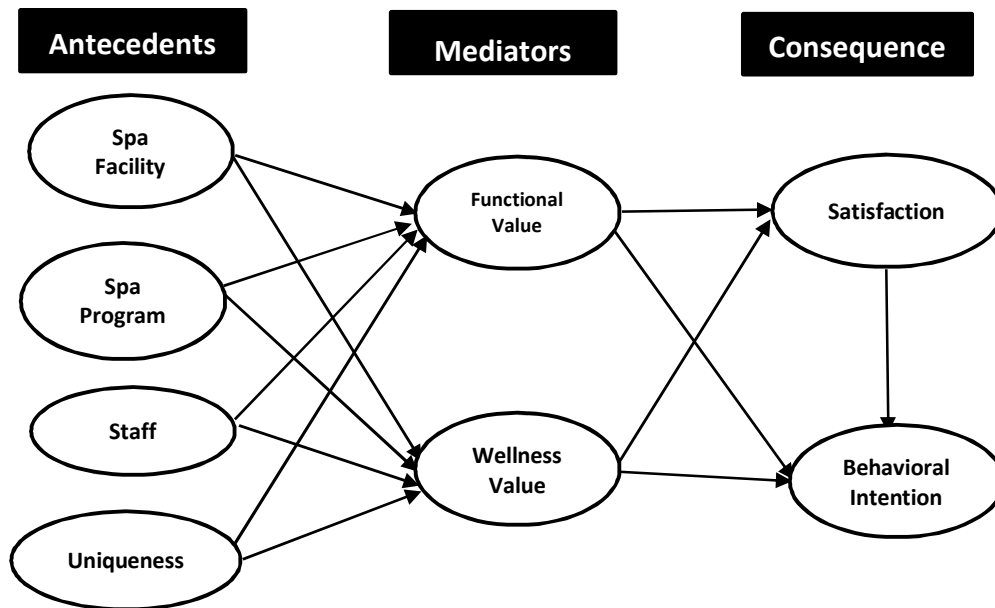


Figure 2.8 The Conceptual Research Model of the Red Ginseng Spa in Korea
Source: Choi, Kim et al. (2015)

Lo, Wu et al. (2015) note that previous spa studies have failed to investigate the effect of the specific dimensions of spa service quality on consumers' emotions. They applied the SERVQUAL instrument to measure customers' perceptions of service quality in hotel and resort spas in southern China. A survey was conducted of spa customers of four different five-star hotel spas and resort spas in southern China. Lo, Wu et al. (2015) findings reveal that four service quality dimensions: tangibles, reliability, responsiveness, and empathy have a direct impact on customers' positive emotions. However, the effect of assurance in influencing positive emotions of spa consumers was non-significant. Lo, Wu et al. (2015) findings also show that responsiveness and reliability are the most important determinant factors affecting positive emotions, followed by empathy and tangibles. The authors conclude that a well-designed service process, standardized service procedures, and training for service staff and therapists, can help to enhance service quality, generate positive emotions, and ultimately create a better spa experience. However, the study has limitations. For example, the study had a small sample size (113 respondents) and the SERVQUAL Instrument used study does not

reflect the hierarchical nature of service quality (Ladhari 2009). Further, they included first time spa customers who had no previous spa experience. Consequently, some customers may have had difficulty in differentiating many of the items that were to be measured using the SERVQUAL instrument, which compares expectations before receiving a service, and then again immediately after receiving the service (Fu and Parks 2001, Kouthouris and Alexandris 2005).

Kucukusta and Denizci Guillet (2015) note that despite the increasing importance of spas in the tourism and hospitality industry, few researchers have analysed spa customers' preferences and motivations. In addition, the authors also note that only two previous studies have analysed spa usage characteristics by gender. Kucukusta and Denizci Guillet (2015) identified and analysed the lifestyle dimensions of international spa visitors in Hong Kong, then segmented spa visitors based on their lifestyle characteristics and profiled each segment based on their socio-demographic and kind-of-visit characteristics. They found five lifestyle segments: (1) health conscious and intercultural; (2) average; (3) family focused; (4) pleasure oriented; and (5) carefree. In addition, their results show that the majority of spa visitors in Hong Kong are health conscious and intercultural, and prefer day spas rather than hotel spas, enjoy body massage and traditional treatments, and visit with their friends and relatives. Unfortunately, the Kucukusta and Denizci Guillet's (2015) study focuses on analysing only one dimension or characteristic (the lifestyle dimension) in order to segment spa visitors in Hong Kong. Expansion beyond the single dimension segmentation would have been more consistent with a general call for more comprehensive models in the area (Yu, Ji, Yanbo, Shuo, Tianyu, 2013).

Therefore, in the light of the criticisms of SERVQUAL and other instruments, this current study adopts the hierarchical and multidimensional modelling approach introduced by Brady and Cronin (2001) and Dabholkar et al. (1996) to measure spa customers' perceptions of service quality in day spas in Thailand. The use of the multidimensional and hierarchical model has received substantial support from several marketing academics and has been validated by several researchers in various industries (e.g., Chen et al., 2011; Clemes et al., 2011; Martínez & Martínez, 2010; Shu, 2010, Dagger et al., 2007). The following section discusses the service quality dimensions for day spas.

2.5 Service Quality Dimensions for Thai Day Spas

According to the International Spa Association (2004), spas are categorized user seven types: such as club spa, cruise ship spa, day spa, mineral spring spa, resort/hotel spa, medical spa, and destination spa. Day spas are one of spa categories which provide services such as healing, beautifying or pampering on a daily-basis. In addition, customers can spend a short time period (1 hour-1 day) per visit (Frost 2004). Therefore, day spas can support customers' varying motivations for their attendance (Keri et al., 2007). Accordingly, day spas are particularly suitable for people who only have a limited time in Thailand's busy cities.

Since 2004, Thailand has earned a reputation as the spa capital of Asia, apart from being one of the world's fantastic holiday destination (Phanmanee, 2008). The day spa industry in Thailand provide legend and ancient wisdom methods in a designer ambience that offers customers a remarkable experience, in particular Traditional Thai massage and Thai herbal healing (Apivotanaporn & Walsh, 2012; Georgiev & Vasileva, 2010). In addition, Thai culture (historically influenced by Indian culture) has a long standing traditional of massage and wellness technique. In fact, Thai massage is a centuries old practice that is based on stimulating the flow of life through the body via six senses, or energy lines (Phanmanee, 2008). For example, a Thai massage is unique and is the most popular service product in Thai day spas. Hence, Thailand is known for its day spa services in many countries, both eastern and western.

In order to conceptualise and measure service quality, a multidimensional and hierarchical model based on the framework proposed by Brady and Cronin(2001) and Dabholkar et al. (1996)has been applied in various studies. The multidimensional and hierarchical model comprises at least three primary dimensions: interaction quality, physical environment quality, and outcome quality (Brady and Cronin 2001, Clemen, Gan et al. 2010, Clemen, Shu et al. 2014). Specifically, in a healthcare study, Dagger, Sweeney et al. (2007) developed a hierarchical model of health service quality which consists of four primary dimensions: interpersonal quality, environment quality, administrative quality, and technical quality. Although medical healthcare can be a complex process with many steps and high divergence there are similarities to spas offering a variety of health care treatments (Karagülle, Karagülle, Karagülle, Dönmez, & Turan, 2007). Therefore, the four primary dimensions (interpersonal quality, environment quality, administrative quality, and technical quality) in the current study have been drawn from the research in health service quality. The primary dimensions and their sub-dimensions are discussed in detail in the following sections.

2.5.1 Interpersonal Quality

Interpersonal quality is described as the quality of the relationship developed and the dyadic interaction that occurs between a service provider and a customer (Grönroos 1984, Rust and Oliver 1994, Brady and Cronin 2001). The interpersonal process is a vitally important element to customers' resulting perceptions of the service provider's performance through the service delivery system (Dagger, Sweeney et al. 2007). Two sub-dimensions (communication skills, friendliness) constitute customers' perceptions of interpersonal quality. Effective communication between spa service providers and customers often determines the accuracy of data collection when selecting the most suitable method of care (Fallow field, Jenkins, Farewell, Saul, Duffy, & Eves, 2002; Donabedian, 1988). Friendliness is described as an interpersonally close interaction in which trust or mutual liking exists (Koerner, 2000).

2.5.2 Environment Quality

The environment is described as the complex mix of environmental features that form consumer service perceptions (Bitner 1992, Gotlieb, Grewal et al. 1994, Brady and Cronin 2001). The customer's overall perceptions of service quality can be affected by the surrounding tangible physical environment (Bitner 1992). Kucukusta and Denizci Guillet(2014) found that a spa customer's preference is to know that a full range of physical spa facilities exist. This is an important attribute that customers consider before making a spa booking (Kucukusta and Denizci Guillet 2014). In addition, the Dagger, Sweeney et al. (2007) study in healthcare supports the view that service quality perceptions are driven by the environment quality primary dimension. Based on that work, atmosphere and tangibles were determined to be the potential elements or sub-dimensions underlying the perceptions of environment quality among the healthcare sector's customers. Atmosphere refers to the intangible background features of the service environment (e.g., temperature, scent, and music) (Bitner 1992, Babin, Hardesty et al. 2003) whereas tangibles refers to the physical elements of the service environment such as the function, design, layout of the environment, style, colour, and room lighting that occurs at the forefront of awareness (Baker, 1986, as cited in Dagger, Sweeney et al., 2007; Baraban & Durocher, 2010; Bitner, 1992; Mamalis, Ness, & Bourlakis, 2005).

2.5.3 Administrative Quality

Administrative systems provide value-added services and facilitate a core service production (Grönroos 1990, McDougall and Levesque 1995, Lovelock, Walker et al. 2001). Facilitating services are important to the production and consumption of the core service (Grönroos 1990, Lovelock,

Walker et al. 2001). Based on Dagger, Sweeney et al. (2007)' studies in healthcare, administrative quality consists of three sub-dimensions: timeliness, operation, and support. For this study, three sub-dimensions were chosen: timeliness, operation, and programme variety. Timeliness refers to the factors related to minimizing waiting times in a spa (Grewal, Baker et al. 2003), organizing appointment waiting lists, and the ease of changing appointments (Frost 2004). Operation facilitates the production of the core service through the overall administration of the clinic (Meterko, Nelson et al. 1990) and the organization, documentation, coordination, and integrative of spa treatments (Fanuzzi 2015). Programme variety refers to a variety of treatments that are suitable for individual needs (Abdullah, 2006; Lo et al., 2013).

2.5.4 Technical Quality

Technical quality encompasses the technical competence and knowledge of a service provider (Ware, Snyder et al. 1983), the outcome achieved (Grönroos 1984, McDougall and Levesque 1995), or what customers receive in the service encounter (Donabedian 1988). More specifically, Donabedian (1988) identified that in terms of healthcare, technical quality is judged by the level to which achievable health enhancements can be expected to be attained. There is consensus in the literature that technical quality, or outcome quality has a positive influence on customers' overall perceptions of service quality (Brady and Cronin 2001, Dagger, Sweeney et al. 2007, Caro and García 2008, Clemes, Wu et al. 2009, Pollack 2009). Expertise and outcome were found to be the important sub-dimensions influencing customers' assessments of service quality in studies by Crosby, Evans, and Cowles, 1990, and Dagger, Sweeney et al., 2007. Expertise refers to a competence and knowledge of a service provider while outcome refers to what a consumer receives as a result of the interaction between a customer and a service firm, or the outcome of the service process (Grönroos, 1984, Dagger, Sweeney, et al., 2007).

2.6 The Relationships between the Five Higher-Order Constructs

The higher-order relationships of the comprehensive hierarchical model developed for this current study provides a theoretical framework for examining the interrelationships that may exist between the five higher-order constructs: service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions. The relevant literature regarding these higher-order constructs and their interrelationships is presented in the following sub-sections.

2.6.1 Behavioural Intentions

Behavioural intentions are a customer's response to a service encounter (Zeithaml, Berry et al. 1996). The concept of behavioural intentions reflects people's beliefs about what they intend to do in certain situations (Ajzen and Fishbein 1980). Behavioural intentions are verbal indications based on an individual's intention (James, 2007, as cited in Wu, 2009). In particular, Zeithaml et al. (1996) note that behavioural intentions are indicators which decide whether a customer will retain a firm or defect from that firm. Favourable behavioural intentions include several elements: (1) saying positive things about the firm (Boulding, Kalar et al. 1993); (2) recommending the service to other customers (Reichheld and Sasser 1990, Parasuraman, Berry et al. 1991); (3) spending more with the firm (Lin and Hsieh 2007); (4) expressing loyalty to the firm (Rust and Zahorik 1993); and (5) paying price premiums (Lin and Hsieh 2007). Interestingly, certain behaviours signal that customers are bonding with the firm.

Ajzen and Fishbein (1980) report that when behavioural intentions are appropriately measured, behavioural intentions can principally predict the actual customer behaviour. Assessing the factors or constructs that influence behavioural intentions, and an understanding of the procedures on how to treat behavioural intentions in spas, are beneficial to competitive strategic planning (González, Comesaña & Brea, 2007). Kim et al. (2010) recommend that the issue of behavioural intentions in the spa industry should be further investigated. González and Brea(2005) and Dagger, Sweeney et al. (2007) note that behavioural intentions are influenced by service quality and customer satisfaction. González and Brea(2005) recommend that future investigations should examine the effects of perceived value on behavioural intentions in order to eventually increase behavioural intentions in the spa industry. Other studies suggest that behavioural intentions are influenced by four constructs: service quality (González and Brea 2005, Dagger, Sweeney et al. 2007, Wu 2009, Lai 2015), customer satisfaction (González and Brea 2005, Dagger, Sweeney et al. 2007, Lai 2015), perceived value (González, Comesaña et al. 2007, Lai and Chen 2011, Clemen, Shu et al. 2014), and perceived switching costs (Chou and Lu 2009, Jen, Tu et al. 2011, Clemen, Shu et al. 2014). The following subsections discuss in detail the antecedent factors influencing behavioural intentions, including service quality, customer satisfaction, perceived value, and perceived switching costs.

2.6.1.1 The Relationship between Service Quality and Behavioural Intentions

Service quality has been identified as having a significant positive impact on behavioural intentions (González, Comesaña et al. 2007, Clemen, Gan et al. 2010, Kyle, Theodorakis et al. 2010, Jen, Tu et al. 2011, Lai and Chen 2011). González and Brea(2005)point out that high levels of service quality increase behavioural intentions in the spa industry. Several studies have reported both the direct

and indirect effects of service quality on behavioural intentions (González and Brea 2005, Theodorakis, Alexandris et al. 2013, Tzetzis, Alexandris et al. 2014).

More specifically, in the spa industry context, González and Brea(2005) report that service quality has an indirect effect on behavioural intentions through customer satisfaction. Customer satisfaction can also play a mediator role in the relationship between service quality and behavioural intentions. For example, González and Brea(2005) examined the mediating role of customer satisfaction on the link between service quality and behavioural intentions. Their finding reveals that customer satisfaction has a significant positive partial mediating impact on the relationship between service quality and behavioural intentions. Similarly, Theodorakis et al. (2013) studied the role of service quality and customer satisfaction on behavioural intentions, in the context of professional football in Greece. The results show that customer satisfaction partially mediated the relationship between service quality and spectators' behavioural intentions. Lee, Graefe and Burns(2004)explored the interrelationships between service quality and customer satisfaction, and their influence on behavioural intentions among forest visitors. The finding reveals that customer satisfaction has a partial mediating role between service quality and behavioural intentions. Moreover, Chanoi's (2014) study on beach resort hotels in Thailand found that the relationship between service quality and behavioural intentions is fully mediated by customer satisfaction.

2.6.1.2 The Relationship between Perceived Value and Behavioural Intentions

According to Zeithaml's (1988) study on the basic framework of the perceived value model, perceived value has a positive impact on consumers' purchase intentions. Subsequent studies by marketing academics have also provided empirical evidence that supports the relationship between perceived value and behavioural intentions (Jen et al., 2011; Lertwannawit & Gulid, 2011; Lai &Chen, 2011). For example, Lai and Chen (2011) explored the impact of service quality, perceived value, customer satisfaction, and involvement, on passenger behavioural intentions on the public transit system in Taiwan. The research findings suggest that providing passenger-value-oriented quality services is crucial for public transit companies if they are to satisfy their passengers and thus increase re-patronage/word-of-mouth behaviour, and consequently behavioural intentions. Likewise, Lertwannawit and Gulid (2011) tested the relationships between service quality, value, satisfaction, and brand trust, on the behavioural loyalty of international tourists who were also medical tourists, towards private hospital medical services in the Bangkok Metropolitan area. The findings of their study indicate that perceived value has a direct impact on medical tourists' behavioral loyalty. However, Lai and Chen's (2011) results indicate that perceived value has both direct and indirect effects on behavioural intentions. Additionally, several studies have found that

the relationship between customer-perceived value and customer loyalty is mediated by customer satisfaction (Chitty, Ward et al. 2007, Howat and Assaker 2013). For example, Howat and Assaker (2013) examined a comprehensive model of perceived quality on loyalty in the context of public aquatic centres in Australia. Their results report that overall satisfaction has a full mediating effect on the relationship between perceived value and customer loyalty.

2.6.1.3 The Relationship between Perceived Switching Costs and Behavioural Intentions

Current studies show that switching costs are factors that make it difficult for a customer to switch service providers. In addition, Kim & Yoon, (2004) report that switching costs may drive engagement and they can lead to customer retention. Likewise, Deng, Lu, Wei and Zhang(2010) suggest that higher switching costs tend to drive more consumers to stay with their current provider, However, these consumers encourage other consumers to use the provider's services only if they are satisfied. The authors found empirical support for a positive significant effect of high perceived switching costs on customer loyalty in mobile instant messages in China. Chou and Lu (2009) empirically examined the relationships between service quality, switching costs and customer loyalty in home-delivery services in Taiwan. The findings of their study indicate that switching costs have a positive effect on customer loyalty.

2.6.1.4 The Relationship between Customer Satisfaction and Behavioural Intentions

Researchers generally agree that satisfied customers are more likely to have a higher consumption level of the product or service (Bolton and Lemon 1999), a stronger level of repurchase intentions, and a greater level of willingness to recommend the products or services to their friends and associates, than dissatisfied customers (Zeithaml, Berry et al. 1996, Aydin and Özer 2005).

Numerous marketing studies accept that customer satisfaction is an important predictor of behavioural intentions (Cronin, Brady et al. 2000, Žabkar, Brenčič et al. 2010, Chen, Lee et al. 2011, Lertwannawit and Gulid 2011, Jalilvand, Pool et al. 2014). More specifically, González and Brea(2005) empirically demonstrate that customer satisfaction has a positive and significant influence on the behavioural intentions of customers in Spanish health spas.

2.6.2 Customer Satisfaction

Churchill and Surprenant(1982) define customer satisfaction as *“an outcome of purchase and use resulting from the buyer's comparison of the rewards and costs of the purchase in relation to the anticipated consequence”*. Rust and Oliver (1994)define customer satisfaction as *“a summary*

cognitive and affective reaction to a service incident” that results from the comparison between customers’ perceptions of service quality and the expectations of service performance.

Wang, Lo and Yang (2004) state that there are at least two different conceptualizations of customer satisfaction in the service marketing literature: a transaction-specific perspective and a cumulative perspective. The transaction-specific perspective defines that customer satisfaction is viewed as a post-choice evaluative judgment of a specific purchase occasion (Oliver 1977, Oliver 1993) whereas the cumulative perspective states that customer satisfaction is an evaluation based on the overall purchase and consumption experiences with a product or service over time (Anderson, Fornell et al. 1994, Fornell, Johnson et al. 1996).

Customer satisfaction has been recognised as an important success construct of business competition for service organizations to such a degree, that service providers are willing to pay more attention to the construct. Thus, customer satisfaction needs more extensive in-depth studies in order to help businesses increase their level of customer satisfaction (Brady & Cronin, 2001; Wang et al., 2004; González and Brea, 2005; González, Comesaña and Brea, 2007; Howat and Assaker, 2013; Jalilvand et al., 2014, Lai, 2015). A high level of customer satisfaction improves the probability of increasing customers’ behavioural intentions such as: (1) increasing positive word-of-mouth communication; (2) creating repeat purchases; and (3) decreasing the level of customer price sensitivity (González, Comesaña et al. 2007, Lertwannawit and Gulid 2011, Liang and Zhang 2012). In addition, a high level of customer satisfaction also leads to: (1) a reduction in costs due to failed marketing campaigns; (2) a reduction in new-customer creation and operating costs; and (3) an improvement in the effectiveness of advertising and business reputation (Fornell 1992).

2.6.2..1 The Relationship between Customer Satisfaction and Service Quality

Customer satisfaction and service quality are highly interrelated due to the similarity in the meanings of these two constructs (Cronin, Brady & Hult, 2000; Spreng & Mackoy, 1996). However, Cronin and Taylor (1992) suggested that there was confusion with respect to the causal relationship between customer satisfaction and service quality. Some scholars suggested that a high level of customer satisfaction leads to a high level of perceived service quality (Bolton and Drew, 1991; Bitner, 1990), while the more accepted alternative view suggests that a high level of perceived service quality leads to a high level of customer satisfaction (Clemes et al., 2007; Fornell et al., 1996; Parasuraman et al., 1994; Cronin and Taylor, 1992).

In the literature concerning the spa industry, González et al. (2007) demonstrate the importance of service quality on customer satisfaction as well as on behavioural intentions, and the authors also

demonstrate a significant causal relationship between service quality and satisfaction. The authors also point out that a high level of service quality in the spa resort industry, leads to a high level of customer satisfaction, which leads to favourable behavioural intentions. Similarly, Dagger, Sweeney et al. (2007) developed a hierarchical model to reflect service quality perceptions in the health care industry and found that health service quality has been identified as an important determinant of patient satisfaction and behavioural intentions. The authors also suggest that a high level of customer satisfaction results from a high level of perceived service quality.

2.6.3 Perceived Value

Zeithaml (1988) defined customer perceived value as *“the customer’s overall assessment of the utility of a product based on perceptions of what is received and what is given”*. Dodds, Monroe and Grewal(1991) conceptualised customer perceptions of value as the cognitive trade-offs between perceived quality and perceived psychological benefits, as well as monetary sacrifice. Woodruff (1997) defined customer perceived value as *“a customer’s perceived preference for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer’s goals and purposes in use situations”*. In addition, customer-perceived value should be assessed through the perceived quality, utilities, and the costs (money, effort, time) incurred by customers (Wang, Lo et al. 2004). Accordingly, perceived value is determined by perceived benefits and perceived costs. Perceived benefits and perceived costs together are a major antecedent to perceived value. The evaluation of perceived value results from consumers cognitively integrating their views of perceived costs with perceived benefits. Consequently, increasing perceived benefits and/or reducing perceived costs can be used to improve customers’ perceived value (Wang, Lo et al. 2004).

Parasuraman(1997) identified perceived value as one of the most important constructs for a firm striving to develop competitive strategies. Accordingly, perceived value is seen as a construct that carries important information for the service organization when designing competitive strategies. Thus, in the spa industry González et al. (2007) recommend that more attention should be paid to the perceived value construct.

2.6.3..1 The Relationship between Perceived Value and Service Quality

Several marketing academics indicate that perceived value is positively influenced by perceived quality(Cronin, Brady et al. 2000, Hu, Kandampully et al. 2009, Howat and Assaker 2013). Ostrom and Iacobucci(1995) report that factors involving price, level of quality, friendliness of service personnel, and the degree of customization of the service, contribute to customer perceived value.

Andreassen and Lindestad(1998) point out that the quality transaction-specific attributes, as well as the quality and the price of the service, are considered during an assessment of service value. The quality-related factors may be assumed to represent most of the positive-benefit drivers of customer value. Customers who have received superior service quality will be led ultimately to a higher perceived value assessment (Hu, Kandampully et al. 2009).

2.6.3..2 The Relationship between Perceived Value and Customer Satisfaction

According to McDougall and Levesque(2000), the link between perceived value and customer satisfaction and future intentions has been debated in the services marketing literature. Empirical evidence from prior studies indicates that customer perceived value is one of the determinants of customer satisfaction, which in turn, leads to future intentions (Fornell, Johnson et al. 1996, Cronin, Brady et al. 2000, McDougall and Levesque 2000, Chen and Chen 2010, Lai and Chen 2011, Forgas-Coll, Palau-Saumell et al. 2012). In addition, customers are likely to consider whether or not they received "value for money" in order to make the decision to return to the service provider (McDougall and Levesque 2000). For example, Cronin et al. (2000) reveal that perceived value positively affects customer satisfaction in different service industries (e.g. health care, spectator sports, and entertainment). Moreover, Forgas-Coll et al. (2012) show that the value perceived by a tourist with regard to an urban tourism destination directly and positively affects his/her satisfaction. Similarly, Howat and Assaker (2013) also report that empirical evidence supports the contention that customer satisfaction is positively influenced by perceived value in the sport and leisure context. Likewise, Jalilvand et al. (2014) also confirm that tourists' perceived value has a significant impact on their satisfaction in the sport tourist destination context.

2.6.4 Perceived Switching Costs

Porter (1998) defines switching costs as one-time costs facing the customer when switching from one service provider to another. Similarly, Yang and Peterson (2004) define switching costs as the costs incurred by customers when switching from their current provider to a new provider. Likewise, Jones, Mothersbaugh and Beatty(2002) define switching costs as the perceived economic and psychological costs related to changing from one alternative to another. Switching costs pertain to the psychological effort and time spent in facing the uncertainty/risk of dealing with a new service provider (Klemperer 1987, De Ruyter, Wetzels et al. 1998). Moreover, switching costs also involve the loss of financial, performance-related, social, psychological, and the safety-related features (nature), when switching service providers (Murray 1991). Hence, the costs can be measured in monetary terms, the psychological aspect costs of facing a new service provider, and the time and effort involved in using a new service or product (Kim, Kliger et al. 2003).

In addition, Burnham, Frels and Mahajan(2003) identify three types of switching costs: (1) procedural switching costs, primarily involving the loss of time and effort; (2) financial switching costs, involving the loss of financially quantifiable resources; and (3) relational switching costs, involving psychological or emotional discomfort due to the loss of identity and the breaking of bonds. Aydin and Özer(2005) note that procedural switching costs stem from the process of customers' making purchase decisions and their implementation of those decisions; while the economic or financial switching cost is a sunk cost which appears when the customer changes his/her brand; and psychological costs are perceived as the costs stemming from social bonds (staff-customer relationships) that appear over the course of time, and the uncertainty/risk of the unused brand.

Markets with switching costs are generally characterized by consumer lock-in, where it is observed that consumers repeatedly purchase the same brand even after competing brands become cheaper(Chou & Lu, 2009; Kim, Park, & Jeong, 2004). One important consequence of having consumer lock-in is the ability of firms to charge prices above marginal costs (Shy 2002). For this reason, switching costs can be a barrier that locks customers into service relationships.

2.6.4..1 The Relationship between Perceived Switching Costs and Service Quality

Kim, Park and Jeong (2004) describe switching costs as the perceived uncertainty/risk when customers change service providers. A peculiarity of service is that the service quality cannot be evaluated before actual purchase, so the high uncertainty/risk occurs when customers prefer a rival service provider (Sharma, Patterson et al. 1997). In general, if customers want to change service providers, they will compare the service quality of the new service provider with that of the previous service provider. Sharma and Patterson(2000) maintain that customers are more likely to perceive a high level of risk and uncertainty regarding a new service provider they have not previously used. Chou and Lu (2009) and Aydin and Özer (2005) argue that when the costs in switching to another service provider are high, customers may remain despite their perceived service quality dissatisfaction, because the costs of switching outweigh the benefits of switching. Meng and Elliott (2009) tested a framework for understanding the underlying relationships between perceived service quality, switching costs, and customer satisfaction with a service provider, and found that there is a significant and positive relationship between service quality and switching costs. Likewise, Konuk and Konuk (2013)examined the structural relationships between service quality, economic and switching costs, loyalty, and word-of-mouth intentions, in the Turkish retail bank industry. The authors' empirical study revealed that service quality has a positive effect on economic and

switching costs, and that these costs have positive effects on both loyalty and word-of-mouth intentions.

2.7 Applying a Comprehensive Hierarchical Model

The first hierarchical model (multi-level model) that measured first and second order constructs and the relationship between several higher order constructs (service quality, customer satisfaction, perceived value, perceived switching cost and behavioural intentions) using the responses from a single sample was developed by Clemes et al. (2007). Multiple regression was used to analyse and depict this multi-level model. Studies have now used the multi-level model to conceptualise service quality and test the interrelationships between the higher order constructs in health services. For example, Dagger, Sweeney et al. (2007) introduced a comprehensive hierarchical model for the health care sector using Structural Equation Modelling (SEM). SEM enables researchers to simultaneously test the interrelationships between the sub-dimensions, primary dimension and the higher-order constructs (Clemes et al., 2014). Researchers have since used comprehensive hierarchical modelling to conceptualise service quality and test the interrelationships between the higher-order constructs in various industries using SEM. For example, Pollack (2009) for phone service and hairdressing services, Kyle et al. (2010) for ski resorts, Akter et al. (2010) for mobile health services, and Clemes, Brush, et al. (2011) for professional sport. However, several important service marketing constructs such as customer perceived value, corporate image and switching costs have not been included in the models of the aforementioned studies. Recently, Clemes et al. (2014) has applied comprehensive hierarchical modelling to conceptualise and test the interrelationship between the higher-order constructs for mobile phone service providers. In the Clemes et al. (2014) study, several important service marketing constructs such as customer perceived value, perceived value, and perceived switching costs have been included in the model in order to more comprehensively investigate the interrelationship between these constructs. Nevertheless, authors did not analyse the mediating impacts between the constructs.

To date, comprehensive hierarchical modelling has not been applied to health services such as day spas. Therefore, this current study aims to fill this research gap by applying a comprehensive hierarchical model to conceptualise service quality and test the interrelationships between the higher-order constructs in day spas. Furthermore, this study has included four constructs relating to service quality: customer satisfaction, perceived value, perceived switching costs and behavioural intentions. This study also tests the mediating impact of customer satisfaction on the relationship between service quality and behavioural intentions, and on the relationship between customer perceived value and behavioural intentions, in a comprehensive hierarchical modelling framework.

Chapter 3

Conceptual Research Model and Hypotheses Development

3.1 Introduction

Chapter 3 outlines the development of the conceptual research model that is used in this study. The main purpose of the current research is to examine the potential interrelationships that exist among the five higher-order constructs: service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions. This chapter consists of six sections. Section 3.2 discusses the model development. Section 3.3 discusses the hypotheses relating to Research Objective 1. Section 3.4 discusses the hypotheses relating to Research Objective 2. Section 3.5 discusses the hypotheses relating to Research Objective 3, and Section 3.6 discusses the hypotheses relating to Research Objective 4.

3.2 Model Development

This study uses a comprehensive hierarchical model to analyse the sub-dimensions and primary dimensions of service quality and the interrelationships between the five high-order marketing constructs (service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions) based on the perceptions of Thai day spa customers in the Chiang Mai and Khon Kaen provinces, and Bangkok City, Thailand. Comprehensive hierarchical modelling allows both the service quality measurement model and the interrelationships between the five higher-order marketing constructs to be empirically examined using the perceptions from a single sample (Clemes, Shu et al. 2014). Analysing the behavioural intentions (and its antecedents) of Thai spa customers using a comprehensive modelling framework answers the call for industry-specific and cultural measures (Brady and Cronin 2001, Clemes, Cohen et al. 2013). The comprehensive hierarchical model used in this study (see Figure 3.1) is based on the framework introduced by Clemes, Gan et al. (2007), Dagger, Sweeney et al. (2007), Clemes, Brush et al. (2011), and Clemes, Shu et al. (2014).

The conceptual research model illustrates that day spa customers evaluate spa service quality at three ordered and hierarchical levels: a sub-dimensional level, a primary dimensional level and an overall level (Brady and Cronin 2001). The sub-dimensional level consists of multiple sub-dimensions that may vary across industries but pertain to each of the service quality primary dimensions (Brady and Cronin 2001, Dagger, Sweeney et al. 2007, Clemes, Shu et al. 2014). The primary dimensional

level consists of four primary dimensions as conceptualized by Dagger, Sweeney et al. (2007): interpersonal quality, environment quality, administrative quality, and technical quality. These four primary dimensions are combined to reflect customers' overall service quality perceptions (Dagger, Sweeney et al. 2007).

The conceptual research model also illustrates the potential interrelationships between service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions. Specifically, customers' perceptions of service quality are expected to have a positive effect on customer satisfaction, perceived value, perceived switching costs, and behavioural intentions. Perceived value is expected to have a positive effect on customer satisfaction and behavioural intentions. Perceived switching costs is expected to have a positive effect on behavioural intentions. Customer satisfaction is expected to have a positive effect on behavioural intentions. Further, customer satisfaction is also expected to function as a mediator between service quality and behavioural intentions, and between perceived value and behavioural intentions.

3.3 Hypotheses Relating to Research Objective 1

Customers' perceptions of service quality are proposed to positively impact customer behavioural intentions (González, Comesaña et al. 2007, Clemen, Gan et al. 2010, Kyle, Theodorakis et al. 2010, Jen, Tu et al. 2011, Lai and Chen 2011). Jen, Tu et al. (2011), Clemen, Cohen et al. (2013), and Clemen, Shu et al. (2014) found that service quality positively influence perceived value. In addition, González, Comesaña et al. (2007), Kyle, Theodorakis et al. (2010), Chen, Lee et al. (2011), Clemen, Brush et al. (2011), Jen, Tu et al. (2011), and Clemen, Cohen et al. (2013) indicate that service quality positively affects customer satisfaction. Furthermore, Aydin and Özer (2005) and Chou and Lu (2009) found that perceived switching costs has a mediated effect between constructs. Therefore, the relationships between service quality and behavioural intentions; service quality and perceived value; service quality and customer satisfaction; and service quality and perceived switching costs in a Thai day spa context were examined and the following hypotheses (H1 to H4) were formulated :

H1: Higher perceptions of service quality positively affect behavioural intentions.

H2: Higher perceptions of service quality positively affect perceived value.

H3: Higher perceptions of service quality positively affect customer satisfaction.

H4: Higher perceptions of service quality positively affect perceived switching costs.

Recent empirical studies have investigated the direct impact of customer perceived value on customer satisfaction (Chitty, Ward et al. 2007, Chen 2008, Chen and Chen 2010, Jen, Tu et al. 2011, Lai and Chen 2011, Ryu, Lee et al. 2012, Choi, Kim et al. 2015). In addition, Lai and Chen (2011) and Choi, Kim et al. (2015) found that customer perceived value positively influence behavioural intentions. Therefore, the relationship between customer perceived value and customer satisfaction; customer perceived value and behavioural intentions in Thai day spa context were examined and the following hypotheses (H5, H6) were formulated:

H5: Higher customer perceived value positively affects customer satisfaction.

H6: Higher customer perceived value positively affects behavioural intentions.

Perceived switching costs are proposed to have a positive influence on behavioural intentions (Lam, Shankar et al. 2004, Aydin and Özer 2005, Ibáñez, Hartmann et al. 2006, Chou and Lu 2009, Deng, Lu et al. 2010, Jen, Tu et al. 2011, Liu, Guo et al. 2011). Therefore, the relationship between perceived switching costs and behavioural intentions in Thai day spa context was examined and the hypothesis 7 was formulated:

H7: Higher perceived switching costs positively affect behavioural intentions.

Recent studies indicate that customer satisfaction positively influences behavioural intentions (Chitty, Ward et al. 2007, Clemes, Wu et al. 2009, Chen and Chen 2010, Clemes, Brush et al. 2011, Jen, Tu et al. 2011, Lai and Chen 2011, Lertwannawit and Gulid 2011, Siddiqi 2011, Liang and Zhang 2012, Clemes, Cohen et al. 2013, Choi, Kim et al. 2015). Therefore, the relationship between customer satisfaction and behavioural intentions in Thai day spa context was examined and the hypothesis 8 was formulated:

H8: Higher customer satisfaction positively affects behavioural intentions.

Although several studies confirm that service quality directly impacts on behavioural intentions (Cronin, Brady et al. 2000, Clemes, Wu et al. 2009, Lai and Chen 2011). Olorunniwo, Hsu et al. (2006) and Lertwannawit and Gulid (2011) found that customer satisfaction functions as a mediating variable of the service quality and behavioural intentions relationship, and that customer satisfaction has a strengthens the relationship between service quality and behavioral intentions. In addition, Chitty, Ward et al. (2007) indicate that customer satisfaction functions also as a mediator between perceived value and behavioral intentions. Therefore, the mediating role of customer satisfaction in the Thai day spa context was examined and the following hypotheses (H9, H10) were formulated:

H9: Customer satisfaction mediates the relationship between service quality and behavioural intentions.

H10: Customer satisfaction mediates the relationship between perceived value and behavioural intentions.

3.4 Hypotheses Relating to Research Objective 2

Most service marketing academics agree that service quality is a multidimensional, higher-order construct (Brady and Cronin 2001, Clemes, Cohen et al. 2013). In healthcare service quality, Dagger, Sweeney et al. (2007) also note that customers evaluate service quality at the overall level, at the dimensional level, and at the sub-dimensional level, and that each level drives perceptions at the level above. Dagger, Sweeney et al. (2007) have identified and empirically validated four primary dimensions that affect overall health service quality: interpersonal quality, environment quality, administrative quality, and technical quality. However, the exact primary dimensional structure needs to be determined and confirmed for each research setting (Parasuraman, Zeithaml et al. 1985, Cronin and Taylor 1994, Brady and Cronin 2001).

Moreover, the sub-dimensional structures of service quality tend to be culturally sensitive and normally vary across industries (Brady and Cronin 2001, Clemes, Gan et al. 2007). Therefore, the service quality sub-dimensions need to be determined for each cultural and industry setting (Cronin and Taylor 1994, Dabholkar, Thorpe et al. 1996, Brady and Cronin 2001, Aigbedo and Parameswaran 2004, Clemes, Shu et al. 2014). Following these recommendations, the proposed primary dimensions and sub-dimensions of the interpersonal quality, environment quality, administrative quality, and technical quality primary dimensions were identified through the literature review and then the focus group discussions, specifically for day spas in Thailand.

3.4.1 Interpersonal Quality

Interpersonal quality is described as the quality of the relationship developed and the dyadic interaction that occurs between a service provider and a customer (Grönroos 1984, Rust and Oliver 1994, Brady and Cronin 2001). The interpersonal process is a vitally important element to customers' resulting perceptions of the service provider's performance, through the service delivery system (Dagger, Sweeney et al. 2007). Based on the existing literature, the information obtained from the focus group discussions, and the Exploratory Factor Analysis (EFA), two sub-dimensions are proposed to have a significant positive effect on the interpersonal quality primary dimension: communication skills (Cristobal, Flavián et al. 2007, Tsai, Suh et al. 2012, Zarei, Arab et al. 2013), and

friendliness (Parasuraman, Zeithaml et al. 1985, Chan and Wong 2006, Rauch, Collins et al. 2015).

Therefore, the following hypothesis 11 was formulated:

H11: There is a significant, positive relationship between the sub-dimensions of interpersonal quality (H11a, H11b) and the interpersonal quality primary dimension.

3.4.2 Environment Quality

Customers' overall perceptions of service quality can be affected by the surrounding tangible physical environment (Bitner 1992). Several studies have found that the physical environment is a vital aspect of service quality evaluations (Brady and Cronin 2001, Clemes, Gan et al. 2007, Dagger, Sweeney et al. 2007, Clemes, Brush et al. 2011). Based on the existing literature, the information obtained from the focus group discussions, and the EFA, two sub-dimensions are proposed to have a significant positive effect on the environment quality primary dimension resulting from the literature review and the focus group discussions: atmosphere (Sulek and Hensley 2004, Dagger, Sweeney et al. 2007, Chiu and Ko 2010, Chen, Yu et al. 2014) and tangibles (Parasuraman, Zeithaml et al. 1988, Bahia and Nantel 2000, Dagger, Sweeney et al. 2007, Chiu and Ko 2010, Chiu, Radzuwan et al. 2014, Lo, Wu et al. 2014). Therefore, Hypothesis 12 was formulated:

H12: There is a significant, positive relationship between the sub-dimensions of environment quality (H12a, H12b) and the environment quality primary dimension.

3.4.3 Administrative Quality

Administrative service elements facilitate the production of a core service while adding value to a customer's use of the service (Grönroos 1990, McDougall and Levesque 1995, Lovelock, Walker et al. 2001). Several academics illustrate that customers' perceptions of outcome quality have an impact on customers' overall perceptions of service quality (Brady and Cronin 2001, Dagger, Sweeney et al. 2007, Clemes, Shu et al. 2014). Based on the existing literature, the information obtained from the focus group discussions, and the EFA, three sub-dimensions are proposed to have a significant positive effect on the administrative quality primary dimension: timeliness (Iacobucci, Ostrom et al. 1995, Dagger, Sweeney et al. 2007, Bikker, Steenbeek et al. 2012), operation (Dagger, Sweeney et al. 2007, Chiu, Radzuwan et al. 2014, Urs, Harirao et al. 2014), and programme variety (Abdullah 2006, Lo, Qu et al. 2013, Swart 2014). Therefore, Hypothesis 13 was formulated:

H13: There is a significant, positive relationship between the sub-dimensions of administrative quality (H13a, H13b, H13c) and the administrative quality primary dimension.

3.4.4 Technical Quality

Technical quality encompasses the technical competence and knowledge of a service provider (Ware, Snyder et al. 1983), the outcome achieved (Grönroos 1984, McDougall and Levesque 1995), or what customers receive in the service encounter (Donabedian 1988). There is consensus in the literature that the technical, or outcome quality, of a service encounter influences customers' perceptions of service quality (Grönroos 1982, Grönroos 1984, Grönroos 1990, Rust and Oliver 1994). Thus, the literature review, focus group discussions and the EFA suggest that two sub-dimensions have a significant positive effect on the technical quality primary dimension: outcome (Dagger, Sweeney et al. 2007, Debata, Patnaik et al. 2015) and staff expertise (Dagger, Sweeney et al. 2007, Dabholkar 2015, Debata, Patnaik et al. 2015) Therefore, Hypothesis 14 was formulated:

H14: There is a significant positive relationship between the sub-dimensions of technical quality (H14a, H14b) and the technical quality primary dimension.

3.4.5 Overall Perceived Service Quality

Dagger, Sweeney et al. (2007) report that in the healthcare sector, perceived service quality comprises four primary dimensions: interpersonal quality, environment quality, administrative quality, and technical quality. Customers evaluate their overall perceptions of service quality by assessing each of the primary dimensions of service quality (Brady and Cronin 2001). Therefore, this current study proposes that customers aggregate their perceptions of the interpersonal, environment, administrative and technical quality primary dimensions, to form their overall service quality perceptions. As identified in Brady and Cronin's (2001) study, the primary dimensions of service quality are hypothesised to have significant positive relationships with customers' overall perceptions of service quality. Therefore, the following hypotheses (H15, H16, H17, H18) were formulated to examine the positive impact of the interpersonal, environment, administrative, and technical qualities on the overall service quality perceptions of customers in the Thai day spa context.

H15: There is a significant, positive relationship between the interpersonal quality primary dimension and customers' overall perceptions of service quality.

H16: There is a significant, positive relationship between the environment quality primary dimension and customers' overall perceptions of service quality.

H17: There is a significant, positive relationship between the administrative quality primary dimension and customers' overall perceptions of service quality.

H18: There is a significant, positive relationship between the technical quality primary dimension and customers' overall perceptions of service quality.

3.5 Hypotheses relating to Research Objective 3

Several studies have examined customers' perceptions of service quality in the global spa industry (Snoj 2002, González, Comesaña et al. 2007, Hsieh, Lin et al. 2008, Kucukusta, Pang et al. 2013) However, the comparative importance of the service quality dimensions for Thai day spas has not been identified. Consequently, the following hypotheses (H19a, H19b) were formulated in order to rank the importance of the sub-dimensions and primary dimensions of service quality for Thai day spas:

H19a: Customers will vary in their perceptions of the importance of each of the sub-dimensions.

H19b: Customers will vary in their perceptions of the importance of each of the primary dimensions.

3.6 Hypotheses relating to Research Objective 4

Previous studies have identified the impact of demographic characteristics on service quality in a variety of sectors such as the airline, banking, education, hotel, and retail sectors (Stafford 1996, Siu and Tak-Hing Cheung 2001, Clemes, Gan et al. 2007, Kao 2007, Clemes, Gan et al. 2008, Surovitskikh and Lubbe 2008, Wu 2009).

Also, previous studies reveal that demographic factors, such as gender, income, age, education, ethnic background, and purpose of travel, impact on customer satisfaction in the airline, education, tourism, and health care sectors (Oyewole 2001, Siu and Tak-Hing Cheung 2001, Levinson, Kao et al. 2005, Jose and Alfons 2007, Kao 2007, Clemes, Gan et al. 2008, Wu 2009).

A number of scholars have also shown the effects of demographic characteristics on perceived value in various service industries such as education, recreational sports, hotels, and tourism (Beerli and Martín 2004, Clemes, Gan et al. 2007, Snipes and Ingram 2007, Wu 2009, Wang 2012, Yang 2012).

Several researchers (Aydin and Özer 2005, Chou and Lu 2009) note that perceived switching costs have a positive effect on behavioural intentions. In addition, in order to improve the level of behavioural intentions and develop appropriate strategies for specific customer segments, researchers must identify the relationships between the demographic characteristics and perceived switching costs (Kotler and Singh 1981, Chou and Lu 2009).

Demographic factors are used in the marketing area as a basis for understanding customer characteristics and behaviour (Lewis 1981). Wu (2003) shows that behavioural processes can be affected by individuals' different environments, since they are applied on specific occasions. Moreover, Wu (2003) also shows that the background characteristics also influence behavioural processes. Similarly, Tan (2002) reports that behavioural intentions are greatly affected by demographic characteristics. In addition, Wu (2003) notes that some external influences on behavioural intentions are demographic, economic, social, situational, and technological factors.

However, to date no published study has investigated the impact of demographic characteristics on the five higher-order marketing constructs such as service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions in a Thai day spa context. Therefore, in order to identify whether the higher-order constructs of service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions are influenced by demographic characteristics in a Thai day spa, hypothesis 20 was developed:

H20: Customers' perceptions of service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions will vary with customer demographic characteristics (gender, age, length of time as a customer, type of customer, frequency of having a spa per month, and occupation).

Customers' perceptions of the dimensions of service quality are not stable across demographic characteristics (Shergill and Sun 2004, Clemes, Cohen et al. 2013). Some studies have investigated the impact of different demographic characteristics on customers' perceptions of the dimensions of service quality in service organisations, such as hotels and universities (Shergill and Sun 2004, Clemes, Cohen et al. 2013). Thus the following hypotheses (H21, H22) were formulated:

H21: Customers' perceptions of the primary dimensions of service quality will differ based on customer demographic characteristics (gender, age, length of time as a customer, type of customer, frequency of having a spa per month, and occupation).

H22: Customers' perceptions of the sub-dimensions of service quality will differ based on customer demographic characteristics (gender, age, length of time as a customer, type of customer, frequency of having a spa per month, and occupation).

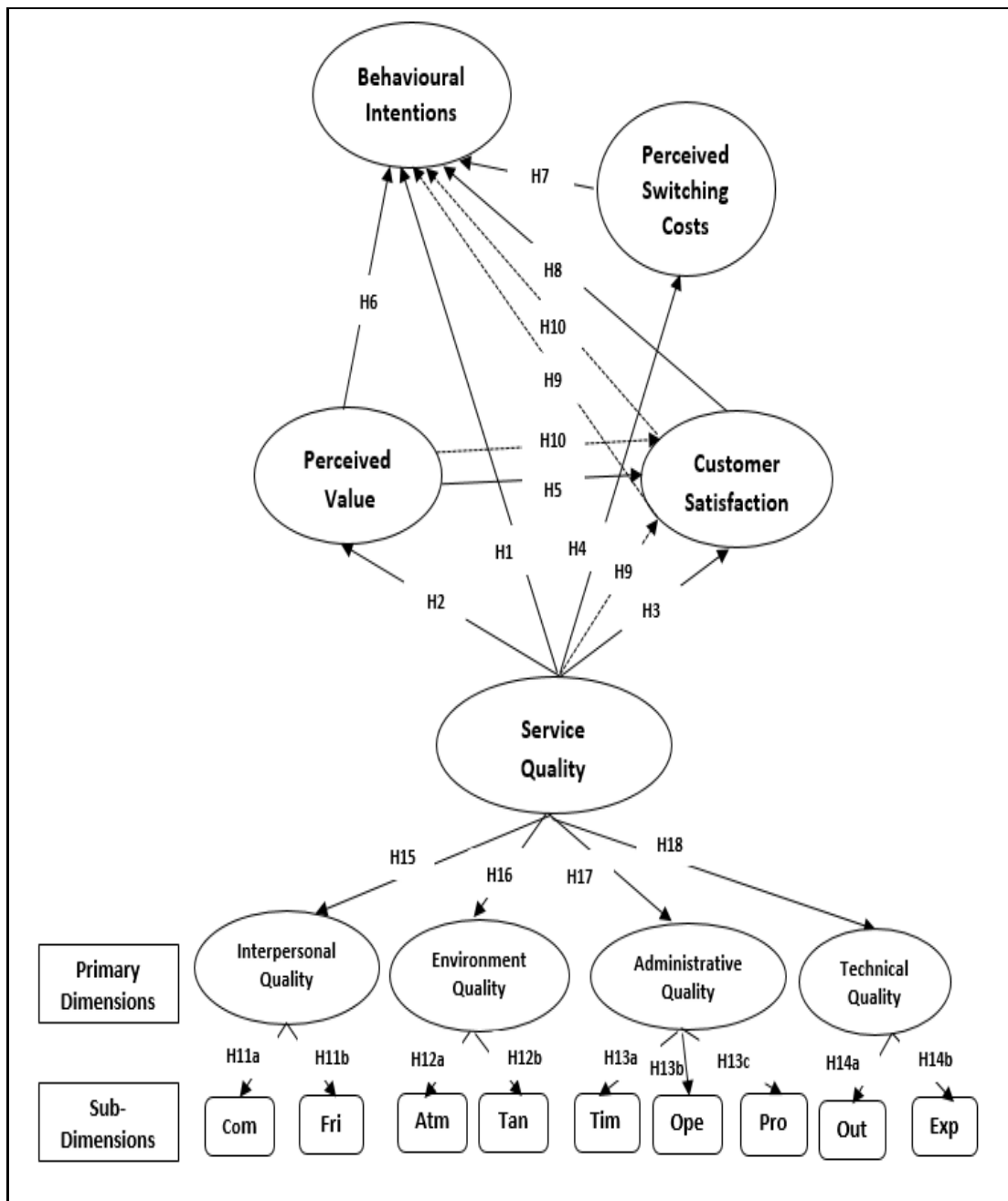


Figure 3.1 Proposed Research Model and Hypotheses for Day Spas in Thailand

Com = Communication skills, **Fri** = Friendliness, **Atm** = Atmosphere, **Tan** = Tangibles, **Tim** = Timeliness, **Ope** = Operation, **Pro** = Programme variety, **Out** = Outcome, **Exp** = Staff expertise.

Note: Hypotheses 19a, 19b, 20, 21, and 22 are not included in the conceptual model.

Chapter 4

Research Methodology

4.1 Introduction

Chapter 4 outlines the research design and methodology used to examine the conceptual research model and test the research hypotheses (discussed in Chapter 3) to satisfy the four research objectives (as stated in Section 1.4). This chapter consists of five main sections. Section 4.2 discusses the research design and justifies using a quantitative approach to analyse the data. Section 4.3 discusses the questionnaire design. Section 4.4 discusses the sample derivation, sample size, sampling procedure and data collection procedures. Section 4.5 discusses the statistical methods used to analyse the data set. In the following sections each step is discussed in detail.

4.2 Research Design

A research design provides an operational plan for the collection and analysis of data, which in turn will satisfy the research objectives of the study (Bryman and Bell 2011). In this research, a quantitative approach is used regarding the research objectives, hypotheses, and model developed in Chapter 3. A quantitative approach enables researchers to establish statistical evidence on the strength of the interrelationships existing between variables, to test hypotheses, and to determine the validity and reliability of variable measurements (Malhotra 2010, Zikmund, Babin et al. 2010). In addition, several recent studies have presented strong evidence of the suitability of using a quantitative method in hospitality research settings (Bowen and Shoemaker 2003, Back 2005, Chitty, Ward et al. 2007, Han, Kwortnik et al. 2008).

This study employed a survey-based method, specifically a self-administered questionnaire, for gathering the data. Such a self-administered questionnaire is the most common method of data collection among hospitality and tourism researchers (Altinay and Paraskevas 2008). There are several advantages in using a questionnaire: (1) it is a systematic approach to collecting information from a large sample size; (2) it is low cost; (3) it saves time as it is directly administered to the target population; (4) it allows respondents to complete it without any direct assistance or intervention from the researcher; and (5) it allows for more truthful responses due to its anonymous nature (Cargan 2007, Burns and Bush 2008).

4.3 Survey Instrument Development

Development of the questionnaire is an important stage for doing well-conducted research (Zikmund, Babin et al. 2012). For this study, the questionnaire was developed in multiple steps, including construct operationalization, questionnaire design, pre-testing the questionnaire to determine face validity, content validity and reliability, and design of the final draft layout (Aaker, Kumar et al. 2012, Zikmund, Babin et al. 2012). The details of the questionnaire development process are discussed in the following subsections.

4.3.1 Construct Operationalisation

The constructs and the measurement scale items were generated in two steps: an extensive literature review, and focus group discussions. The details of the process of construct operationalization are discussed in the following subsections.

4.3.1..1 Literature Review

Hair, Black et al. (2010) suggest that the literature can be used to operationalise the constructs in a questionnaire if the literature has provided a sufficient discussion on a certain topic. The adoption of reliable variable measurements in the literature supports the content validity of the questionnaire (Gentry and Kalliny 2008, Zikmund, Babin et al. 2012). Alternatively, if there is insufficient previous research on the topic, researchers will need to develop their own construct measurements (Hair, Black et al. 2010). All of the constructs examined in this research have been thoroughly specified and discussed in the literature. In particular, the scales for the dimensions of service quality, service quality, perceived value, customer satisfaction, perceived switching cost, and behavioural intentions were based on the review of the literature. Moreover, the dimensions of service quality and the service quality scale were developed using information obtained from focus group discussions. The following section discusses the focus group sessions in detail.

4.3.1..2 Focus Group Procedures

Hair, Bush et al. (2000) state that in marketing research, *“focus groups have been used widely for many years to reveal customers’ hidden needs, wants, attitudes, feelings, behaviours, perceptions, and motives regarding services, products, and practices”*. In addition, focus group discussions are frequently used in questionnaire design for attitude research, such as service quality evaluations (Greenbaum 1998).

With regard to the size of a focus group, Cooper and Schindler (2014) recommend that between six and ten respondents are acceptable for a focus group. If the group size is more than ten

respondents, then it will be too large, making it difficult to manage the session, whilst if the group size is less than six respondents, then the volume of diversity of opinion is restricted (Cooper and Schindler 2014). Hair, Black et al. (2010) recommend that the focus groups should be as homogeneous as possible in order to ensure that participants feel comfortable. Therefore, three focus groups were held once approval by the Lincoln University Human Ethics Committee (HEC) had been obtained. Based on Cooper and Schindler (2014) suggestions, this research established three focus group interviews with six participants, seven participants, and eight participants respectively. The three focus groups were conducted with Thai participants who had recently visited a day spa in Thailand and were eighteen years of age or older.

The researcher followed Hair, Black et al. (2000) suggestions to analyse the information gathered from the focus groups. Firstly, the main construct was explained to the focus group participants in the first group, at the start of each session. The participants were then asked to list all of the factors that they believe contribute to their perceptions of service quality as customers of day spas in Thailand. In addition, the participants were requested to extensively evaluate their overall service perceptions or experiences as recent customers of day spas. The participants were then asked to place the factors (sub-dimensions) that influence their perceptions of service quality, under the relevant primary dimensions of service quality; interpersonal quality, environment quality, administrative quality, and technical quality. Following this, the participants were asked to list all of the additional factors that had an impact on their perceptions of interpersonal quality, environment quality, administrative quality, and technical quality. Finally, the participants were requested to discuss and identify any factors that could not be placed under any of the four primary quality dimensions, in order to discover if any additional dimensions should be considered for inclusion in the conceptual research model. Secondly, the researcher used the information gathered from the first focus group as a learning experience and made an adjustment in organising the second focus group. Finally, the researcher also used the information gathered from the second focus group and made minor adjustments to assist with the information gathering during the third focus group.

The information generated in the three focus group discussions was recorded and transcribed. Afterwards, the information was summarized and categorised along with the findings derived from the literature review.

That information was used as the basis for developing the measurement items used in the questionnaire. In addition to assisting in the early stages of the questionnaire development, the focus group discussions provided valuable information for finalizing the research model. For example, Dagger, Sweeney et al. (2007) identify interaction and relationship as sub-dimensions of

interpersonal quality. However, in this current study, “interaction” was renamed “communication skills”, and “relationship” was renamed “friendliness”; the two sub-dimensions, communication skills and friendliness, were then considered as sub-dimensions of interpersonal quality. Moreover, Dagger, Sweeney et al. (2007) also identify timeliness, operation, and support as sub-dimensions of administrative quality, while outcome and expertise were identified as sub-dimensions of technical quality. However, for this study, “support” was renamed “programme variety”. Therefore, timeliness, operation, and programme variety were considered as sub-dimensions of administrative quality in this study. In addition, “expertise” was also renamed “staff expertise” Thus, outcome and staff expertise were considered as sub-dimensions of technical quality in this study. The literature review supported the findings and helped to identify the primary dimensions and sub-dimensions for the conceptual research model and to develop the measurement items used in the questionnaire.

4.3.1.3 Questionnaire Design

Survey questionnaires are generally of two types: open-ended and closed-ended. In open-ended questionnaires, respondents can create their own answers while closed-ended questionnaires are limited simple dichotomy questions, determinant choice questions, frequency-determination questions, checklist questions, rank-ordered responses or scale questions (Aaker, Kumar et al. 2012). Closed-ended items were chosen for this study.

The Likert scale is an instrument frequently used for measuring peoples’ attitudes or opinions and a survey using the Likert scale requires respondents to indicate their attitude towards the issue by rating it from strongly agree to strongly disagree, with the neutral point being neither agree nor disagree (Aaker, Kumar et al. 2012, Zikmund, Babin et al. 2012, Lawrence, Gamst et al. 2013). Schall (2003) states that when comparing four, five, and seven point scales, a seven-point anchored scale is the optimum size for hospitality industry questionnaires. A seven-point scale has equal numbers of positive and negative responses and with a neutral point, its usage is consistent with other studies in service quality (Dagger, Sweeney et al. 2007, Ha and Jang 2010, Clemes, Shu et al. 2014).

Accordingly, for this current study, a seven-point Likert scale was used in the questionnaire with [1] indicating “Strongly Disagree” to [7] indicating “Strongly Agree” and [4] indicating the “Neutral Point”.

4.3.1.4 Questionnaire Translation

The original questionnaire was developed in English. However, because this research was based in Thailand, the questionnaire needed to be in the Thai language. Hence, the questionnaire was translated into Thai by adopting the translation/back translation procedure as described by Brislin (1976). First, the questionnaire was translated into Thai by a professional native Thai fluent in

English. Another professional translator then translated the Thai version back to English. The Thai wording was revised to cater for the Thai culture, as well as to correctly reflect the wording and items used in the original version. Finally, the content validity was assessed by two service marketing experts and two spa entrepreneurs.

4.3.1.5 Pre-testing Procedures

Once translated, the questionnaire was pre-tested. A pre-test enables researchers to assess the face validity, content validity, reliability, the clarity of the scale, and the length of time required to complete the survey (Saunders, Lewis et al. 2007). Sarantakos (2005) notes that the pre-test is a small test of single elements of a research instrument, used predominantly for checking the “mechanical” structure of the instrument. To conduct an accurate pre-test, Ruane (2005) suggests that a researcher should administer the questionnaire to a small group of people who closely resemble the target research population. In view of Ruane’s (2005) recommendations, a pre-test was performed using a two-step process.

In the first step, the questionnaire drafts were distributed to a panel of two service marketing experts and two spa entrepreneurs in order to improve the face validity of the constructs. Based on their suggestions and comments, some minor modifications to the questionnaires were made. Next both the Thai and English questionnaires were presented to two Thai spa entrepreneurs to obtain feedback on the suitability of the questionnaire to correctly collect the data. The Thai spa entrepreneurs suggested some adjustments to the wording to make the Thai version more suitable in a day spa context. In the second step, field survey pre-testing was conducted by randomly distributing an invitation letter, with the questionnaire and a questionnaire feedback form attached, to 30 Thai customers of day spas who were eighteen years of age or older and who had recently experienced a Thai day spa. The participants were encouraged to freely make comments and suggestions on any questions that they thought were ambiguous or difficult to answer. Thirty usable questionnaires and feedback forms were returned. Once the pre-test was completed, minor modifications such as clarifying sentences and ensuring the use of appropriate words were made. Finally, the questionnaires were tested for the reliability of the constructs. The results indicated that all of the constructs were reliable, with Cronbach’s Alpha being above the recommended threshold of 0.7.

4.3.1.6 Layout of the Final Questionnaire

The final questionnaire (see Appendix 1) is divided into 6 sections. Sections A, B, C, and D contain the items of Interpersonal Quality, Environment Quality, Administrative Quality, and Technical Quality respectively (see Tables 4.1, 4.2, 4.3, and 4.4). The items are categorised under each of their relevant

primary dimensions and sub-dimensions. Section E contains the items that measure service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions (see Table 4.5). Section F deals primarily with demographic items (See Appendix 1). In addition, a formal cover letter was attached to each questionnaire in order to explain to the respondents the research background (see Appendix 1).

Section A comprises a total of 13 items for measuring the interpersonal quality dimension and includes two pertinent sub-dimensions. As shown in Table 4.1, there are eight items for measuring communication skills, three items for measuring friendliness, and two items for measuring customer overall perceptions of the interpersonal quality dimension.

Table 4.1 Instrument Items and Sub-dimensions for Measuring the Interpersonal Quality

| Construct Items | Item No. | Description |
|--|-----------------|---|
| Communication skills (8 Items) | Com1 | The staff in the spa always listen to what I have to say. |
| | Com2 | The spa's staff treat me as an individual and not just a number. |
| | Com3 | I feel the staff at the spa understand my needs. |
| | Com4 | The staff at the spa are concerned about my well-being. |
| | Com5 | I always get personalised attention from the staff at the spa. |
| | Com6 | I find it easy to discuss things with the staff at the spa. |
| | Com7 | The staff at the spa explain things in a way that I can understand. |
| | Com8 | The staff at the spa are willing to answer my questions. |
| Friendliness (3 Items) | Fri1 | The staff and I sometimes kid around, laugh, or joke with each other like close friends. |
| | Fri2 | The staff and I talk about the things that are happening in our lives, and not just about my spa service. |
| | Fri3 | I have built a close relationship with some of the staff at the spa. |
| Interpersonal Quality (2 Items) | IQ1 | The staff of the spa deliver superior services. |
| | IQ2 | Overall, the quality of the interaction with the staff of the spa is excellent. |

Section B comprises a total of 13 items for measuring the environment quality and includes two pertinent sub-dimensions. As shown in Table 4.2, there are five items for measuring atmosphere, six items for measuring tangibles, and two items for measuring customers' overall perceptions of environment quality.

Table 4.2 Instrument Items and Sub-dimensions for Measuring the Environment Quality

| Construct Items | Item No. | Description |
|--|--|--|
| Atmosphere (5 Items) | Atm1 Atm2 Atm3 Atm4 Atm5 | The atmosphere at the spa is pleasing. I like the “feel” of the atmosphere at the spa. The spa has an appealing atmosphere. The temperature at the spa is pleasant. The spa smells pleasant. |
| Tangibles (6 Items) | Tan1 Tan2 Tan3 Tan4 Tan5 Tan6 | The furniture at the spa is comfortable. I like the layout of the spa. The spa looks attractive. I like the interior decoration (e.g., style of furniture) at the spa. The colour scheme at the spa is attractive. The lighting at the spa is appropriate for this setting. |
| Environment Quality (2 Items) | EnQ1 EnQ2 | I feel comfortable with the environment of the spa. Overall, the quality of the environment is excellent. |

Section C comprises a total of 13 items for measuring the administrative quality and includes three pertinent sub-dimensions. As shown in Table 4.3, there are three items for measuring timeliness, five items for measuring operation, three items for measuring programme variety, and two items for measuring customers’ overall perceptions of administrative quality.

Table 4.3 Instrument Items and Sub-dimensions for Measuring the Administrative Quality

| Construct Items | Item No. | Description |
|---|--------------------------------------|--|
| Timeliness (3 Items) | Tim1 Tim2 Tim3 | The spa keeps waiting time to a minimum. Generally, appointments at the spa run on time. The processing time for spa services provides perfect time for customers. |
| Operation (5 Items) | Ope1 Ope2 Ope3 Ope4 Ope5 | The spa’s records and documentation are error free (e.g., billing). I believe the spa is well-managed. The registration procedures at the spa are efficient. The discharge procedures at the spa are efficient. The spa’s opening hours meet my needs. |
| Programme variety (3 Items) | Pro1 Pro2 Pro3 | The spa provides customers with an excellent range of treatment programme services. The spa provides customers with services beyond their expectations, improving their well-being. The spa provides customers with entertainment and professional programmes. |
| Administrative Quality (2 Items) | AdQ1 AdQ2 | I feel confident with the administration of the spa. Overall, the administration of the spa is excellent. |

Section D comprises a total of 10 items for measuring the technical quality and includes two pertinent sub-dimensions. As shown in Table 4.4, there are four items for measuring outcome, four items for measuring staff expertise, and two items for measuring customers' overall perceptions of technical quality.

Table 4.4 Instrument Items and Sub-dimensions for Measuring the Technical Quality

| Construct Items | Item No. | Description |
|--|-----------------|---|
| Outcome (4 Items) | Out1 | I feel energetic as a result of having spa services. |
| | Out2 | Coming to the spa has increased my chances of improving my health. |
| | Out3 | I believe my future health will improve as a result of attending the spa. |
| | Out4 | I believe having a spa in the spa resort industry has been worthwhile. |
| Staff Expertise (4 Items) | Exp1 | I can rely on the staff at the spa to be well trained and qualified. |
| | Exp2 | The staff at the spa carry out their tasks competently. |
| | Exp3 | I believe the staff at the spa are highly skilled at their jobs. |
| | Exp4 | I feel good about the quality of the care given to me at the spa. |
| Technical Quality (2 Items) | TeQ1 | I feel confident with the administration of the spa. |
| | TeQ2 | Overall, the administration of the spa is excellent. |

Section E comprises a total of 19 items for measuring customers' overall perceptions of service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions. As shown in Table 4.5, there are four items for measuring customers' overall perceptions of service quality, four items for measuring customer satisfaction, three items for measuring perceived value, three items for measuring perceived switching costs, and five items for measuring behavioural intentions.

Table 4.5 Instrument Items for Measuring Service Quality, Customer Satisfaction, Perceived Value, Perceived Switching Costs, and Behavioural intentions

| Construct Items | Item No. | Description |
|--|---------------------------------|--|
| Service Quality (4 Items) | SQ1 SQ2 SQ3 SQ4 | The overall quality of service provided by the spa is excellent. The service provided by the spa is impressive. The service provided by the spa is of a high standard. I believe the spa offers service that is superior in every way. |
| Customer Satisfaction (4 Items) | CS1 CS2 CS3 CS4 | My feelings towards the spa are very positive. I feel good about coming to this spa for my relaxation. Overall, I am satisfied with the spa and the service it provides. I feel satisfied that the results of my treatment are the best that can be achieved. |
| Perceived Value (3 Items) | PV1 PV2 PV3 | The services that I receive from the spa provide value for money. Compared to what I have to give up, such as money, time, energy and effort, the services that I receive from the spa are excellent. Overall, I feel the services and goods in the spa are valuable. |
| Perceived Switching Costs (3 Items) | PSC1 PSC2 PSC3 | If I switch to a new spa provider, I will be concerned that the services offered by the new spa provider may not be as good as the regular one. I want to remain as a spa customer of the regular spa rather than switch to a new provider when I consider money, time, energy, effort and relationships. Overall, it is not worthwhile to switch to a new spa provider. |
| Behavioural intentions (5 Items) | BI1 BI2 BI3 BI4 BI5 | If I had to start having spa services again I would want to come to this spa. I would highly recommend the spa to other customers. I have said positive things about the spa to my family and friends. I intend to continue having spas at this spa resort. Overall, I am glad I have a relaxing time at this spa rather than somewhere else. |

Section F (see Appendix 1) measures the demographic variables: gender, age, length of time as a spa customer, type of spa customer, frequency of having a spa (per month), and occupation.

4.4 Sampling Method and Data Collection Procedures

A sample is “a subset or some part of a larger population” (Zikmund, Babin et al. 2012) and is necessary because it is difficult to gather data from an entire population. Thus, considerations in determining the sample size, sample design, and collecting the data from day spas in Thailand, are presented in the following sections.

4.4.1 Sample Derivation

The lack of published research relating to day spa customers’ behavioural intentions in Thailand, means that it was important to collect primary data in order to test the 22 hypotheses and satisfy the four research objectives of this study. Day spas represent approximately 75% of the spa industry in Thailand (Thai Ministry of Public Health, 2012). Thai people visit day spas at the rate of approximately two million visitors per year (Thai Ministry of Public Health, 2012). Consequently, spa customers’ perceptions of behavioural intentions, service quality, customer satisfaction, perceived value, perceived switching costs, and the primary dimensions and sub-dimensions, were measured in order to examine specifically day spas in Thailand.

The target sample for the study were customers of day spas located in Thailand, specifically in Bangkok, Chiang Mai, and Khon Kaen. Bangkok is the capital city of Thailand, while Chiang Mai is the major province in the northern part of Thailand and Khon Kaen is the major province in the north-eastern part of Thailand. The two provinces and Bangkok City have a combined population of over ten million people (Thai Department of Provincial Administration, 2012). Customers who were visiting a Thai day spa for the first time were excluded from the sample because it was deemed that they would not have sufficient spa experience to answer all the questions in the questionnaire. Spa customers under eighteen years of age were also excluded from the sample because it was deemed that they may have difficulties in interpreting the questions in the questionnaire.

4.4.2 Sample Size

Optimum sample size was driven by the requirements of the three types of data analysis techniques used for this study; Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and Structural Equation Modelling (SEM). Therefore, the requirements of the three data analysis techniques were determined first, in order to calculate the appropriate sample size for this research.

A number of scholars (Kline 2005, Pallant 2007, Hair, Black et al. 2010) contend that there should be a minimum sample size of 100 or more for conducting EFA with at least five times as many observations as variables to be analysed, giving a more acceptable ratio of 10:1. Based on this

contention, and the 41 variables to be factor analysed in this study, a sample size of at least 205 respondents was considered sufficient. Similar to EFA, CFA requires a sample size of at least 205 respondents. For conducting SEM analysis using Maximum Likelihood Estimation (MLE), in general large samples are required because small samples are less stable for estimation purposes (Hair, Black et al. 2010). Kelloway (1998) and Boomsma (1983) state that a sample size of at least 200 observations is recommended for SEM using MLE. Likewise, Hair, Black et al. (2010) and Tanaka (1993) suggest that the ideal sample size for using SEM is between 200 and 400 observations. Accordingly, the total sample size for this study was set at 620 usable questionnaires in order to satisfy the requirement of the factor analysis and SEM. The total sample size was divided into two sub-samples of equal size. The first sub-sample which was subjected to EFA, was set at, at least 310 respondents. The second sub-sample, which was subjected to CFA, SEM, and ANOVA, was also set at, at least 310 respondents.

4.4.3 Sampling Design

The main sampling techniques are grouped into two categories: probability and non-probability. The probability sampling technique is *“a sampling technique in which every member of the population has a known, non-zero probability of selection”*, whereas the non-probability sampling technique is *“a sampling technique in which units of the sample are selected on the basis of personal judgment or convenience, and the probability of any particular member of the population being chosen is unknown”* (Zikmund, Babin et al. 2012). This study selected the non-probability sampling technique and specifically, the convenience sampling technique for several reasons. Firstly, a target population in day spas is difficult to identify (Cavana, Sekaran et al. 2001, EL-refae 2012, Zikmund, Babin et al. 2012), and the requirement of equality in the possibility of being chosen from amongst the target population is unfeasible. Secondly, the main objectives of this research are to test the theoretical premises; and to test the hypotheses regarding how variables are related to behaviour. Reynolds, Simintiras et al. (2003) and Leary (2004) assert that non-probability sampling is considered an acceptable sampling technique. In addition, Leary (2004) supports the assertion that non-probability sampling also provides evidence supporting or rejecting the theory test, regardless of the nature of the sample. Thirdly, in accordance with the requests of the spa operators, the questionnaires were distributed only to spa customers who willingly consented to participation in the study. In order to minimize the drawbacks of using convenience sampling, data was gathered from different day spas in Bangkok City, and Chiang Mai and Khon Kaen Provinces, and a non-response bias test was conducted before analysing the data (Bryman and Bell 2011).

4.4.4 The Data Collection Procedure

The first stage of the data collection procedure consisted of sending letters inviting participation in this study, to 24 day spas in two provinces and in Bangkok city, in Thailand. The letters discussed the aim of the study, the study's significance to day spa management, intended use of the data, issues related to confidentiality, and a request for the organisation's voluntary participation in the study. As a result of this process, 17 day spas indicated they were willing to participate: five day spas in Bangkok City, seven day spas in Chiang Mai Province, and five day spas in Khon Kaen Province. After receiving consent from the day spas, the researcher visited all of the participating day spas, and discussed the process of data collection and the details of the questionnaire with the spa managers. Consequently, the data collection process took place from 1st June to 29th August, 2013.

Following the procedures discussed by Bryman and Bell (2011), and Cooper and Schindler (2014), the potential respondents (the spa customers) were personally approached and invited to participate in the research by the researcher and/or the day spa front-desk person, while they were in waiting rooms. They were also informed that their participation in the study would be voluntary and the information provided would be kept private and confidential. Only customers who were willing to participate were given a questionnaire and asked to complete the 10-15 minute questionnaire while waiting for the spa service or at the conclusion of the spa service. The respondents were able to ask the researcher for assistance if they had any difficulty in interpreting the questions. After the respondents had completed the survey, they returned the completed questionnaire immediately into the return box in the waiting room. To increase the response rate, a prepaid non-monetary incentive was given to respondents, as suggested is appropriate for a face-to-face survey, by Willimack, Schuman et al. (1995) and Jobber, Saunders et al. (2004). In this study, high quality towels were given to the spa customers as appreciation for completing the questionnaire.

4.5 Data Analysis Procedure

The Statistical Package for the Social Sciences (SPSS) version 20 and the Analysis of Moment Structures (AMOS) version 21 software were used in this study for analysing the data. In addition, SPSS supports an "add on" of the AMOS programme which is convenient and effective software for conducting structural equation modelling (SEM) (Blunch 2008). The researcher arranged the process of data analysis into four main steps: (1) preliminary data analysis, (2) exploratory factor analysis (EFA), (3) structural equation modelling (SEM), and (4) analysis of variance (ANOVA) which was applied to compare the results based on the demographic factors (Blunch 2008). Each step of the data analysis is discussed in detail in the following sections.

4.5.1 Preliminary Data Analysis

The quality of the statistical analysis is dependent on how well the collected data is arranged and converted into an appropriate form for analysis. Therefore, prior to conducting further statistical analyses, a preliminary analysis of data screening was performed in order to check if there was any missing data, outliers, and to check for normality. Each of the variables in the preliminary data analysis were measured by the descriptive statistics and frequency. Following the procedures discussed by Aaker, Kumar et al. (2012) , the procedure used in this study for data screening is presented in the following subsection.

4.5.1..1 Missing Data

Missing data is a non-response to a statement in the questionnaire. Missing data affects the results of the statistical analysis when it appears in a systematic pattern. Hair, Black et al. (2010) suggest that missing data of less than 10% for an individual case or observation can generally be ignored when the missing data is in a random fashion. Similarly, Schumacker and Lomax (2004) observe that mean substitution is one of the most frequently used methods for treating missing data when the questionnaires with missing data are only a small proportion of the sample. Based on these recommendations, the mean substitution method was adopted in this study to substitute for missing values.

4.5.1..2 Outliers

Outliers are the extreme values that are the highest or lowest numbers in the data set (Anderson, Sweeney et al. 2012). They can be found by inspecting the frequency distributions of the z scores, or by inspecting the standardised residual values (Kline 2005, Hair, Black et al. 2010). Hair, Black et al. (2010) suggest that for a large sample, any data value with a standardised residual value of less than -4 or greater than +4 can be identified as an outlier. The decision to eliminate or retain outliers from the data set must be made carefully as problematic outliers can distort the statistical tests (Pallant 2007). An outlier can be eliminated when the outlier has been coded or recorded incorrectly. Conversely, for this study, outliers that were found to have been recorded correctly and represented a valid element of the data analysis were retained, as suggested by Anderson, Sweeney et al. (2012).

4.5.1..3 Normality

Normality refers to the "degree to which the distribution of the sample data corresponds to a normal distribution" (Hair, Black et al. 2010). Skewness and kurtosis are two vital indications of normality. Skewness refers to the symmetry of a distribution compared with a normal distribution, whereas kurtosis is used to describe whether the peak of a distribution is higher or lower than a

normal distribution value (Hair, Bush et al. 2000). Kline (2011) states that the absolute value of skewness that is greater than three and the absolute value of kurtosis that is greater than eight, indicates problems with normality in the data distribution. For this study, the cut-off values of skewness and kurtosis of three for skewness and eight for kurtosis, as suggested by Kline (2011), were used as the criteria for normality justification.

4.5.2 The Exploratory Factor Analysis (EFA)

The purpose of EFA is “to identify a relatively small number of themes, dimensions, components, or factors underlying a relatively large set of variables” (Lawrence, Gamst et al. 2013). In EFA, the common dimensions are identified by distinguishing sets of variables that have more in common with each other than the other variables in the analysis (Lawrence, Gamst et al. 2013). Moreover, several scholars (Schumacker and Lomax 2004, Hair, Black et al. 2010, Pallant 2010, Kline 2011) recommend that EFA can be an appropriate analysis to be undertaken before conducting SEM, as it provides a data summarisation perspective which offers a better understanding of the latent constructs. Therefore, EFA was performed to generate the optimal number of factors representing the sub-dimension items of the interpersonal quality, environment quality, administrative quality, and technical quality primary dimensions. The details of EFA are presented in the following sections.

4.5.2..1 Types of Methods of Exploratory Factor Analysis (EFA)

Common factor analysis and principle component analysis are two basic methods of EFA, that are applied in order to obtain a robust and reliable factor structure (Ho 2006). The main purpose of common factor analysis is to explain the interrelationships among the unique variables. In contrast, the main purpose of principle component factor analysis is to discover or reduce the dimensionality of the data set and to identify new meaningful underlying variables (Boersma and Weenink 1999). Several scholars consider that common factor analysis and principle component factor analysis provide very similar solutions for a given set of data, and that principle component factor analysis is the most widely used of the two (Guadagnoli and Velicer 1988, Schonemann 1990, Steiger 1990, Velicer and Jackson 1990). Velicer and Jackson (1990) and Hair, Black et al. (1998) support the view that principle component factor analysis is less problematic and less complicated than the application of common factor analysis. Likewise, Boersma and Weenink’s study (1999), shows that there are two objectives of principal component factor analysis: (1) to discover or reduce the dimensionality of the data set, and (2) to identify new meaningful underlying variables. Therefore, principle component factor analysis was chosen as it is a preferable technique for data analysis in this current study.

4.5.2..2 Testing the Data for Determining Appropriateness of Factor Analysis

Prior to performing a factor analysis, several methods need to be completed in order to determine whether the data matrix has sufficient correlations to justify the application of factor analysis (Hair, Black et al. 2010). The methods include: (1) an examination of the Correlation Matrix, (2) an inspection of the Anti-Image Correlation Matrix, (3) an assessment of Bartlett's Test of Sphericity, and (4) an assessment of the Kaiser-Meyer-Olkin measure of sampling adequacy.

4.5.2.2.1 Examination of the Correlation Matrix

Examination of the correlation matrix is a simple method for determining the appropriateness of factor analysis (Hair, Black et al. 2010). Hardy and Bryman (2004) recommend that correlations in the range of 0.10 to 0.30 are usually considered to be weak. Stewart (1981) notes that low correlation coefficients throughout the data matrix mean that the data is considered to be inappropriate for generating factor analysis. For an appropriate result, there are substantial numbers of correlations greater than 0.30 in a data matrix as suggested by Pallant (2007).

4.5.2.2.2 Anti-Image Correlation Matrix

The anti-image correlation matrix represents the negative value of the partial correlation (Hair, Black et al. 2010). A partial correlation is an unexplained correlation when the effects of other variables are taken into account. Thus, high partial correlations indicate that the unexplained correlations are high in a data matrix (Hair, Black et al. 2010). In other words, high partial correlations mean that there are insufficient underlying factors for performing factor analysis (Brace, Kemp et al. 2006). For an appropriate result, most of the off-diagonal elements are assumed to be small in the diagonal of the anti-image correlation matrix (Tabachnick and Fidell 2007).

4.5.2.2.3 Bartlett's Test of Sphericity

Bartlett's test of sphericity is a statistical test used to examine whether a correlation matrix has significant correlations among at least some of the variables (Hair, Black et al. 2010). According to Stewart (1981), Bartlett's test of sphericity is computed by using the following equation:

Equation 4.1 Bartlett's Test of Sphericity

$$-\left[(N - 1) - \left(\frac{2P + 5}{6}\right)\right] \text{Log}_e |R|$$

where:

N is the sample size;

P is the number of variables; and

|R| is the determinant of the correlation matrix.

The correlations that exist among the variables in a data matrix are sufficient to conduct a factor analysis, when the result of Bartlett's test of sphericity is statistically significant (sig.< 0.05) (Hinton, Brownlow et al. 2004, Pallant 2007). Otherwise, the data matrix is inappropriate for factor analysis.

4.5.2.2.4 The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is an index used to provide a measure for determining whether the variables belong together (Stewart 1981) . The KMO value ranges from 0 to 1. According to Kaiser and Rice (1974), if the KMO value is lower than 0.50, the data is indicated as 'unacceptable' for factor analysis; 0.50 and above is interpreted as miserable; 0.60 and above is interpreted as mediocre; 0.70 and above is interpreted as middling; 0.80 and above is interpreted as meritorious; and 0.90 and above is interpreted as marvellous (Kaiser and Rice 1974). The KMO is computed by using the following equation:

Equation 4.2 Kaiser-Meyer-Olkin Measure of Sampling Adequacy

$$MSA = \frac{\sum_{j \neq k} \sum r_{jk}^2}{\sum_{j \neq k} \sum r_{jk}^2 + \sum_{j \neq k} \sum q_{jk}^2}$$

where:

q_{jk}^2 is the square of the off-diagonal elements anti-image correlation matrix; and

r_{jk}^2 is the square of the off-diagonal elements of the original correlations.

4.5.2..3 Factor Extraction

The primary objective of factor extraction is to determine the minimum number of factors that can be used to best represent the interrelations among a set of measured variables (Pallant 2007). The researcher must identify the number of extracted factors based on the conceptual foundation and empirical evidence and eigenvalues. There are three commonly used criteria for determining how many factors should be extracted: (1) the eigenvalues or the latent root criterion, (2) the percentage of variance criterion, and (3) the scree test criterion (Hair, Black et al. 2010, Lawrence, Gamst et al. 2013).

4.5.2.3.1 The Eigenvalue or the Latent Root Criterion

The eigenvalue or the latent root criterion is the most commonly used method for identifying the number of factors for further analysis(Hair, Black et al. 2010, Lawrence, Gamst et al. 2013). Basically, the factors or components with an eigenvalue of greater than 1.00 should be considered significant; otherwise the factors should not be retained (Stewart 1981, Pallant 2010). Spencer (2014) and Hair,

Black et al. (2006) indicate that the latent root criterion is considered to be the most applicable when the number of variables in the factor analysis are between 20 and 50.

4.5.2.3.2 The Percentage of Variance Criterion

The percentage of variance criterion is to ensure practical significance for the derived factors by ensuring that they explain at least a specified amount of total variance (Hair, Black et al. 2010). Hair, Black et al. (2010) suggest that in the social sciences, a total variance solution of 60% is acceptable, but less than 60% is acceptable in some circumstances.

4.5.2.3.3 The Scree Test Criterion

The scree test criterion is derived by plotting the latent roots against the number of factors in their order of extraction. The shape of the resulting curve is used to assess the cut-off point (Osborne and Costello 2005, Hair, Black et al. 2010). The procedure is explained by Stewart (1981) as follows:

“A straight edge is laid across the bottom portion of the roots to see where they form an approximately straight line. The point where the factors curve above the straight line gives the number of factors, the last factor being the one whose eigenvalue immediately precedes the straight line.”

4.5.2.4 Factor Rotation

Factor rotation is used to achieve simpler and theoretically more meaningful factor solutions (Osborne and Costello 2005, Hair, Black et al. 2010). Factor rotation has been identified as the most important approach to factor interpretation (Hair, Black et al. 2010). Orthogonal and oblique rotations are two common types of factor rotation methods used by researchers (Bryman and Cramer 2005, Osborne and Costello 2005, Hair, Black et al. 2010).

For orthogonal rotation, the axes are maintained at 90 degrees; factors are mathematically independent and orthogonally rotated; the correlations between any pair of factors are 0; and no factor correlation matrix is produced after an orthogonal rotation (Hair, Black et al. 2010). VARIMAX, QUARTIMAX and EQUIMAX are three major orthogonal rotations used. However, in marketing research, VARIMAX is frequently used and is the most popular factor rotation method (Stewart 1981, Tabachnick and Fidell 2007). Hair, Black et al. (2006) explain the logical interpretation of the VARIMAX rotational method as follows: “when the variable-factor correlations are: (1) close to either +1 or -1, thus indicating a clear positive or negative association between the variable and the factor; or (2) close to 0, indicating a clear lack of association”.

An oblique rotation often results in a rotation similar to an orthogonal rotation (Hair, Black et al. 2010). OBLIMIN is the standard oblique rotation (Hair, Black et al. 2010). However, there are no specific guide-lines for selecting a particular orthogonal or oblique rotational technique, as both techniques often result in similar solutions but the output of an oblique rotation is more difficult to interpret (Tabachnick and Fidell 2007, Hair, Black et al. 2010, Meyers, Gamst et al. 2013). As a result, in this study, the final factorial structure is based on the result of the VARIMAX rotation.

4.5.2.5 Interpretation of Factors

A factor loading represents the correlations between variables and factors (Kim and Mueller 1978). The larger factor loadings indicate the higher degree of correspondence between the variables and the factors. Therefore, the larger the absolute value of the factor loadings, the more important the factor loadings are in interpreting the factor matrix (Brace, Kemp et al. 2006). Hair, Black et al. (2010) provide three guidelines for assessing the significance of factor loadings:

1. Factor loadings in the range of $\pm .30$ to $\pm .40$ are considered to meet the minimal level for interpretation of structure.
2. Factor loadings of $\pm .50$ or greater are considered to be practically significant.
3. Factor loadings exceeding $\pm .70$ are considered indicative of a well-defined structure and are the goal of any factor analysis.

In addition, the significance of factor loadings is commonly dependent on the sample size (Field 2009). The larger the absolute size of the factor loading, the more important the loading is in interpreting the factor matrix. (See Table 4.6)

Table 4.6 Guidelines for Identifying Significant Factor Loadings Based on Sample Size

| Factor Loading | Sample Size Needed for Significance | Factor Loading | Sample Size Needed for Significance |
|-----------------------|--|-----------------------|--|
| 0.30 | 350 | 0.55 | 100 |
| 0.35 | 250 | 0.60 | 85 |
| 0.40 | 200 | 0.65 | 70 |
| 0.45 | 150 | 0.70 | 60 |
| 0.50 | 120 | 0.75 | 50 |

Source: Hair, Black et al. (2010)

4.5.2.6 Unidimensionality Analysis

The unidimensionality analysis is used as a measurement scale to confirm that the results are unidimensional. Unidimensionality is defined as the existence of a single factor underlying all the variables (items), and all the variables (items) loading on that single factor (Neuman 2011). The test

of unidimensionality that ensured an adequate unidimensionality in this study, resulted in items that loaded highly on more than one factor being eliminated, as suggested by Hair, Black et al. (2010).

4.5.2.7 Reliability and Validity

Reliability is used to assess the internal consistency between multiple measurements of variables (Hair, Black et al. 2010). The most widely used measure for assessing internal consistency reliability is Cronbach's Alpha (Hair, Black et al. 2010, Kline 2011). In this study, Cronbach's alpha equations were calculated in order to ensure scale reliability. A Cronbach's alpha of 0.70 or greater is commonly acceptable as suggested by Kline (2011).

Validity is defined as the degree to which a scale measures what it should measure (Pallant 2010). Content validity and face validity are the two forms of validity which are the most widely accepted forms for measuring the validity of a construct (Hair, Black et al. 2010, Kline 2011). Content validity includes the intention of the question, which means whether the question actually measures what it is intended to measure, whether the questionnaire adequately represents the construct under study, and whether the items are appropriate and whether they "looked right" (Churchill 1979, Schall 2003). In conclusion, the content validity in this study was achieved by the focus groups' discussions, the subjective assessments of experts, and pre-testing as recommended by Hair, Black et al. (2010).

4.5.3 Structural Equation Modelling (SEM)

Structural equation modelling (SEM) is a multivariate technique that was originally developed in the early 1950s by economics researchers with the purpose of establishing causal relationships between variables. SEM has also been known by several names such as co-variance structure analysis, latent variable analysis, path analysis, and confirmatory factor analysis, and is sometimes referred to by the specialised name of the software package, such as LISREL and AMOS (Blunch 2008, Byrne 2010, Hair, Black et al. 2010).

SEM has become an advanced multivariate technique for researchers studying complex relationships in many fields (Hair, Black et al. 2010). Ullman (2007, p.679) considers that "when the phenomena of interest are complex and multidimensional, SEM is the only analysis that allows complete and simultaneous tests of the relationships." SEM combines factor analysis and multiple regression analysis and is used to simultaneously investigate a series of interrelated dependent relationships among the measured variables and latent constructs, as well as between several latent constructs (Schumacker and Lomax 2004, Hair, Black et al. 2010, Lawrence, Gamst et al. 2013). SEM also enables researchers to examine the assumptions for multivariate analysis, such as unidimensionality,

reliability, and validity of a construct (Anderson and Gerbing 1988a, Hair, Black et al. 2010, Kline 2011). In addition, SEM can propose an overall test of model fit and individual parameter estimate tests, simultaneously (Hair, Black et al. 2010, Lawrence, Gamst et al. 2013). SEM outperforms multiple regression analysis as it allows a complete and simultaneous testing of the relationships, while multiple regression analysis assesses only a single relationship between the independent and dependent variables (Hair, Black et al. 2010, Awang 2012, Lawrence, Gamst et al. 2013). For these reasons, SEM was employed in this study. Based on the research model of service quality used in this study, service quality is viewed as hierarchical, with the higher-order constructs; thus, SEM was used to confirm the service quality measurement model and to confirm the interrelationships between the five higher order constructs as proposed in the research model (service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions) (Lawrence, Gamst et al. 2013).

Although there are several software packages that can run SEM, AMOS software was chosen for use in this study as it has several advantages. The advantages are: (1) AMOS is 'user-friendly' because researchers can perform analysis without writing any computer code; AMOS has a basic programming interface as an alternative to graphics and can directly work from a graphic diagram model; (2) AMOS was developed within the Microsoft Windows interface so researchers can easily organise output presentation; (3) AMOS is suitable for using when the indicators of the research are considered to be a reflective model (Blunch 2008).

Furthermore, there are two common approaches for performing SEM; the one-stage approach and the two-stage approach. In the one-stage approach (also called the single-stage approach), the structural model and the measurement model are simultaneously analysed (Schumacker and Lomax 2004, Kline 2011). In contrast, in the two-stage approach, the measurement model and the structural model are separately analysed (Hair, Black et al. 2010, Lawrence, Gamst et al. 2013). The two stage approach also enables researchers to avoid the unnecessary interaction between constructs during testing of the structural model (Anderson and Gerbing 1988a). For these reasons, the two-stage approach was used to test the research model hypothesized in this study. In addition, Jöreskog and Sörbom (1993) note that: "the testing of structural models, i.e., the testing of the initially specified theory, may be meaningless unless it is first established that the measurement holds, if the chosen indicators for a construct do not measure that construct, the specified theory must be modified before it can be tested." Accordingly, the measurement model should be trialled and assessed before testing the causal path model (Jöreskog and Sörbom 1993).

4.5.3.1 Measurement Model

The measurement model is the first part of the analysis that deals with the latent constructs and their measured items (Blunch 2008, Byrne 2010). The Confirmatory Factor Analysis (CFA) method is normally used to assess the measurement model for the first stage (Hair, Black et al. 2010, Lawrence, Gamst et al. 2013). Therefore in this study, 53 items used for measuring 19 latent constructs were subjected to CFA in order to verify unidimensionality and convergent validity. The CFA procedure is used to assess the psychometric properties of the measurement model of the sub-dimensions, primary dimensions and causal paths (the five higher-order constructs).

When the model comprises a large number of items, the sub-dimensions and primary dimensions should be analysed separately as suggested by Brady and Cronin (2001). For this current study, CFA with partial disaggregation was used to confirm the nine sub-dimensions of the primary dimensions (interpersonal quality, environment quality, administrative quality, technical quality). For the partial disaggregation analysis, the indicators for each sub-dimension, or first-order factor, were randomly combined into two composite indicators to reduce higher levels of random error and still retain all the advantages of structural equation modelling, including accounting for measurement error, allowing for multiple, multidimensional variables, and testing for hierarchical factor structure (Bagozzi and Heatherton 1994, Bagozzi and Foxall 1996, Dabholkar, Thorpe et al. 1996). Next, the measurement model analysis started confirming the primary dimensions for Thai day spas, and the measurement model for the five higher-order constructs. Details of the CFA procedure is discussed in the following subsections.

4.5.3.1.1 Modelling Assessment Procedures

SEM uses a five-stage process in modelling: (1) model specification; (2) model identification; (3) model-fit-indices; (4) model modification; and (5) once the models are satisfied, the reliability and validity of the models are estimated.

4.5.3.1.2 Model Specification

Model specification includes determining parameters and all relationships in the research model (Kline 2011). In this study, all measurement models and structural models were specified, based on the relevant empirical studies and the findings of the exploratory factor analysis (EFA). The models specified in this research complied with the assumptions of Byrne (2010). The assumptions are as follows:

1. each measured item was set to 1.0, with all other factor loadings either freely estimated on a specific factor or fixed to zero on other factors;

2. all variance/covariance parameters were correlated and freely estimated in the first-order CFA, while covariations among the first-order factors were fully explained by their regressions on the higher-order factors in the second-order CFA; and
3. error terms related to each measured item were uncorrelated.

4.5.3.1.3 Model Identification

Model identification is concerned with whether the model has sufficient information to derive a unique solution for the parameters to be estimated in the model (Diamantopoulos and Siguaw 2000). The t-rule is accepted as the procedure for determining model identification (Blunch 2008, Byrne 2010). In the t-rule procedure, the number of variances and covariances ($p[p+1]/2$) (where p is the total number of observed variables) is compared with the total number of estimated parameters in the model. Ideally, the number of variance and covariance values (pieces of information) must be at least equal to or greater than the number of estimated parameters. If the model has an identification status problem, then the model should be re-specified before conducting further analysis; otherwise, *“the analysis may be fruitless”* (Kline 2011).

In addition, the model identification can be categorised by the degrees of freedom (df) after all the parameters to be estimated are specified (Hair, Black et al. 2010), and the *“more df the more precise the estimation and the more powerful the test”* (Blunch 2008).

In the SEM literature, there are three levels of model identification status; the under-identified model, the just-identified model, and the over-identified model (Schumacker and Lomax 2004, Blunch 2008, Byrne 2010, Hair, Black et al. 2010, Kline 2011). An under-identified model indicates that a model has a number of variances and covariances that are less than the number of estimated parameters (negative df) (Byrne 2010). A just-identified model indicates that a model has just enough information to estimate all parameters in the model (zero df). If the just-identified model has zero df , then the data perfectly fits the model and the theory is not tested. Therefore, the model is not scientifically interesting for testing the theory (Schumacker and Lomax 2004, Blunch 2008, Byrne 2010, Hair, Black et al. 2010, Kline 2011). Byrne (2010) suggests the imposition of constraints on particular parameters as a condition for attaining an over-identified model. An over-identified model indicates that a model has the number of variances and covariances that are more than the number of estimated parameters (positive df); in other words, an over-identified model is a model that has more than just enough information to estimate all model parameters (Byrne 2010, Hair, Black et al. 2010, Kline 2011). Therefore, the model in this study can be analysed using SEM because it is over-identified.

4.5.3.1.4 Model Fit Indices

A specified model is supported by the sample data when the model presents a good fit (Schumacker and Lomax 2004). In the literature, although numerous model-fit indices can be used to assess the fitness of both measurement and structural models, it is unnecessary to report all of the model fit indices because of the redundancy among them (Hair, Black et al. 2010). With reference to the recommendations by several authors (Schumacker and Lomax 2004, Hair, Black et al. 2010, Kline 2011, Awang 2012), (1) normed chi-square (χ^2/df); (2) goodness-of-fit index (GFI); (3) standardised root mean residual (SRMR); (4) comparative fit index (CFI); (5) normed fit index (NFI); and (6) root mean square error of approximation (RMSEA), were used as the model-fit indices in this study. The recommended thresholds of each model fit index in this study can be explained as follows:

1. The Normed Chi-Square (χ^2/df) is a simple ratio of (χ^2) over degree of freedom (df) for a model. χ^2 is a statistical measure of the differences between the observed and estimated covariance matrices, and df is the amount of mathematical information available to estimate the model parameters. A value of normed chi-square (χ^2/df) less than 3.0 is indicated as an acceptable or good model fit (Kline 2011, Awang 2012, Lawrence, Gamst et al. 2013). A value up to 5.0 is considered as a relative fit; however, a value of more than 5.0 reflects a need for improvement, and a value of less than 1.0 is considered as a poor model fit (Schumacker and Lomax 2004).
2. Goodness-of-Fit Index (GFI) measures the relative amount of variance and covariance in the sample explained by the model (Byrne 2010), and is analogous to a squared multiple correlation (R^2) in multiple regression (Kline 2011). The range of GFI values is 0 to 1. The threshold for GFI values of greater than 0.9 are considered as a better fit (Byrne 2010, Hair, Black et al. 2010, Kline 2011).
3. Standardized Root Mean Residual (SRMR) is a measure that quantifies the mean absolute correlation residual derived from the overall difference between the observed and the predicted correlation (Kline 2011). Kline (2011) states that the threshold for SRMR of smaller than 0.10 generally indicates as favourable.
4. Comparative Fit Index (CFI) is a measure used for assessing the relative improvement in the model fit compared with an independent model (Kline 2011). The threshold for CFI of greater than 0.90 indicates a good model fit (Byrne 2010, Hair, Black et al. 2010, Kline 2011).
5. Normed Fit Index (NFI) is a ratio of the differences in the χ^2 value for the fitted model and an independent model divided by the χ^2 value for the independent model (Hair, Black et al.

2010). The range of NFI values is 0 to 1. The threshold for NFI values of greater than 0.9 are considered as a better fit (Byrne 2010, Hair, Black et al. 2010, Kline 2011).

6. Root Mean Square Error of Approximation (RMSEA) is a measure that represents how well a model fits a population, not just a sample used for estimation (Hair, Black et al. 2010). A lower value RMSEA indicates a better model fit. The threshold for RMSEA values of less than 0.10 are generally considered as an acceptable model fit with 95% confidence (Nokelainen 2009, Awang 2012).

Table 4.7 Model fit indices and recommended thresholds

| Model fit indices | Level of Acceptance | Note | References |
|-------------------------------|---------------------|---|--|
| Parsimony Fit Index: | | | |
| χ^2 / df | ≤ 5.00 | Less than 3.0 is preferred, up to 5.0 is still acceptable | (Schumacker & Lomax, 2004) |
| Absolute Fit Index: | | | |
| GFI | ≥ 0.90 | The possible range of GFI values is 0 to 1 with higher values indicating better fit | (Byrne, 2010; Hair et al., 2010; Kline, 2011). |
| SRMR | ≤ 0.10 | A lower value SRMR indicates a better model fit | (Kline, 2011) |
| RMSEA | ≤ 0.10 | A lower value RMSEA indicates a better model fit | (Awang, 2012; Nokelainen, 2009) |
| Incremental Fit Index: | | | |
| CFI | ≥ 0.90 | The possible range of CFI values is 0 to 1 with higher values indicating better fit | (Byrne, 2010; Hair et al., 2010; Kline, 2011). |
| NFI | ≥ 0.90 | The possible range of NFI values is 0 to 1 with higher values indicating better fit | |

4.5.3.1.5 Model Modification

Model modification is about improving the overall model fit with the sample data by identifying any misspecification existing in the model (Byrne 2010). Trimming the model by deleting one path or a measured item one at a time, is a general way to modify a model. However, modifying a model must be consistent with the theoretical insights, statistical sense and researcher’s judgement (Lawrence, Gamst et al. 2013). Hair et al. (2010) maintain that “*model modification must always be done with theoretical support rather than just empirical justification*”. Byrne (2010) also maintains that when an initial model fits well, it is probably unwise to modify it to achieve an even better fit because modifications may simply be fitting in small idiosyncratic characteristics of the sample. Accordingly, in this study, model modification was performed only when the model was a poor fit, and the modification performed was based on theoretical support.

There are two diagnostic outputs for representing model modification; Modification Indices (MI) and Standardized Residuals (SR) (Janssens, Wijnen et al. 2008). MI refers to the value of an expected decrease in a model's chi-squared value if a previously fixed parameter is set free in a subsequent run (Byrne 2010, Lawrence, Gamst et al. 2013). MI provides information for the measured items concurrently with the Expected Parameter Change statistics (EPC). A small MI value represents a good model fit; while a large MI value demonstrates the requirement for model improvement to achieve a better fit by freeing a corresponding path (Hair, Black et al. 2010). Utilisation of the modification indices is usually associated with an interpretation of the EPC. An EPC refers to an estimated value of a freed parameter (Schumacker and Lomax 2004).

In addition, several authors have noted some evidence for applying MI and EPC and are as follows: (1) a fixed parameter with a large MI and large EPC may be freed, especially when there is sufficient theoretical support for doing so; (2) a fixed parameter with a large MI and a small EPC may remain fixed, as the obtained parameter, estimated by freeing the fixed parameter, is likely to be trivial; (3) a fixed parameter with a small MI and a large EPC may be due to sampling variability, or to insensitivity of the chi-square test to the fixed parameter, (but what to do in this situation is ambiguous); (4) and a fixed parameter with a small MI and a small EPC may remain fixed, (Byrne 2010, Lawrence, Gamst et al. 2013).

SR are residuals divided by their estimated standard errors (Jöreskog and Sörbom 1993). Byrne (2010) suggests that large residuals, that associate with particular parameters, indicate their misspecification in a model, thereby leading to the overall model misfit. Standardized residual values larger than the critical value of 2.58 suggest possible areas of model misfit (Janssens, Wijnen et al. 2008). Large standardized residuals (>2.58) indicate that a particular variable relationship is not well accounted for in the model (Schumacker and Lomax 2004).

4.5.3.1.6 Construct Validity and Reliability

Construct validity is essential in the assessment to confirm a measurement model for theory development and testing (Hair, Black et al. 2010). The construct validity was established by conducting convergent validity and discriminant validity. These two validity tests are common approaches in employing CFA (Kline 2011). Importantly, Anderson and Gerbing (1991) suggest that a prerequisite for assessment of construct validity and reliability is the unidimensionality of the measure. The unidimensionality can be justified by the CFI value; a CFI value of 0.90 or above is the recommended threshold for justifying a unidimensional measure (Byrne 2010).

Construct reliability (CR) (also known as composite reliability) was used to assess the reliability of the measurement instrument used in this research. Although in this study Cronbach's Alpha was applied to test the construct's reliability, it was insufficient to ensure the consistency of the constructs. Hence, construct or composite reliability (CR) was also used as an extension of the construct reliability test (Anderson and Gerbing 1988b, Byrne 2010, Hair, Black et al. 2010). The reasons for conducting CR is that CR provides a better reliability estimation than Cronbach's coefficient alpha provides, and therefore enables researchers to examine the stability of the factor structure in the scale construction (Byrne 2010, Hair, Black et al. 2010). The CR value was separately computed for each item that measured a construct in the model by applying the Equation 4.3. The CR value of 0.70 or higher is generally an acceptable value (Byrne 2010, Hair, Black et al. 2010, Awang 2012).

Equation 4.3 Composite Reliability

$$CR = \frac{(\sum \lambda)^2}{[(\sum \lambda)^2 + \sum (\theta)]}$$

Source: Janssens, Wijnen et al. (2008)

where:

λ is the indicator loadings;

θ is the indicator error variances; and

Σ is the summation over the indicators of the latent variable.

Convergent validity refers to the following; *“the items that are indicators of a specific construct should converge or share a high proportion of variance in common”* (Hair, Black et al. 2010).

Convergent validity was estimated by the Average Variance Extracted (AVE) and factor loadings.

There is strong evidence of convergent validity when standardized factor loadings are statistically significant (t-value > 1.96) (Anderson and Gerbing 1988b) and all factor loadings are above the recommended cut-off point of 0.60 (Bagozzi and Yi 1988). The AVE of all constructs is 0.50 or higher, indicating that at least 50 percent of the measurement variance is accounted for by each of the constructs (Fornell and Larcker 1981, Hair, Black et al. 2010). The AVE was computed by applying Equation 4.4.

Equation 4.4 Average Variance Extracted

$$AVE = \frac{\sum_{i=1}^n \lambda_i^2}{n}$$

Source: Janssens et al. (2008, p.309)

where:

λ is the standardized factor loading;

i is the number of items; and

n is the total number of items.

Discriminant validity is “*the extent to which a construct is truly distinct from other constructs*” (Hair, Black et al. 2010). Discriminant validity can be assessed by examining the correlation coefficients between different constructs as suggested by Kline (2005). Kline (2005) states that a correlation coefficient of less than 0.85 is indicated as an acceptable discriminant validity.

4.5.3.2 Structural Model

After confirming all measurement models, the structural equation model was further analysed in order to identify the relationships among the latent variables, in order to specify which latent variables directly or indirectly cause changes in other latent variables, as well as to examine the causal relationships among the higher order constructs (Byrne 2010). A structural equation model was designed to examine the relationships of each sub-dimension on the four primary dimensions (first order analysis); followed by testing whether service quality is a multidimensional construct consisting of multiple first-order factors (interpersonal quality, environment quality, administrative quality, and technical quality) and that are significantly explained by their corresponding measure-items (second order analysis). Structural equation modelling was used to examine the interrelationships between service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions (third order or causal path analysis). The model identification, the model modification, the overall model fit and the path estimates for the hypothesised relationships, were measured in the structural equation model (see Chapter 3).

4.5.3.3 Analysis of Variance

In this study, analysis of variance (ANOVA) is used to analyse the differences in the five higher order constructs and dimensions of service quality within the demographic factors in the day spa context. ANOVA is a statistical technique used to measure whether samples from two or more groups originate from populations with equal means (Hair, Black et al. 2006). Saunders, Lewis et al.

(2007) suggest that the main purpose of using ANOVA is to evaluate the possibility of any differences between these groups occurring by chance. In this study, ANOVA is used to examine for spa customers' perceptual differences of the five higher order constructs, and the primary and sub-dimensions of service quality based on their demographic characteristics.

ANOVA examines the variances by comparing the means of the groups. In addition, these differences between the groups are represented by the F ratio or F statistic (Saunders, Lewis et al. 2007). If the value of F is large with a significance level of less than 0.05, then it is indicated as statistically significant (Hair, Black et al. 2006, Zikmund, Babin et al. 2010).

According to Hair et al. (2006), the logic of an ANOVA statistical test is straightforward. As the name analysis of variance implies, two independent estimates of the variance for the dependent variable are compared (Hair, Black et al. 2006). The first reflects the general variability of respondents within the groups (MS_W) and the second represents the differences between groups attributable to the treatment effects of MS_B (Hair, Black et al. 2006).

The ratio of MS_B to MS_W is a measure of how much variance is attributable to the different treatments versus the variance expected from random sampling (Hair, Black et al. 2006). The key statistic used to conduct the test is the F statistic of difference of group means (Hair, Black et al. 2006). The F statistic was computed by applying Equation 4.5.

Equation 4.5 F statistic for ANOVA

$$F \text{ statistic} = \frac{MS_B}{MS_W}$$

Source: Hair et al., (2006)

where:

MS_B is the mean square between groups; and

MS_W is the mean square within groups.

Because differences between the groups inflate MS_B , large values of the F statistic contribute to rejection of the null hypothesis of no difference in means across groups (Hair, Black et al. 2006). If the analysis has several different treatments (independent variables), then estimates of MS_B are computed for each treatment and F statistics are computed for each independent variable. This approach allows the separate evaluation of each treatment (Hair, Black et al. 2006).

Chapter 5

Data Analysis and Results

5.1 Introduction

Chapter 5 presents the results of the data analysis and hypotheses tested based on the research methodology discussed in Chapter 4. The data set was randomly divided into two sub-samples of equal size (Sample One, Sample Two). Sample One was examined using Exploratory Factor Analysis (EFA). Sample Two was examined using Structural Equation Modeling (SEM) and ANOVA. The results of the data analysis are presented and the 22 Hypotheses are tested in the following sections.

5.2 Response Rate and Preliminary Data Analysis

This study focuses on the perceptions of day spas in two provinces (Chiang Mai, Khon Kaen) and one city (Bangkok) in Thailand. Seventeen day spas agreed to participate in this study, seven day spas in Chiang Mai, 5 day spas in Khon Kaen, and 5 day spas in Bangkok. The data collection process took place at these day spas over a period of three months from 1st June to 29th August, 2013.

Questionnaires were received (355) between 1st June and 15th July, 2013 and 290 questionnaires were received between 16th July and 29th August, 2013. However, 25 of the questionnaires were incomplete, and so were excluded from the analysis, leaving a total of 620 useable questionnaires. The preliminary data was then examined for missing data, outliers and normality, with the objective being to assure the quality of the data prior to performing the statistical analyses and hypotheses testing.

5.2.1 Missing Data

The missing values were screened for the missing value function on SPSS version 20. The result presented a very small amount of missing data, with no items having a non-response of more than 5%. Therefore, the mean substitution method was used to address the missing data (Schumacker and Lomax 2004, Tabachnick and Fidell 2007, Hair, Black et al. 2010).

5.2.2 Outliers

Based on the standardised value (z-scores) of less than -4 or greater than +4, only a few outliers were identified in the data set of this study. However, these outliers were recorded accurately and represented a valid element of the data set. If outliers represent an element of the population, these outliers should be retained for the purpose of ensuring generalizability to the entire population

(Anderson, Sweeney et al. 2013). Therefore, the outliers identified in this study were retained in the data set (Hair, Black et al. 2010).

5.2.3 Normality Test

Sample One and Sample Two were examined in turn for normality. The results pertaining to the normality test for Sample One show that the maximum absolute values of skewness and kurtosis were 1.117 and 3.354 respectively (see Appendix 2). These values are well below their respective cut-off values of three for skewness and eight for kurtosis as suggested by Kline (2005). Therefore, this result indicates that the measurement items in Sample One are normally distributed.

The results pertaining to the normality test for Sample Two show that the maximum absolute values of skewness and kurtosis are 1.275 and 3.456 respectively (see Appendix 3). These values are well below their respective cut-off value of three for skewness and eight for kurtosis as suggested by Kline (2011). Therefore, this result indicates that the measurement items in Sample Two are normally distributed.

5.3 Respondents' Demographic Characteristics

The demographic characteristics of the respondents are presented in Table 5.1.

Table 5.1 Demographic Profile of the Total Sample (N=620)

| Demographic Characteristics | Options | Frequency | Percent (%) |
|--|--------------------|-----------|-------------|
| Gender | Male | 196 | 31.6 |
| | Female | 424 | 68.4 |
| Age | 18-25 | 82 | 13.2 |
| | 26-35 | 162 | 26.1 |
| | 36-45 | 153 | 24.7 |
| | 46-55 | 107 | 17.3 |
| | 56-65 | 81 | 13.1 |
| | 66 and over | 35 | 5.6 |
| Length of time as a customer | Less than 6 months | 151 | 24.4 |
| | 1 year | 183 | 29.5 |
| | 2 years | 88 | 14.2 |
| | 3 years | 78 | 12.6 |
| | 4 years | 22 | 3.5 |
| | 5 years | 38 | 6.1 |
| | 6 years | 18 | 2.9 |
| | 7 years | 15 | 2.4 |
| | 8 years | 8 | 1.3 |
| | 9 years | 0 | 0 |
| | 10 years | 14 | 2.3 |
| | Over 10 years | 5 | 0.8 |
| Type of customer | Casual | 385 | 62.1 |
| | Membership | 235 | 37.9 |
| Frequency of having a spa (per month) | 1-2 | 345 | 55.6 |
| | 3-4 | 162 | 26.1 |
| | 5-6 | 55 | 8.9 |
| | Other | 58 | 9.4 |

| Demographic Characteristics | Options | Frequency | Percent (%) |
|-----------------------------|---------------|-----------|-------------|
| Occupation | Students | 55 | 8.9 |
| | Professionals | 164 | 26.5 |
| | Sales/Service | 162 | 26.1 |
| | Tradespersons | 153 | 24.7 |
| | Farmers | 8 | 1.3 |
| | Housewives | 52 | 8.4 |
| | Unemployed | 12 | 1.9 |
| | Others | 14 | 2.3 |

The results in Table 5.1 show that there are more female respondents (68.4%) than male (31.6%) respondents. Respondents aged between 26 and 35 are the largest group of the total sample (26.1%), and respondents aged between 36 and 45 form the second largest group of the total sample (24.7%). With regard to length of time as a customer, respondents who have been a customer of a Thai day spa for one year (29.5%) are the largest group of the total sample, followed by respondents who have been a customer of a Thai day spa for less than 6 months (24.4%). More than half of the respondents are casual customers, accounting for 62.1% and most receive the spa service 1-2 times per month (55.6%). The most respondents work in the professional category (26.5%). Similarly, 26.1% and 24.7% of the total respondents are employed in retail or service industries, and work as tradespeople, respectively.

5.4 Data Analysis Interpretation

After all preliminary analysis results were completed, the 620 useable responses were randomly divided into two sub-samples of equal size: Sample One and Sample Two. Each sub-sample contains 310 useable responses. The size of Sample One exceeded the minimum sample size of 205 as suggested by Hair et al. (2010) for EFA. The size of Sample Two was also greater than the minimum sample size of 200 as suggested by Kelloway(1998) and Boomsma (1983) for SEM using MLE. Accordingly, the two sub-sample sizes were deemed to be acceptable for the purposes of this study.

Sample One was subjected to EFA in order to investigate the sub-dimensions of the four primary service quality dimensions (interpersonal quality, environment quality, administrative quality, and technical quality) while Sample Two was subjected to CFA and SEM. In addition, Sample Two was also subjected to ANOVA in order to test the hypotheses. The results of these analyses were presented in the following sections. Section 5.4.1 shows the results of EFA for the sub-dimensions of

the four primary dimensions. Section 5.4.2 shows the results of the first order CFA for the sub-dimensions of the four primary dimensions. Section 5.4.3 shows the results of the second order CFA for the primary dimensions. Section 5.4.4 shows the results of the first and second order CFA for the primary dimensions of service quality. Section 5.4.5 shows the results of CFA and SEM for the five higher-order constructs (service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions). Section 5.4.6 shows the results of the mediating variable analysis. Section 5.4.7 shows the ANOVA results.

5.4.1 The Exploratory Factor Analysis Results for the Four Primary Dimensions

The following sections provide the results of EFA for the sub-dimensions pertaining to each primary dimension (interpersonal quality, environment quality, administrative quality, technical quality).

5.4.1.1 Exploratory Factor Analysis for Interpersonal Quality

Initially, 11 items were purposed to measure the two sub-dimensions of interpersonal quality: communication skills and friendliness. For the purpose of ensuring the appropriateness of the data set for EFA, the analysis started with testing the Correlation Matrix, the Anti-Image Correlation Matrix, Bartlett's Test of Sphericity, and the Kaiser-Meyer-Olkin Measure of Sampling Adequacy. The results of the tests indicate that the data set used is appropriate for EFA as most substantial correlations are above 0.30 in the correlation matrix (Pallant 2010). The visual inspection of the anti-image correlation matrix also shows that most partial correlations are low (Tabachnick and Fidell 2007, Field 2009). Moreover, the value of Bartlett's test is statistically significant (sig. < 0.05) (Hinton, Brownlow et al. 2004, Pallant 2010) and the Kaiser-Meyer-Olkin measure of sampling adequacy index is 0.893 and is therefore above 0.80, which is regarded as meritorious (Kaiser and Rice 1974).

The result of the latent root criterion demonstrates that two sub-dimensions of interpersonal quality should be extracted from the 11 variables submitted for EFA (see Appendix 6). The two sub-dimensions of interpersonal quality extracted explain approximately 65.48% of the variation in the data set, and is greater than 60% as suggested by Hair et al. (2010) (see Appendix 6).

Setting a straight edge across the bottom portion of the roots shows that there are two dimensions before the curve becomes approximately a straight line (see Figure 5.1). This indicates that the extraction of two dimensions is appropriate for this analysis (Stewart 1981).

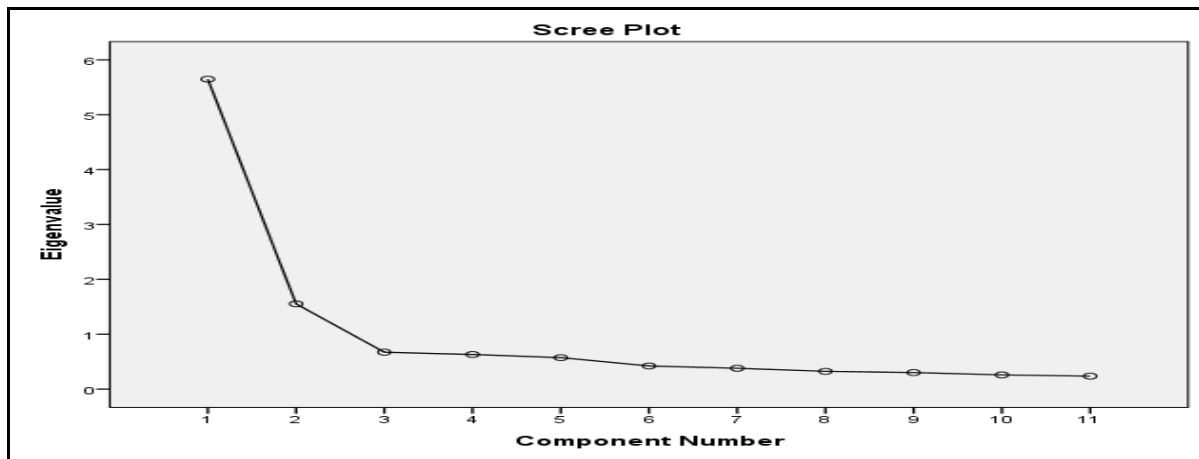


Figure 5.1 Scree Plot (Interpersonal Quality)

Factor rotations were conducted using the VARIMAX rotation method. Hence, the final factorial structure was based on the factor loading from the VARIMAX rotation. The results of the VARIMAX rotation also indicate that two sub-dimensions similarly emerge, as was originally proposed. All of the items retained exceed 0.50. Factor loading values range from 0.690 to 0.896 (see Appendix 7) and indicate an adequate unidimensionality because none of the items highly loaded on more than one factor (Bernard 2000). In terms of factor interpretation, factor loadings in all of the 11 items greater than ± 0.35 are considered as significant (Brace, Kemp et al. 2006, Hair, Black et al. 2010). Accordingly, the 11 items retained in the analysis loaded on two factors: communication skills (8 items) and friendliness (3 items). Moreover, the two factors were subjected to reliability tests. Reliability was measured using Cronbach's coefficient alpha. Cronbach's coefficient alpha scores are 0.905 and 0.860 which are above 0.70 as recommended by Nunnally and Bernstein (1994).

5.4.1.2 Exploratory Factor Analysis for Environment Quality

Initially, 11 items were purposed to measure two sub-dimensions of environment quality: atmosphere and tangibles. The results of the appropriateness of data set analyses indicate that the data set of this study is appropriate for EFA as most substantial correlations in the correlation matrix are above 0.30 (Hair, Black et al. 2010, Pallant 2010) and most of the partial correlations in the anti-image correlation matrix are low (Tabachnick and Fidell 2007, Field 2009). Furthermore, the value of Bartlett's test is statistically significant (sig. <0.05) (Hinton, Brownlow et al. 2004, Pallant 2010) and the Kaiser-Meyer-Olkin measure of sampling adequacy index is 0.925 and is therefore above 0.90 which is interpreted as marvellous (Kaiser and Rice 1974).

The results of the latent root criterion demonstrated that two sub-dimensions of environment quality should be extracted from the 11 variables submitted for EFA (see Appendix 10). The two sub-

dimensions of environment quality extracted explain about 71.68 % of the total variation in the data set, and exceed 60% as recommended by Hair et al. (2010) (see Appendix 10).

In addition, setting a straight edge across the bottom portion of the roots shows that there are two sub-dimensions before the curve becomes approximately a straight line (see Figure 5.2). This result indicates that the extraction of two sub-dimensions is appropriate for this analysis (Stewart 1981).

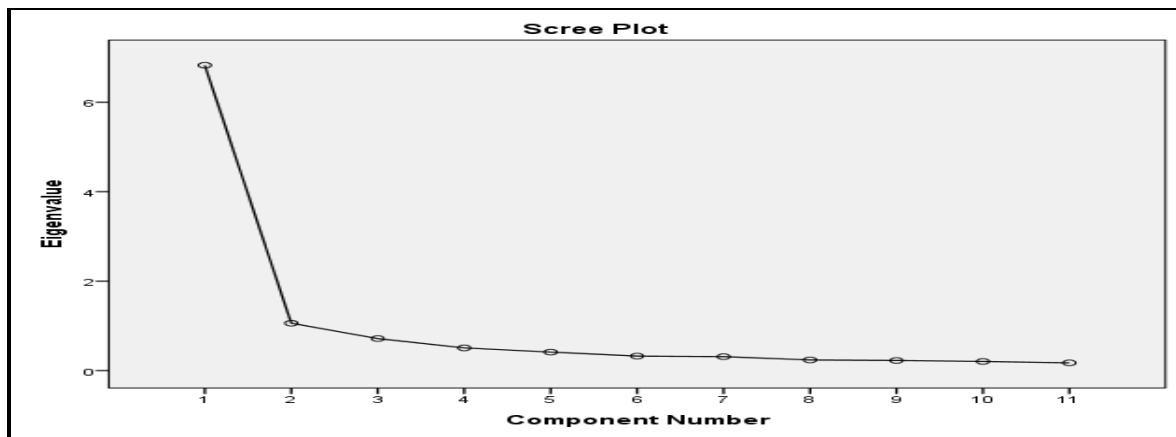


Figure 5.2 Scree Plot (Environment Quality)

Factor rotations were conducted using the VARIMAX rotation method. Therefore, the final factorial structure is based on the factor loading from the VARIMAX rotation. The results of the VARIMAX rotation also indicate that two sub-dimensions similarly emerge as was originally proposed. All the items retained exceed 0.50. Factor loading values range from 0.692 to 0.832 (see Appendix 11). Thus, this indicates the internal consistency of the variables in the exploratory study (Streiner 2003, Hair, Black et al. 2010).

All of the 11 items loaded on the two separate factors and they indicate an adequate unidimensionality because none of the items highly loaded on more than one factor (Bernard 2000). In terms of factor interpretation, factor loadings in all of the 11 items greater than ± 0.35 were considered as significant (Brace, Kemp et al. 2006, Hair, Black et al. 2010). Accordingly, the 11 items were retained in the analysis and loaded on two factors: atmosphere (5 items) and tangibles (6 items). Additionally, the two factors were subjected to reliability tests and both factors had high Cronbach's coefficient alpha scores (0.902 and 0.917) which are above 0.70 as recommended by Nunnally and Bernstein (1994).

5.4.1.3 Exploratory Factor Analysis for Administrative Quality

Initially, 11 items were purposed to measure three sub-dimensions of administrative quality: timeliness, operation, and programme variety. The results of the appropriateness of the data set analyses indicate that the data set for this study is appropriate for EFA as most substantial correlations in the correlation matrix are above 0.30 (Hair, Black et al. 2010, Pallant 2010) and most of the partial correlations in the anti-image correlation matrix are low (Tabachnick and Fidell 2007, Field 2009). Furthermore, the value of Bartlett's test is statistically significant (sig. <0.05) (Hinton, Brownlow et al. 2004, Pallant 2010) and the Kaiser-Meyer-Olkin measure of sampling adequacy index is 0.888 and is therefore above 0.8, which is regarded as meritorious (Kaiser and Rice 1974).

The results of the latent root criterion demonstrates that three sub-dimensions of administrative quality should be extracted from the 11 variables submitted for EFA (see Appendix 10). The three dimensions of administrative quality extracted explain 74.70% of the variation in the data set, and is larger than 60% as suggested by Hair, Black et al. (2010) (see Appendix 14).

In addition, setting a straight edge across the bottom portion of the roots shows that there are three sub-dimensions before the curve becomes approximately a straight line (see Figure 5.3). This result indicates that the extraction of three sub-dimensions is appropriate for this analysis (Stewart 1981).

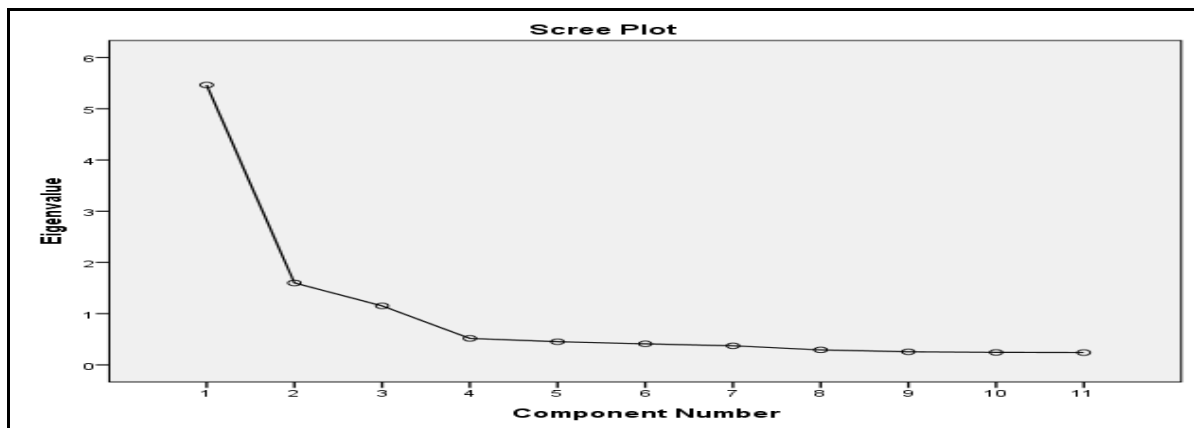


Figure 5.3 Scree Plot (Administrative Quality)

Factor rotations were conducted using the VARIMAX rotation method. Therefore, the final factorial structure is based on the factor loading from the VARIMAX rotation. The results of the VARIMAX rotation indicate that three sub-dimensions similarly emerge as was originally proposed. All of the items retained exceed 0.50. Factor loading values range from 0.761 to 0.874 (see Appendix 15). Thus this indicates the internal consistency of the variables in the exploratory study (Streiner 2003, Hair, Black et al. 2010).

All of the 11 items loaded on the three separate factors and they indicate an adequate unidimensionality because none of the items highly loaded on more than one factor (Bernard 2000). In terms of factor interpretation, factor loadings in all of the 11 items greater than ± 0.35 were considered as significant (Brace, Kemp et al. 2006, Hair, Black et al. 2010). Accordingly, the 11 items were retained in the analysis and loaded on three factors: timeliness (3 items), operation (5 items), and programme variety (3 items). Additionally, the three factors were subjected to reliability tests and all three factors had high Cronbach's coefficient alpha scores (0.827, 0.907 and 0.832) which are above 0.70 as recommended by Nunnally and Bernstein (1994).

5.4.1.4 Exploratory Factor Analysis for Technical Quality

Eight items were selected to measure two sub-dimensions of technical quality: outcome and staff expertise. The results of the appropriateness of the data set analyses indicate that the data set of this study is appropriate for EFA as most substantial correlations in the correlation matrix are above 0.30 (Hair, Black et al. 2010, Pallant 2010) and the majority of the partial correlations in the anti-image correlation matrix are low (Tabachnick and Fidell 2007, Field 2009). Furthermore, the value of Bartlett's test is statistically significant (sig. < 0.05) (Hinton, Brownlow et al. 2004, Pallant 2010) and the Kaiser-Meyer-Olkin measure of sampling adequacy index is 0.861, and therefore exceeds the cut-off level of 0.60 (Tabachnick and Fidell 2007). The Kaiser-Meyer-Olkin value is greater than 0.80 which is interpreted as meritorious (Kaiser and Rice 1974).

The result of the latent root criterion shows that two sub-dimensions of technical quality should be extracted from the eight items submitted for EFA (see Appendix 18).

The two sub-dimensions of technical quality extracted explain 77.86% of the variation in the data set, and the percentage of variance criterion is above 60% as suggested by Hair et al. (2010) (see Appendix 18).

In addition, placing a straight edge across the bottom portion of the roots shows that there are two sub-dimensions before the curve becomes approximately a straight line (see Figure 5.4). Therefore, the scree test confirms that the extraction of two sub-dimensions is appropriate for this analysis (Stewart 1981).

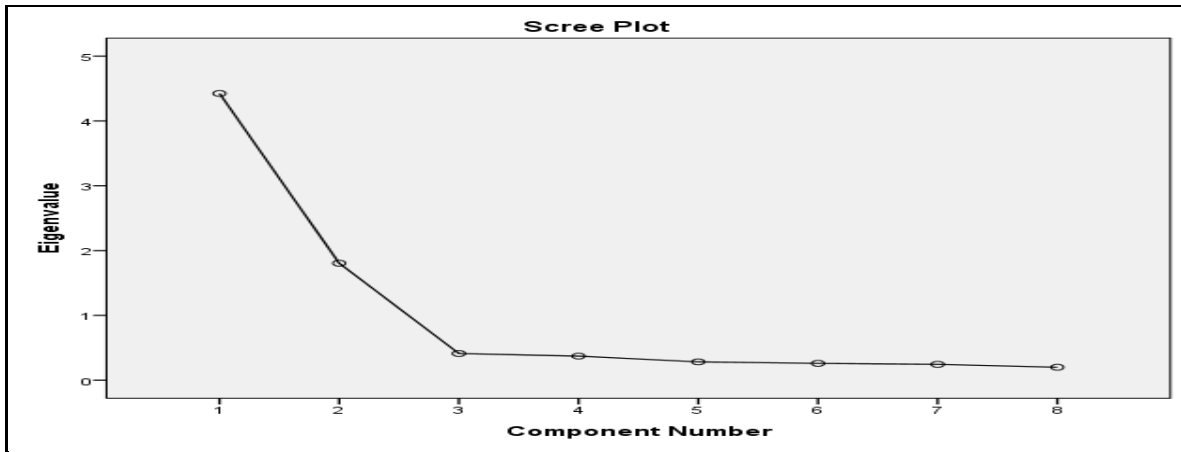


Figure 5.4 Scree Plot (Technical Quality)

Factor rotations were conducted using the VARIMAX rotation method. Therefore, the final factorial structure was based on the factor loading from the VARIMAX rotation. The results of the VARIMAX rotation indicate that three sub-dimensions emerge as was originally proposed. All of the items retained exceed 0.50. Factor loading values range from 0.836 to 0.886 (see Appendix 19). Thus, this indicates the internal consistency of the variables in the exploratory study (Streiner 2003, Hair, Black et al. 2010).

All of the eight items loaded on the two separate factors and they indicate an adequate unidimensionality because none of the items highly loaded on more than one factor (Bernard 2000). Factor loadings of all the eight items that had significant loadings above ± 0.35 therefore are considered as significant and are retained in the analysis (Brace, Kemp et al. 2006, Hair, Black et al. 2010). Thus, the eight items loaded on two factors: outcome (4 items) and staff expertise (4 items).

Additionally, the two factors were subjected to reliability tests and both factors had high Cronbach's coefficient alpha scores (0.896 and 0.908) which are above 0.70 as recommended by Nunnally and Bernstein (1994).

5.4.2 Confirmatory Factor Analysis for the Primary Dimensions

CFA was applied in this study in order to examine the relationships between the sub-dimensions of the four primary dimensions (interpersonal quality, environment quality, administrative quality, and technical quality). CFA is used to confirm the classification of the sub-dimensions that were identified in the EFA. The following sections present the results of the first-order CFA for the interpersonal, environment, administrative, and technical quality primary dimensions.

5.4.2.1 First-Order Confirmatory Factor Analysis for Interpersonal Quality

The first-order CFA model for interpersonal quality was based on the results of EFA and designed to examine the relationships between two sub-dimensions of interpersonal quality of communication skills (Com), friendliness (Fri), and the 11 items (see Figure 5.5).

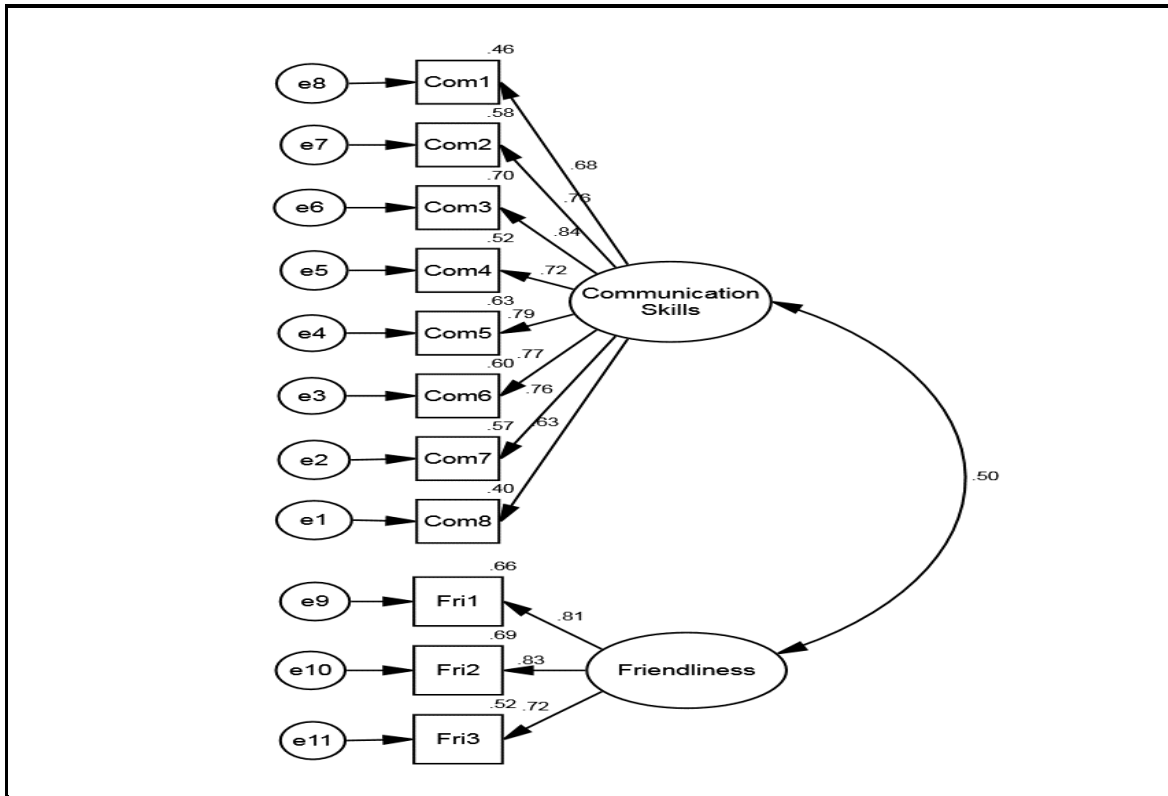


Figure 5.5 The Preliminary First-Order Confirmatory Factor Analysis Model for Interpersonal Quality

The first-order model illustrates 11 items resulting in $v = 66$ pieces of information ($11[11+1]/2$), and also illustrates the number of estimated parameters in the model to be 23 parameters (9 regression weights, 1 covariance, and 13 variances). Based on the t-rule, the model is over-identified with 43 degrees of freedom (66 pieces of information – 23 parameters) (Blunch 2008, Byrne 2010, Hair, Black et al. 2010, Kline 2011).

The result of the preliminary first-order model for interaction quality indicates that all items have a factor loading above the recommended threshold of 0.60 and all model fit indices are statistically significant at the 0.001% level. The model fit results for the first-order CFA model for interpersonal quality specified a good model fit to the sample data. The first-order CFA model for interpersonal quality has model fit indices that are more than satisfactory (Schumacker and Lomax 2004, Hair, Black et al. 2010, Kline 2011, Awang 2012). Thus, model modification was not necessary. In addition,

the goodness-of-fit results for the first-order CFA model for interpersonal quality are summarized in Table 5.2.

Table 5.2 Goodness-of-Fit Results of First-Order Confirmatory Factor Analysis Model of Interpersonal Quality

| Goodness-of-Fit indices | Values |
|---|---------------|
| Chi-square(χ^2) | 121.114 |
| Degree of Freedom (<i>df</i>) | 43 |
| Normed Chi-square (χ^2/df) | 2.817 |
| Goodness-of-Fit Index (GFI) | 0.933 |
| Standardized Root Mean Residual (SRMR) | 0.033 |
| Comparative Fit Index (CFI) | 0.956 |
| Normed Fit Index (NFI) | 0.934 |
| Root Mean Square Error of Approximation (RMSEA) | 0.077 |

Several scholars (Janssens, Wijnen et al. 2008, Byrne 2010, Hair, Black et al. 2010, Kline 2011) recommend that construct validity and reliability should be verified as a requirement for a measurement model. According to Byrne (2010), unidimensionality was examined in order to verify construct validity and reliability in this study. Moreover, convergent validity and discriminant validity were also examined to reconfirm the construct validity, whereas composite reliability was examined to verify reliability (Byrne 2010). As far as all criteria were concerned, the measurement model for interpersonal quality shows adequate construct for validity and reliability.

The Comparative Fit Index (CFI) is 0.956 which is greater than the recommended threshold of 0.90 as suggested by Byrne (2010). This evidence supports the contention that the first-order CFA model for interpersonal quality demonstrates sufficient unidimensionality (see Table 5.2).

All standardised factor loadings are statistically significant at the 0.001 level, and range from 0.63 to 0.84, which are greater than the recommended threshold of 0.60 as suggested by Bagozzi and Yi (1988), indicating adequate convergent validity (see Table 5.3).

The Average Variance Extracted (AVE) values range from 0.56 to 0.62, which are greater than the recommended threshold of 0.50 as suggested by Fornell and Larcker (1981), confirming that the measured items for the two sub-dimensional factors have acceptable convergent validity (see Table 5.4).

The correlation coefficient between the two sub-dimensional factors is 0.50, which is below the recommended threshold of 0.85 as suggested by Kline (2011). Therefore, this result indicates that

the measured items of the two sub-dimensional factors have adequate discriminant validity (see Table 5.3 and Figure 5.5).

Construct reliability (CR) for the two sub-dimensional factors ranges from 0.83 to 0.91 and are above the recommended threshold of 0.70 as suggested by Nunnally (1978). Therefore, this result indicates that the measured items for the two sub-dimensional factors have high reliability (see Table 5.4).

Table 5.3 The Standardised Solutions of First–Order Confirmatory Factor Analysis Model for Interpersonal Quality

| Measurement Items | Factor Loading | Correlation |
|-----------------------|-----------------|--|
| Communication Skills1 | 0.68(10.298)*** | Communication Skills ↔ Friendliness 0.50 |
| Communication Skills2 | 0.76(11.125)*** | |
| Communication Skills3 | 0.84(12.021)*** | |
| Communication Skills4 | 0.72(10.720)*** | |
| Communication Skills5 | 0.79(11.504)*** | |
| Communication Skills6 | 0.77(11.354)*** | |
| Communication Skills7 | 0.76(11.274)*** | |
| Communication Skills8 | 0.63*** | |
| Friendliness1 | 0.72(12.246)*** | |
| Friendliness2 | 0.83(12.648)*** | |
| Friendliness3 | 0.81*** | |

() t value

*** Statistically significant at the 0.001 level

Table 5.4 Average Variance Extracted and Construct Reliability Results of the First-Order Confirmatory Factor Analysis Model for Interpersonal Quality

| Variable Label | Construct Reliability | Average Variance Extracted |
|----------------------|-----------------------|----------------------------|
| Communication Skills | 0.91 | 0.56 |
| Friendliness | 0.83 | 0.62 |

5.4.2.2 First-Order Confirmatory Factor Analysis for Environment Quality

The first-order CFA model for environment quality was based on the results of EFA and designed to examine the relationships between two sub-dimensions of environment quality of atmosphere (Atm), tangibles (Tan), and 11 items (see Figure 5.6).

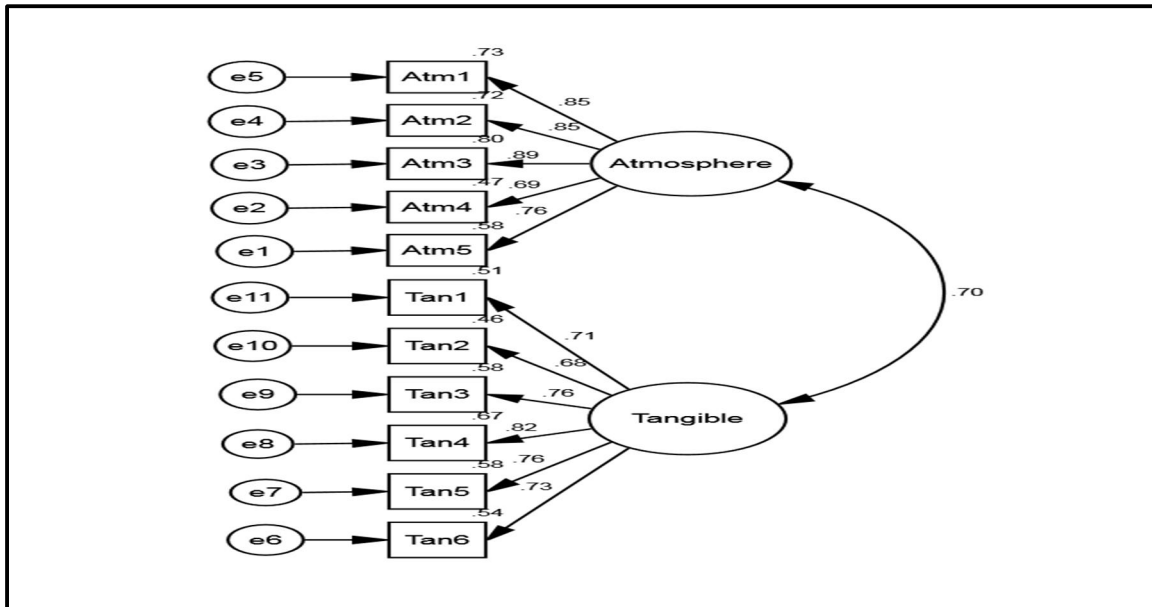


Figure 5.6 The Preliminary First-Order Confirmatory Factor Analysis Model for Environment Quality

The preliminary first-order model for environment quality shows 11 items resulting in $v = 66$ pieces of information ($11[11+1]/2$), and showing the number of estimated parameters in the model to be 23 parameters (9 regression weights, 1 covariance, and 13 variances). Based on the t-rule, the model is over-identified with 43 degrees of freedom (66 pieces of information - 23 parameters) (Blunch 2008, Byrne 2010, Hair, Black et al. 2010, Kline 2011).

The results of the preliminary first-order model for environment quality indicate that all items have a factor loading above the recommended threshold of 0.60 and are statistically significant at the 0.001 level. However, some of the model fit indices for the preliminary first-order model for environment quality; the Goodness-of-Fit Indices (GFI) are below the recommended thresholds (Byrne 2010, Hair, Black et al. 2010, Kline 2011, Awang 2012) and the Root Mean Square Error of Approximation (RMSEA), is greater than 0.10 which is higher than the recommended thresholds (Nokelainen 2009, Awang 2012) (see Table 5.5). Consequently, some modifications were required in order to improve the model fit.

Table 5.5 Goodness-of-Fit Results of the Preliminary First–Order Confirmatory Factor Analysis Model for Environment Quality

| Goodness-of-Fit indices | Values |
|---|---------|
| Chi-square(χ^2) | 209.159 |
| Degree of Freedom (<i>df</i>) | 43 |
| Normed Chi-square (χ^2/df) | 4.86 |
| Goodness-of-Fit Index (GFI) | 0.88 |
| Standardized Root Mean Residual (SRMR) | 0.048 |
| Comparative Fit Index (CFI) | 0.92 |
| Normed Fit Index (NFI) | 0.91 |
| Root Mean Square Error of Approximation (RMSEA) | 0.11 |

The Modification index (MI) identified that the pairs of items Tan3 and Tan2, Tan5 and Tan2, and Tan5 and Tan6 presented higher than the recommended threshold of 15 which indicates that these items are redundant items in the measurement model for environment quality (Awang 2012, Lawrence, Gamst et al. 2013). Based on the highest MI value, a preliminary first-order model for environment quality was re-specified by deleting item Tan2, due to Tan2 having a lower factor loading than Tan3 (Hair, Black et al. 2010, Awang 2012, Lawrence, Gamst et al. 2013) (see Table 5.6).

Table 5.6 Suggestions for Improving Model-fit-indices from the Modification Index

| Items | Modification Index | Expected Par Change |
|----------------|--------------------|---------------------|
| Tan3 <--- Tan2 | 26.339 | 0.216 |
| Tan5 <--- Tan2 | 17.875 | -0.178 |
| Tan5 <--- Tan6 | 21.364 | 0.190 |

After deleting item Tan2, there remained 10 measurement items for environment quality; consisting of 5 items for the atmosphere sub-dimension, and 5 items for the tangibles sub-dimension (see Figure 5.7). The modified first-order model for environment quality shows 10 items (see Figure 5.7).

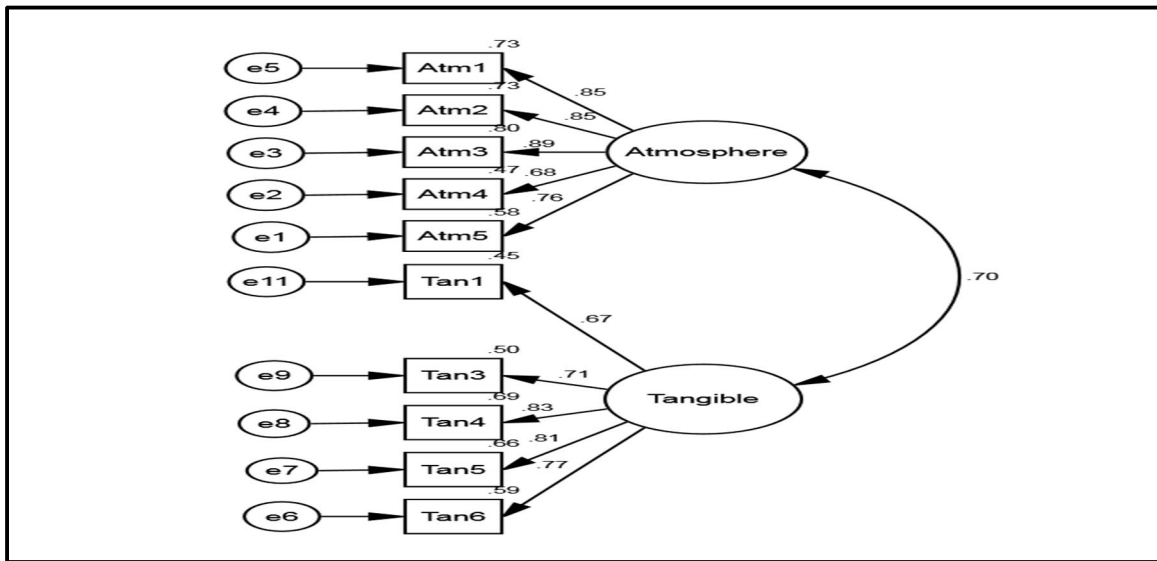


Figure 5.7 The Modified First-Order Confirmatory Factor Analysis Model for Environment Quality

The number of measured items shows 55 pieces of information ($10[10+1]/2 = 55$) and the number of estimated parameters is 21 parameters (8 regression weights, 1 covariance, and 12 variances). Based on the t-rule, the model is over-identified (the number of observed variances and covariances were greater than the number of estimated parameters) with 34 degrees of freedom (55 pieces of information - 21 parameters) (Blunch 2008, Byrne 2010, Hair, Black et al. 2010, Kline 2011).

The improvement of all model fit indices in the modified first-order CFA model for environment quality are statistically significant at the 0.001 level and therefore sufficiently satisfy the requirements according to the recommended thresholds. The model fit results indicate a good model fit to the sample data. Model modification was not required because the modified first-order CFA model for environment quality has model fit indices that are more than satisfactory (Schumacker and Lomax 2004, Hair, Black et al. 2010, Kline 2011, Awang 2012). The goodness-of-fit results of the modified first-order CFA model for environment quality are summarized in Table 5.7.

The improvement in the model fit was also examined by subtracting the overall χ^2 statistics for the modified model from the preliminary model. Comparing the preliminary model ($\chi^2(43) = 209.159$) with the modified model ($\chi^2(34) = 96.934$) yielded a difference in the χ^2 value of 112.225 ($\chi^2(9) = 112.225$). Accordingly, the modified model is statically significant and indicated an improvement in the model-fit-indices.

After the re-specification process all of the model fit indices were improved and sufficiently satisfied their relevant recommended thresholds, especially the indices which had been unacceptable in the

preliminary model such as the GFI and the RMSEA. These indices now indicate a good model fit to the sample data in the modified model (see Table 5.7).

Table 5.7 Goodness-of-Fit Results of the Modified First–Order Confirmatory Factor Analysis Model for Environment Quality

| Goodness-of-Fit indices | Values |
|---|---------------|
| Chi-square(χ^2) | 96.934 |
| Degree of Freedom (<i>df</i>) | 34 |
| Normed Chi-square (χ^2/df) | 2.85 |
| Goodness-of-Fit Index (GFI) | 0.94 |
| Standardized Root Mean Residual (SRMR) | 0.036 |
| Comparative Fit Index (CFI) | 0.97 |
| Normed Fit Index (NFI) | 0.95 |
| Root Mean Square Error of Approximation (RMSEA) | 0.077 |

Several scholars (Janssens, Wijnen et al. 2008, Byrne 2010, Hair, Black et al. 2010, Kline 2011) recommend that construct validity and reliability be verified as a requirement for a measurement model. Accordingly, unidimensionality was examined in order to verify construct validity and reliability (Byrne 2010). Moreover, convergent validity and discriminant validity were also examined to reconfirm the construct validity, and composite reliability was examined to verify reliability. The measurement model for environment quality presents an acceptable construct validity and reliability.

The CFI index is 0.97 which is greater than the recommended threshold of 0.90 as suggested by Byrne (2010). This evidence supports the contention that the first-order CFA model for environment quality demonstrates sufficient unidimensionality (see Table 5.7).

All standardized factor loadings are statistically significant at the 0.001 level, and range from 0.67 to 0.89, which are greater than the recommended threshold of 0.60 as suggested by Bagozzi and Yi (1988), indicating adequate convergent validity (see Table 5.8).

The AVE values range from 0.58 to 0.66, which are greater than the recommended threshold of 0.50 as suggested by Fornell and Larcker (1981), confirming that the measured items for the two sub-dimensional factors have acceptable convergent validity (see Table 5.9).

The correlation coefficient between the two sub-dimensional factors is 0.70, which is below the recommended threshold of 0.85 as suggested by Kline (2011). Thus, this result indicates that the measured items of the two sub-dimensional factors have adequate discriminant validity (see Table 5.8 and Figure 5.7).

The construct reliability (CR) for the two sub-dimensional factors ranges from 0.87 to 0.91 and are above the recommended threshold of 0.70 as suggested by Nunnally (1978). Therefore, this result indicates that the measured items for the two sub-dimensional factors have high reliability (see Table 5.9).

Table 5.8 The Standardized Solutions of the Modified First–Order Confirmatory Factor Analysis Model for Environment Quality

| Measurement Items | Factor Loading | Correlation |
|-------------------|-----------------|-----------------------------|
| Atmosphere1 | 0.85(15.786)*** | Atmosphere ↔ Tangibles 0.70 |
| Atmosphere2 | 0.85(15.649)*** | |
| Atmosphere3 | 0.89(16.912)*** | |
| Atmosphere4 | 0.68(12.380)*** | |
| Atmosphere5 | 0.76*** | |
| Tangibles1 | 0.67(11.359)*** | |
| Tangibles3 | 0.71(12.108)*** | |
| Tangibles4 | 0.83(14.399)*** | |
| Tangibles5 | 0.81(14.999)*** | |
| Tangibles6 | 0.77*** | |

() t value

*** Statistically significant at the 0.001 level

Table 5.9 Average Variance Extracted and Construct Reliability Results of the Modified First-Order Confirmatory Factor Analysis Model for Environment Quality

| Variable Label | Construct Reliability | Average Variance Extracted |
|----------------|-----------------------|----------------------------|
| Atmosphere | 0.91 | 0.66 |
| Tangibles | 0.87 | 0.58 |

5.4.2.3 First-Order Confirmatory Factor Analysis for Administrative Quality

The first-order CFA model for administrative quality was based on the EFA results and designed to examine the relationships between three sub-dimensions of administrative quality of timeliness (Tim), operation (Ope), programme variety (Pro), and 11 items (see Figure 5.8).

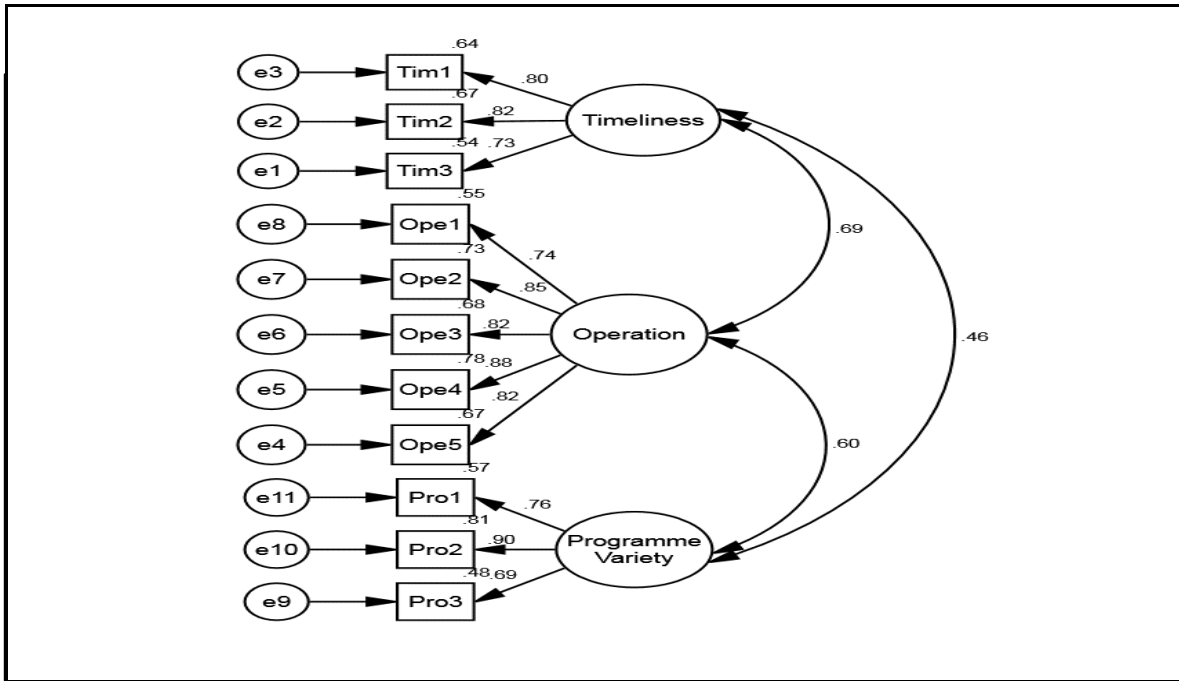


Figure 5.8 First-Order Confirmatory Factor Analysis Model for Administrative Quality

The preliminary first-order model shows 11 measured items resulting in $v = 66$ pieces of information ($11[11+1]/2$) and showing the number of estimated parameters in the model to be 25 parameters (8 regression weights, 3 covariance, and 14 variances). Based on the t-rule, the model is over-identified with 41 degrees of freedom (66 pieces of information – 25 parameters) (Blunch 2008, Byrne 2010, Hair, Black et al. 2010, Kline 2011).

The model fit results for the first-order CFA model for administrative quality show a good model fit to the sample data. Based on the recommended thresholds, all model fit indices were found to be statistically significant at the 0.001 and therefore sufficiently satisfy the fit indices criteria. The first-order CFA model for administrative quality has model fit indices that are more than satisfactory (Schumacker and Lomax 2004, Hair, Black et al. 2010, Kline 2011, Awang 2012). Thus, model modification was not required. In addition, the goodness-of-fit results for the first-order CFA model for administrative quality are reported in Table 5.10.

Table 5.10 Goodness-of-Fit Results for First-Order Confirmatory Factor Analysis Model for Administrative Quality

| Goodness-of-Fit indices | Values |
|---|---------------|
| Chi-square(χ^2) | 70.743 |
| Degree of Freedom (<i>df</i>) | 41 |
| Normed Chi-square (χ^2/df) | 1.73 |
| Goodness-of-Fit Index (GFI) | 0.96 |
| Standardized Root Mean Residual (SRMR) | 0.034 |
| Comparative Fit Index (CFI) | 0.99 |
| Normed Fit Index (NFI) | 0.97 |
| Root Mean Square Error of Approximation (RMSEA) | 0.048 |

Furthermore, the measurement model for administrative quality shows adequate construct validity and reliability. The CFI index is 0.99 which is greater than the recommended threshold of 0.90 as suggested by Byrne (2010). This evidence supports the contention that the first-order CFA model for administrative quality demonstrates sufficient unidimensionality (see Table 5.10).

All standardized factor loadings are statistically significant at the 0.001 level, and range from 0.69 to 0.90, which are greater than the recommended threshold of 0.60 as suggested by Bagozzi and Yi (1988), indicating adequate convergent validity (see Table 5.11).

The AVE values range from 0.61 to 0.68, which are greater than the recommended threshold of 0.50 as suggested by Fornell and Larcker (1981), confirming that the measured items for the three sub-dimensional factors have acceptable convergent validity (see Table 5.12).

The correlation coefficient between the three sub-dimensional factors ranges from 0.46 to 0.69, which are below the recommended threshold of 0.85 as suggested by Kline (2011). Therefore, this result indicates that the measured items of the three sub-dimensional factors have adequate discriminant validity (see Table 5.11 and Figure 5.8).

The construct reliability (CR) for the three sub-dimensional factors ranges from 0.83 to 0.91 and are above the recommended threshold of 0.70 as suggested by Nunnally (1978). Therefore, this result indicates that the measured items for the three sub-dimensional factors have high reliability (see Table 5.12).

Table 5.11 The Standardized Solutions of First–Order Confirmatory Factor Analysis Model for Administrative Quality

| Variable Label | Factor Loading | Correlation |
|--------------------|-----------------|-------------------------------------|
| Timeliness1 | 0.80(12.657)*** | Timeliness ↔ Operation 0.69 |
| Timeliness2 | 0.82(12.899)*** | Operation ↔ Programme Variety 0.60 |
| Timeliness3 | 0.73*** | Timeliness ↔ Programme Variety 0.46 |
| Operation1 | 0.74(14.484)*** | |
| Operation2 | 0.85(17.714)*** | |
| Operation3 | 0.82(16.704)*** | |
| Operation4 | 0.88(18.526)*** | |
| Operation5 | 0.82*** | |
| Programme Variety1 | 0.76(11.664)*** | |
| Programme Variety2 | 0.90(12.659)*** | |
| Programme Variety3 | 0.69*** | |

() t value

*** Statistically significant at the 0.001 level

Table 5.12 Average Variance Extracted and Construct Reliability Results of the First-Order Confirmatory Factor Analysis Model for Administration Quality

| Variable Label | Construct Reliability | Average Variance Extracted |
|-------------------|-----------------------|----------------------------|
| Timeliness | 0.83 | 0.61 |
| Operation | 0.91 | 0.68 |
| Programme Variety | 0.83 | 0.62 |

5.4.2.4 First-Order Confirmatory Factor Analysis for Technical Quality

The first-order CFA model for technical quality was based on the results of EFA and designed to examine the relationships between two sub-dimensions of technical quality of outcome (Out), staff expertise (Exp), and 8 items (see Figure 5.9).

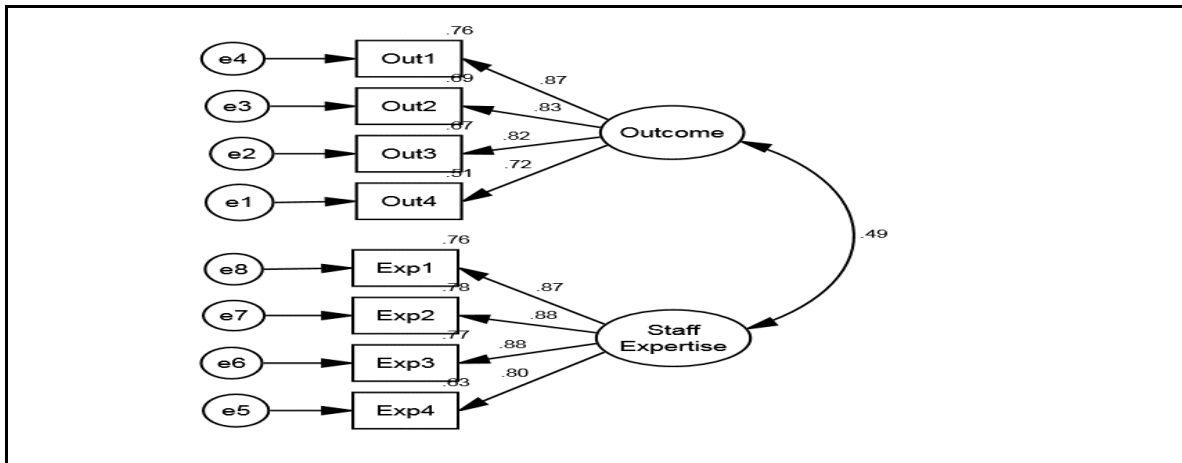


Figure 5.9 First-Order Confirmatory Factor Analysis Model for Technical Quality

The preliminary first-order model shows 8 measured items with $v = 36$ pieces of information ($8[8+1]/2$), and shows the number of estimated parameters in the model to be 17 (6 regression weights, 1 covariance, and 10 variances). Based on the t-rule, the first-order CFA model for technical quality was over-identified with 19 degrees of freedom (36 pieces – 17 parameters) (Blunch 2008, Byrne 2010, Hair, Black et al. 2010, Kline 2011).

The model fit results for the first-order CFA model for technical quality show a good model fit to the sample data. Based on the recommended thresholds, all model fit indices were found to be statistically significant at the 0.001 level and therefore sufficiently satisfied the fit indices criteria. Modification was not required because the first-order CFA model for technical quality had model fit indices that are more than satisfactory (Schumacker and Lomax 2004, Hair, Black et al. 2010, Kline 2011, Awang 2012). The goodness-of-fit results for the first-order CFA model for technical quality are reported in Table 5.13.

Table 5.13 Goodness-of-Fit Results for First-Order Confirmatory Factor Analysis Model for Technical Quality

| Goodness-of-Fit indices | Values |
|---|--------|
| Chi-square(χ^2) | 37.013 |
| Degree of Freedom (<i>df</i>) | 19 |
| Normed Chi-square (χ^2/df) | 1.95 |
| Goodness-of-Fit Index (GFI) | 0.97 |
| Standardized Root Mean Residual (SRMR) | 0.026 |
| Comparative Fit Index (CFI) | 0.99 |
| Normed Fit Index (NFI) | 0.98 |
| Root Mean Square Error of Approximation (RMSEA) | 0.055 |

Moreover, the measurement model for technical quality shows acceptable construct validity and reliability. The CFI index is 0.99 which is greater than the recommended threshold of 0.90 as suggested by Byrne (2010). This evidence supports the contention that the first-order CFA model for technical quality demonstrates sufficient unidimensionality (see Table 5.13).

All standardized factor loadings are statistically significant at the 0.001 level, and range from 0.72 to 0.88, which are greater than the recommended threshold of 0.60 as suggested by Bagozzi and Yi (1988), indicating adequate convergent validity (see Table 5.14).

The AVE values range from 0.66 to 0.74, which are greater than the recommended threshold of 0.50 as suggested by Fornell and Larcker (1981), confirming that the measured items for the two sub-dimensional factors have acceptable convergent validity (see Table 5.15).

The correlation coefficient between the two sub-dimensional factors is 0.49, which is below the recommended threshold of 0.85 as suggested by Kline (2011). Thus, this result indicates that the measured items of the two sub-dimensional factors have adequate discriminant validity (see Table 5.14 and Figure 5.9).

The construct reliability (CR) for the two sub-dimensional factors ranges from 0.88 to 0.92 and are above the recommended threshold of 0.70 as suggested by Nunnally (1978). Therefore, this result indicates that the measured items for the two sub-dimensional factors have high reliability (see Table 5.15).

Table 5.14 The Standardized Solutions of First–Order Confirmatory Factor Analysis Model for Technical Quality

| Variable Label | Factor Loading | Correlation |
|------------------|-----------------|--------------------------------|
| Outcome1 | 0.87(14.015)*** | Outcome ↔ Staff Expertise 0.49 |
| Outcome2 | 0.83(13.450)*** | |
| Outcome3 | 0.82(13.671)*** | |
| Outcome4 | 0.72*** | |
| Staff Expertise1 | 0.87(17.322)*** | |
| Staff Expertise2 | 0.88(17.710)*** | |
| Staff Expertise3 | 0.88(17.778)*** | |
| Staff Expertise4 | 0.80*** | |

() t value

*** Statistically significant at the 0.001 level

Table 5.15 Average Variance Extracted and Construct Reliability Results of the First-Order Confirmatory Factor Analysis Model for Technical Quality

| Variable Label | Construct Reliability | Average Variance Extracted |
|-----------------|-----------------------|----------------------------|
| Outcome | 0.88 | 0.66 |
| Staff Expertise | 0.92 | 0.74 |

5.4.3 Second-Order Confirmatory Factor Analysis for the Primary Dimensions

The second-order CFA of the primary dimensions was designed to test the relationships between nine sub-dimensions (communication skills, friendliness, atmosphere, tangibles, timeliness, operation, programme variety, outcome, and staff expertise) and four primary dimensions of interpersonal quality (InQ), environment quality (EnQ), administrative quality (AdQ), and technical quality (TeQ). These four primary dimensions are interpreted as second order factors to the nine sub-dimensions and modelled accordingly (see Figure 5.10).

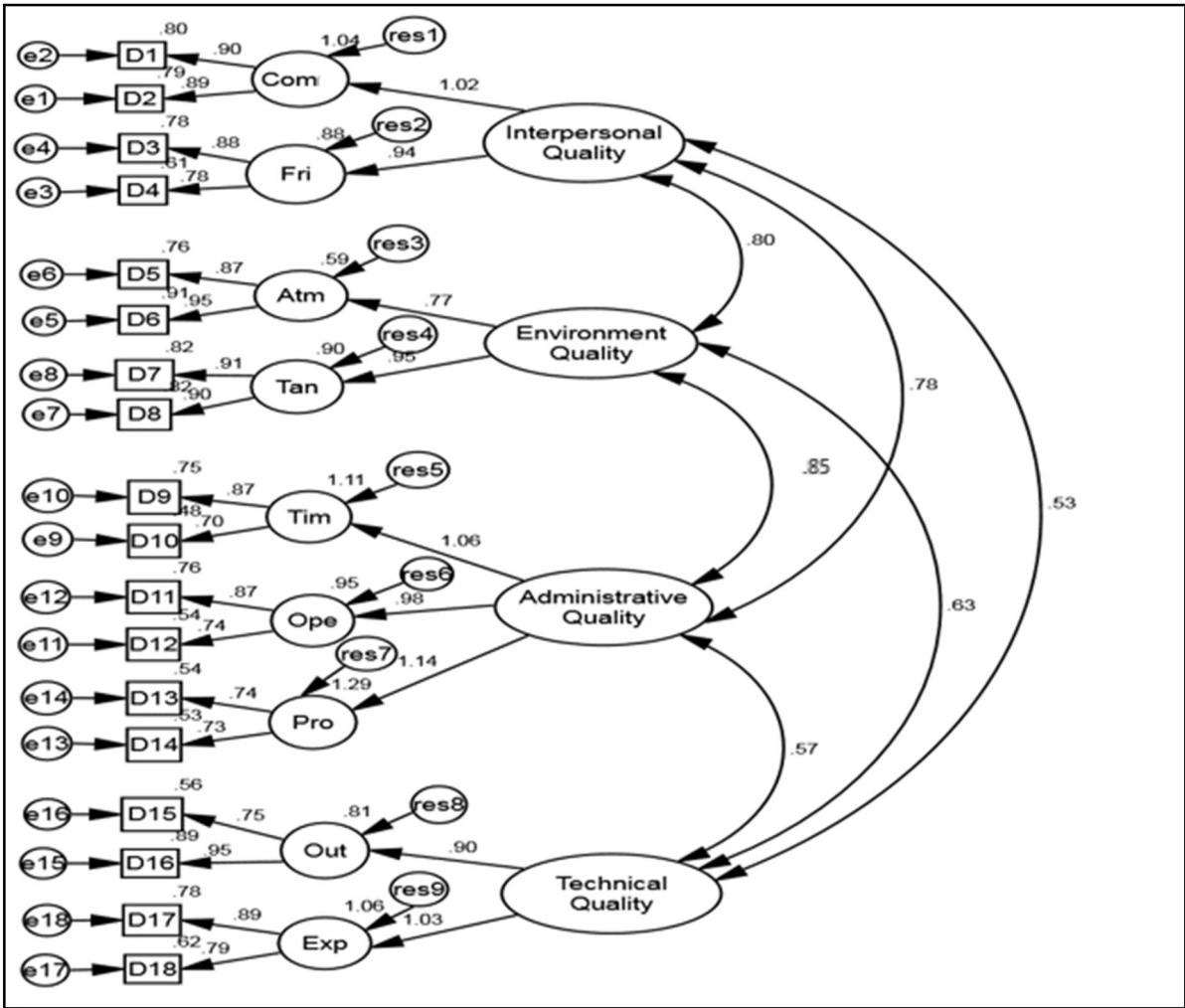


Figure 5.10 Second-Order Confirmatory Factor Analysis Model for the Primary Dimensions KEY:

D1= Com1+ Com3 + Fri1
 D2 = Com2+Com7+Fri2
 D3 = Com4+Com6+Fri3
 D4 = Com5+Com8
 D5 = Atm1+Atm5
 D6 = Atm4+Tan3

D7 = Atm2+Tan1
 D8 = Atm3+Tan2
 D9 = Tan4+Tim1
 D10 = Tan5+Op4
 D11 = Ope1+Pro2
 D12 = Ope5+Tim2

D13 = Ope3+Pro1+Pro3
 D14 = Tim3+Ope2
 D15 = Out1+Out4
 D16 = Out2+Exp1
 D17 = Out3+Exp4
 D18 = Exp2+Exp3

The four primary dimensions and nine sub-dimensions are based on Dagger, Sweeney, and Johnson's (2007) study on healthcare. The second-order CFA of the measurement model in this study is based on a partial disaggregation approach as suggested by Dagger et al. (2007), Bagozzi and Foxall (1996), and Bagozzi and Heatherton (1994). For the partial disaggregation analysis in this current study, the indicators for each sub-dimension, or first-order factor, were randomly combined into two composite indicators to reduce higher levels of random error, yet still retain all the advantages of structural equation modelling, including accounting for measurement error, allowing for multiple, multidimensional variables, and testing for hierarchical factor structure (Bagozzi and Heatherton 1994, Bagozzi and Foxall 1996, Dabholkar, Thorpe et al. 1996) (see Figure 5.10).

The rationale for a random combination of items is that all items or indicators, relating to a latent variable, should correspond in the same way to that latent variable. Therefore, any combination of items should yield the same model fit (Dabholkar, Thorpe et al. 1996).

The model-fit result for the second-order CFA model for the primary dimensions demonstrates a good model fit to the sample data. All model fit indices are sufficiently satisfied based on the relative recommended thresholds (Hair, Black et al. 2010, Kline 2011, Awang 2012). Consequently, model modification was not required and the goodness-of-fit indices of the second-order CFA model for the primary dimensions are shown in Table 5.16.

Table 5.16 Goodness-of-Fit Results for Second-Order Confirmatory Factor Analysis Model for Primary Dimensions

| Goodness-of-Fit indices | Values |
|---|---------------|
| Chi-square(χ^2) | 562.275 |
| Degree of Freedom (<i>df</i>) | 120 |
| Normed Chi-square (χ^2/df) | 4.686 |
| Goodness-of-Fit Index (GFI) | 0.84 |
| Standardized Root Mean Residual (SRMR) | 0.039 |
| Comparative Fit Index (CFI) | 0.91 |
| Normed Fit Index (NFI) | 0.89 |
| Root Mean Square Error of Approximation (RMSEA) | 0.10 |

The standardized factor loadings for the primary dimensions slightly exceed 1.00 and thus were set at 1.00, as is typical of second-order factor analysis (Machleit, Kellaris et al. 1994, Dabholkar, Thorpe et al. 1996). Also an examination of modification indices did not suggest any changes in the model. The results indicate that the second-order CFA model for the primary dimensions is well supported.

Moreover, the results of the standardized solution and correlation of the second-order CFA model for the primary dimensions are acceptable and statistically significant at the 0.001 level. These results

support the reliability and validity of the measures associated with the second-order CFA model for the primary dimensions (Bagozzi and Yi 1988, Kline 2011).

As indicated in Table 5.17, at the sub-dimension level, communication skills has a significant, positive, and larger impact ($\beta = 1.02$, t-value = 19.45, $P < 0.001$) on perceptions of interpersonal quality than friendliness ($\beta = 0.94$, t-value = 14.16, $P < 0.001$). Further analysis shows that tangibles have a significant, positive, and larger impact ($\beta = 0.95$, t-value = 17.36, $P < 0.001$) on perceptions of administrative quality than atmosphere ($\beta = 0.77$, t-value = 14.30, $P < 0.001$). Moreover, programme variety was found to have a significant, positive, and the greatest impact ($\beta = 1.14$, t-value = 17.43, $P < 0.001$) on perceptions of administrative quality, followed by timeliness ($\beta = 1.06$, t-value = 14.70, $P < 0.001$) and operation ($\beta = 0.98$, t-value = 14.30, $P < 0.001$). Finally, staff expertise and outcome both have significant positive effects on perceptions of technical quality, with staff expertise having the largest impact ($\beta = 1.03$, t-value = 14.44, $P < 0.001$) compared to outcome ($\beta = 0.90$, t-value = 16.81, $P < 0.001$). These results show that the four primary dimensions have nine sub-dimensions associated with them based on the perceptions of participants in the sample. Moreover, these results support Hypotheses 11 to 14 and Hypothesis 19a as stated in Chapter 3.

Table 5.17 The Standardized Solutions of Second–Order Confirmatory Factor Analysis Model of Primary Dimensions

| Measurement Items | Factor Loading | Correlation | R ² |
|--|----------------|--------------|----------------|
| Communication skills → Interpersonal Quality | 1.02(19.45)*** | TeQ-InQ 0.53 | 1.04 |
| Friendliness → Interpersonal Quality | 0.94(14.46)*** | EnQ-InQ 0.80 | 0.88 |
| Atmosphere → Environment Quality | 0.77(14.30)*** | AdQ-InQ 0.78 | 0.59 |
| Tangibles → Environment Quality | 0.95(17.36)*** | AdQ-TeQ 0.57 | 0.90 |
| Timeliness → Administrative Quality | 1.06(14.70)*** | EnQ-TeQ 0.63 | 1.11 |
| Operation → Administrative Quality | 0.98(14.30)*** | EnQ-AdQ 0.85 | 0.95 |
| Programme Variety → Administrative Quality | 1.14(17.43)*** | | 1.29 |
| Outcome → Technical Quality | 0.90(16.81)*** | | 0.81 |
| Staff Expertise → Technical Quality | 1.03(14.44)*** | | 1.06 |

*** Statistically significant at the 0.001 level

InQ = Interpersonal Quality, **EnQ** = Environment Quality, **AdQ** = Administrative Quality, **TeQ** = Technical Quality

5.4.4 Confirmatory Factor Analysis for Service Quality

The CFA for service quality was undertaken in two steps: A First-Order and Second-Order CFA. The following sections present the results of the first-order and second-order CFA for service quality.

5.4.4.1 First-Order Confirmatory Factor Analysis Model for Service Quality

The first-order CFA model for service quality was designed to examine the relationships between four primary dimensions of service quality (interpersonal quality, environment quality, administrative quality, technical quality), and 8 items (see Figure 5.11).

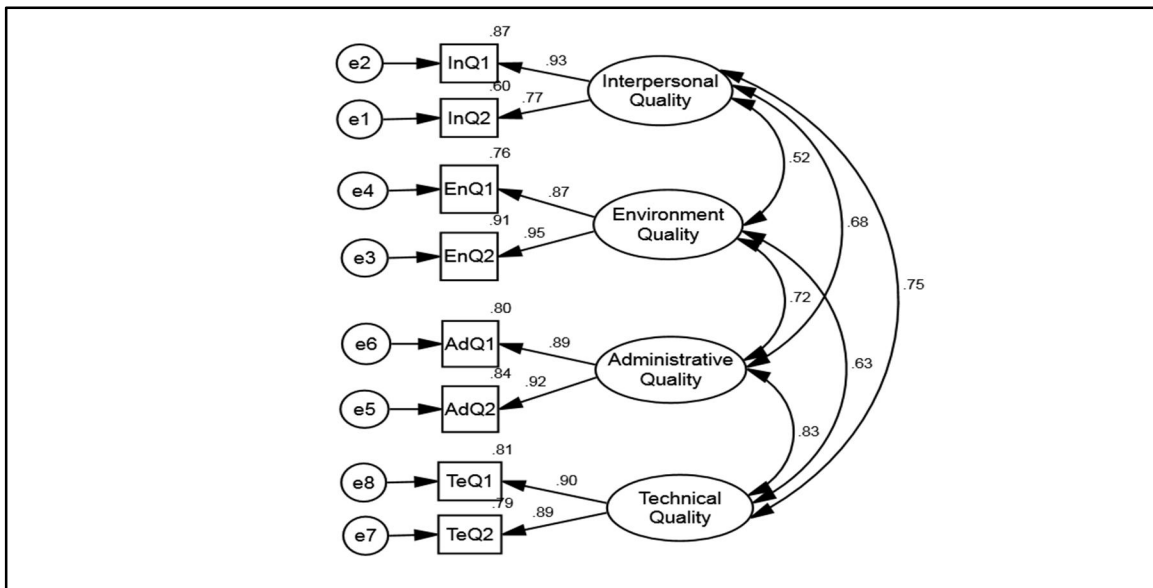


Figure 5.11 First-Order Confirmatory Factor Analysis Model for Service Quality

The first-order model shows 8 items. The number of measured items is $v = 36$ pieces of information ($8[8+1]/2$), and the number of estimated parameters in the model is 22 (4 regression weights, 6 covariance, and 12 variances). Based on the t-rule, the first-order CFA model for service quality is over-identified with 14 degrees of freedom (36 pieces of information – 22 parameters) (Blunch 2008, Byrne 2010, Hair, Black et al. 2010, Kline 2011).

The model fit results for the first-order CFA model for service quality show a good model fit to the sample data. Based on the recommended thresholds, all model fit indices are found to sufficiently satisfy the fit indices criteria. Model modification was not required because the first-order CFA model for service quality has model fit indices that are more than satisfactory (Schumacker and Lomax 2004, Hair, Black et al. 2010, Kline 2011, Awang 2012). The goodness-of-fit results for the first-order CFA model for service quality are reported in Table 5.18.

Table 5.18 Goodness-of-Fit Results for First–Order Confirmatory Factor Analysis Model for Service Quality

| Goodness-of-Fit indices | Values |
|---|---------------|
| Chi-square(χ^2) | 18.975 |
| Degree of Freedom (<i>df</i>) | (36-22) 14 |
| Normed Chi-square (χ^2/df) | 1.36 |
| Goodness-of-Fit Index (GFI) | 0.99 |
| Standardized Root Mean Residual (SRMR) | 0.011 |
| Comparative Fit Index (CFI) | 1.00 |
| Normed Fit Index (NFI) | 0.99 |
| Root Mean Square Error of Approximation (RMSEA) | 0.034 |

Moreover, the measurement model for service quality shows acceptable construct validity and reliability. The CFI index is 1.00 which is greater than the recommended threshold of 0.90 as suggested by Byrne (2010). This evidence supports the contention that the first-order CFA model for service quality demonstrates sufficient unidimensionality (see Table 5.18).

All standardized factor loadings are statistically significant at the 0.001 level, and range from 0.77 to 0.95, which are greater than the recommended threshold of 0.60 as suggested by Bagozzi and Yi (1988), indicating adequate convergent validity (see Table 5.19).

The AVE values range from 0.74 to 0.83, which are greater than the recommended threshold of 0.50 as suggested by Fornell and Larcker (1981), confirming that the measured items for the four sub-dimensional factors have acceptable convergent validity (see Table 5.20).

The correlation coefficient of the four primary dimensional factors range from 0.52 to 0.83, which are below the recommended threshold of 0.85 as suggested by Kline (2011). Thus this result indicates that the measured items of the four sub-dimensional factors have adequate discriminant validity (see Table 5.19 and Figure 5.11).

The construct reliability (CR) for the four sub-dimensional factors ranges from 0.85 to 0.91 and are above the recommended threshold of 0.70 as suggested by Nunnally (1978). Therefore, this result indicates that the measured items for the four sub-dimensional factors have high reliability (see Table 5.20).

Table 5.19 The Standardized Solutions for First–Order Confirmatory Factor Analysis Model of Service Quality

| Variable Label | Factor Loading | Correlation |
|----------------|----------------|----------------|
| InQ1 | 0.93*** | InQ ↔ EnQ 0.52 |
| InQ2 | 0.77(14.14)*** | EnQ ↔ TeQ 0.63 |
| EnQ1 | 0.87*** | AdQ ↔ TeQ 0.83 |
| EnQ2 | 0.95(18.93)*** | InQ ↔ TeQ 0.75 |
| AdQ1 | 0.89*** | InQ ↔ AdQ 0.69 |
| AdQ2 | 0.92(22.47)*** | EnQ ↔ AdQ 0.72 |
| TeQ1 | 0.90*** | |
| TeQ2 | 0.89(20.96)*** | |

*** Statistically significant at the 0.001 level

InQ= Interpersonal Quality, **EnQ** = Environment Quality, **AdQ** = Administrative Quality, **TeQ** = Technical Quality

Table 5.20 Average Variance Extracted and Construct Reliability Results for the First-Order Confirmatory Factor Analysis Model for Service Quality

| Variable Label | Construct Reliability | Average Variance Extracted |
|------------------------|-----------------------|----------------------------|
| Interpersonal Quality | 0.85 | 0.74 |
| Environment Quality | 0.91 | 0.83 |
| Administrative Quality | 0.90 | 0.82 |
| Technical Quality | 0.89 | 0.80 |

5.4.4.2 Second–Order Confirmatory Factor Analysis Model for Service Quality

The second-order confirmatory factor analysis model for service quality was designed to test the hypothesis that day spa service quality is a multidimensional construct composed of four primary dimensional factors (interpersonal quality, environment quality, administrative quality, technical quality). The second-order model includes four dependent first-order variables (interpersonal quality, environment quality, administrative quality, technical quality), and one independent second-order construct (service quality) (see Figure 5.12).

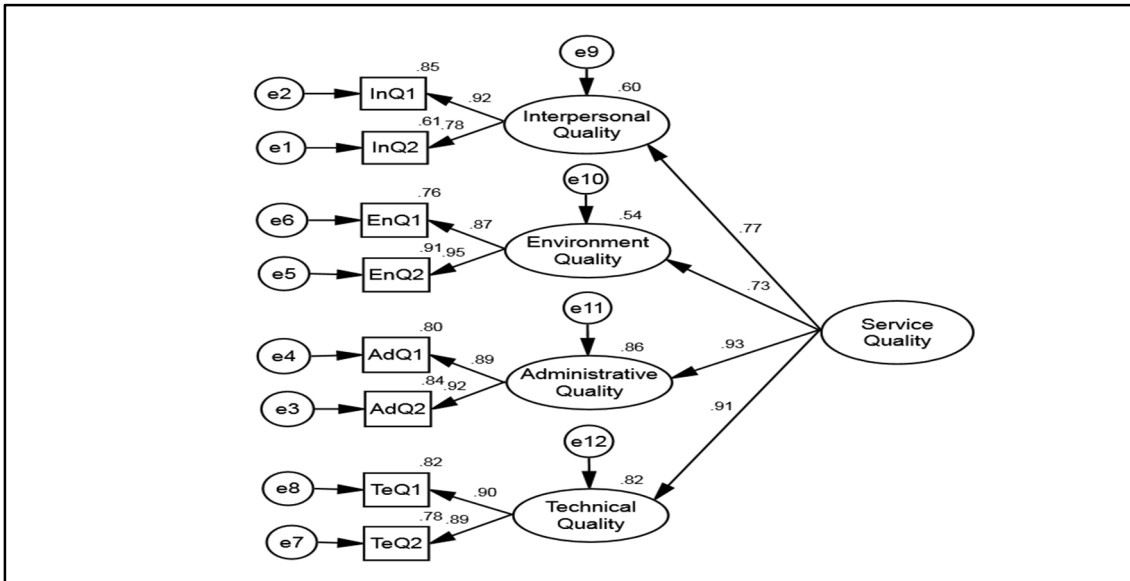


Figure 5.12 Second-Order Confirmatory Factor Analysis Model for Service Quality

Prior to examining the validity of the second-order CFA model for service quality, it is necessary to address the identification status of the higher order portion of the model (Byrne 2010). The first-order model was over-identified with 14 degrees of freedom. However, the second-order model identification needed to be re-specified in order to check the identification status (Byrne 2010). In this case, the higher order structure with the four first-order factors was $v = 10$ pieces of information ($4[4+1]/2$), and the number of estimated parameters in the model was $p = 8$ parameters (4 factor loadings and 4 residuals). Therefore, the higher order structure of the second-order CFA model for service quality was over-identified with 2 degrees of freedom (10 pieces of information–8 parameters) (Blunch 2008, Byrne 2010, Hair, Black et al. 2010, Kline 2011).

The model fit results for the second-order CFA model for service quality show a good model fit to the sample data. All the model fit indices sufficiently satisfied the fit indices criteria, according to the recommended thresholds. Model modification was not required because the second-order CFA model for service quality had model fit indices that are more than satisfactory (Schumacker and Lomax 2004, Hair, Black et al. 2010, Kline 2011, Awang 2012). The goodness-of-fit results for the second-order CFA model for service quality are reported in Table 5.21.

Table 5.21 Goodness-of-Fit Results for Second–Order Confirmatory Factor Analysis Model of Service Quality

| Goodness-of-Fit indices | Values |
|---|------------|
| Chi-square(χ^2) | 33.774 |
| Degree of Freedom (<i>df</i>) | (36-20) 16 |
| Normed Chi-square (χ^2/df) | 2.11 |
| Goodness-of-Fit Index (GFI) | 0.97 |
| Standardized Root Mean Residual (SRMR) | 0.021 |
| Comparative Fit Index (CFI) | 0.99 |
| Normed Fit Index (NFI) | 0.98 |
| Root Mean Square Error of Approximation (RMSEA) | 0.060 |

Table 5.22 The Standardized Solutions for Second–Order Confirmatory Factor Analysis Model of Service Quality

| Measurement Items | Factor Loading | R ² |
|------------------------|-----------------|----------------|
| Interpersonal Quality | 0.77(13.71)*** | 0.60 |
| Environment Quality | 0.73(16.58) *** | 0.54 |
| Administrative Quality | 0.93(16.57)*** | 0.86 |
| Technical Quality | 0.91(16.58)*** | 0.82 |
| InQ1 | 0.92*** | |
| InQ2 | 0.78(14.14)*** | |
| EnQ1 | 0.87*** | |
| EnQ2 | 0.95(18.64)*** | |
| AdQ1 | 0.89*** | |
| AdQ2 | 0.92(22.29)*** | |
| TeQ1 | 0.90*** | |
| TeQ2 | 0.89(20.75)*** | |

*** Statistically significant at the 0.001 level

InQ = Interpersonal Quality, **EnQ** = Environment Quality, **AdQ** = Administrative Quality, **TeQ** = Technical Quality

The results of the standardized solution and correlation of the second-order CFA model for service quality are acceptable and statistically significant at the 0.001 level. These results support the reliability and validity of the measures associated with the second-order CFA model for service quality.

As indicated in Tables 5.22 and 5.23, the factor loading values associated with the four first-order factors show that administrative quality ($\beta = 0.926$, t-value = 16.571, $P < 0.001$) is the strongest indicator of the second-order factor (service quality), followed by technical quality ($\beta = 0.907$, t-value = 16.580, $P < 0.001$), interpersonal quality ($\beta = 0.773$, t-value = 13.710, $P < 0.001$), environment quality ($\beta = 0.734$, t-value = 16.580, $P < 0.001$). Consequently, these results support Hypotheses 15 to 18 as stated in Chapter 3 (see Table 5.23).

Moreover, the second-order latent variable, represented by service quality, explains 86% of the variance in administrative quality, 82% of the variance in technical quality, 60% of the variance in interpersonal quality, and 54% of the variance in environment quality. These results support Hypothesis 19b.

Table 5.23 Structural Parameter Estimates

| Hypotheses Paths | Standardized Coefficients Paths (β) | Critical Ratios | R ² | Assessments |
|------------------|---|-----------------|----------------|-------------|
| H15: InQ←SQ | 0.773 | 13.710*** | 0.597 | Supported |
| H16: EnQ←SQ | 0.734 | 11.912*** | 0.538 | Supported |
| H17: AdQ←SQ | 0.926 | 16.571*** | 0.858 | Supported |
| H18: TeQ←SQ | 0.907 | 16.580*** | 0.823 | Supported |

*** Statistically significant at the 0.001 level

5.4.5 Confirmatory Factor Analysis Model for the Higher-Order Constructs

The CFA for the five higher-order marketing constructs consists of the first-order CFA for confirming the measurement model of the five higher-order marketing constructs (service quality, customer satisfaction, perceived value, perceived switching costs, behavioural intentions) and the causal path model for examining the interrelationships between these five constructs.

5.4.5.1 First-Order Confirmatory Factor Analysis Model for the Five Higher-Order Constructs

The first-order CFA Model for the five higher-order constructs was designed to test the relationships existing between the five higher-order constructs, (service quality, customer satisfaction, perceived value, perceived switching costs, behavioural intentions) and their measurement items (see Figure 5.13).

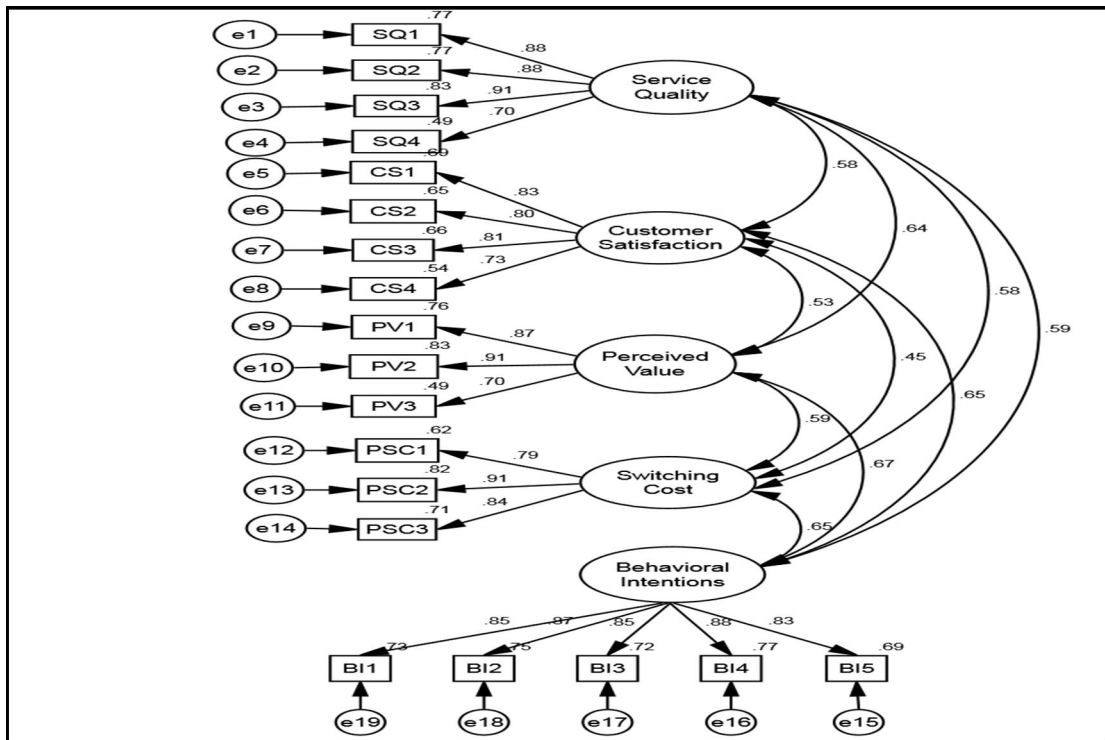


Figure 5.13 The First-Order Confirmatory Factor Analysis Model for the Five Higher-Order Constructs

The preliminary model shows 19 items. The number of measured variances and covariance ($19[19+1]/2$) was 190 pieces of information, and the number of estimated parameters in the model was 48 (14 regression weights, 10 covariance, and 24 variances). Based on the t-rule, the first-order CFA model for the five higher-order constructs was over-identified with 142 degrees of freedom (190 pieces of information – 48 parameters) (Blunch 2008, Byrne 2010, Hair, Black et al. 2010, Kline 2011).

The model fit results for the first-order CFA model for the five higher order constructs showed a good model fit to the sample data. Based on the recommended thresholds, all the model fit indices for all indicators sufficiently satisfy the fit indices criteria. Model modification was not required because the first-order CFA model for the five higher-order constructs had model fit indices that are more than satisfactory (Schumacker and Lomax 2004, Hair, Black et al. 2010, Kline 2011, Awang 2012). The goodness-of-fit results for the first-order CFA model for the five higher-order constructs are reported in Table 5.24.

Table 5.24 Goodness-of-Fit Results for First-Order Confirmatory Factor Analysis Model for the Five Higher-Order Constructs

| Goodness-of-Fit indices | Values |
|---|--------------|
| Chi-square(χ^2) | 330.090 |
| Degree of Freedom (df) | (190-48) 142 |
| Normed Chi-square (χ^2/df) | 2.33 |
| Goodness-of-Fit Index (GFI) | 0.90 |
| Standardized Root Mean Residual (SRMR) | 0.033 |
| Comparative Fit Index (CFI) | 0.96 |
| Normed Fit Index (NFI) | 0.93 |
| Root Mean Square Error of Approximation (RMSEA) | 0.065 |

Moreover, the measurement model for the five higher-order constructs shows acceptable construct validity and reliability. The CFI index is 0.96 which is greater than the recommended threshold of 0.90 as suggested by Byrne (2010). This evidence supports the contention that the first-order CFA model for the five higher-order constructs demonstrates sufficient unidimensionality (see Table 5.24).

All standardized factor loadings are statistically significant at the 0.001 level, and range from 0.70 to 0.91, which are greater than the recommended threshold of 0.60 as suggested by Bagozzi and Yi (1988), indicating adequate convergent validity (see Table 5.25).

The AVE values range from 0.63 to 0.73, which are greater than the recommended threshold of 0.50 as suggested by Fornell and Larcker (1981), confirming that the measured items for the five higher-order constructs have acceptable convergent validity (see Table 5.25).

The correlation coefficient of the five higher-order constructs ranges from 0.45 to 0.67, which are below the recommended threshold of 0.85 as suggested by Kline (2011). Thus, this result indicates that the measured items of the five higher-order constructs have adequate discriminant validity (see Table 5.25 and Figure 5.13).

The construct reliability (CR) for the five higher-order constructs ranges from 0.87 to 0.93 and are above the recommended threshold of 0.70 as suggested by Nunnally (1978). Therefore, this result indicates that the measured items for the five higher-order constructs have high reliability (see Table 5.26).

Table 5.25 The Standardized Solutions for First–Order Confirmatory Factor Analysis Model for the Five Higher-Order Constructs

| Measurement Items | Factor Loading | Correlation |
|-------------------|-----------------|-------------|
| SQ1 | 0.88(14.251)*** | PV↔CS 0.53 |
| SQ2 | 0.88(14.436)*** | BI↔SQ 0.60 |
| SQ3 | 0.91(14.999)*** | CS↔SQ 0.58 |
| SQ4 | 0.70*** | PV↔SQ 0.64 |
| CS1 | 0.83(14.064)*** | PV↔PSC 0.59 |
| CS2 | 0.80(13.397)*** | PSC↔SQ 0.58 |
| CS3 | 0.81(13.555)*** | PSC↔BI 0.65 |
| CS4 | 0.73*** | PV↔BI 0.67 |
| PV1 | 0.87(13.833)*** | CS↔BI 0.65 |
| PV2 | 0.91(14.781)*** | PSC↔CS 0.45 |
| PV3 | 0.70*** | |
| PSC1 | 0.79(16.022)*** | |
| PSC2 | 0.91(18.961)*** | |
| PSC3 | 0.84*** | |
| BI1 | 0.85(18.460)*** | |
| BI2 | 0.87(18.538)*** | |
| BI3 | 0.85(18.042)*** | |
| BI4 | 0.88(19.757)*** | |
| BI5 | 0.83*** | |

*** Statistically significant at the 0.001 level

Table 5.26 Average Variance Extracted and Construct Reliability Results for the First-Order Confirmatory Factor Analysis Model for the Five Higher-Order Constructs

| Variable Label | Construct Reliability | Average Variance Extracted |
|---------------------------|-----------------------|----------------------------|
| Service quality | 0.91 | 0.71 |
| Customer satisfaction | 0.87 | 0.63 |
| Perceived value | 0.87 | 0.70 |
| Perceived switching costs | 0.88 | 0.72 |
| Behavioural intentions | 0.93 | 0.73 |

5.4.5.2 The Structural Equation Modelling (SEM) Result

The structural equation model presented in Figure 5.13 was specifically designed to examine the relationships that may exist between service quality, customer satisfaction, customer perceived value, customer perceived switching costs, and behavioural intentions. The structural equation model comprises one exogenous variable (service quality), and four endogenous variables (customer satisfaction, perceived value, perceived switching costs, behavioural intentions).

The SEM shows 19 measured items. The number of measured variances and covariances $(19[19+1]/2)$ is $v = 190$ pieces of information, and the number of estimated parameters in the model is $p = 45$ parameters (21 regression weights and 24 variances). Based on the t-rule, the SEM was over-identified with 145 degrees of freedom (190 pieces of information – 45 parameters) (Blunch 2008, Byrne 2010, Hair, Black et al. 2010, Kline 2011).

The model fit results for the SEM show a good model fit to the sample data. All model fit indices are statistically significant at the 0.001 level and sufficiently satisfy their relevant recommended thresholds. Model modification was not required because the SEM had model fit indices that are more than satisfactory (Schumacker and Lomax 2004, Hair, Black et al. 2010, Kline 2011, Awang 2012). The goodness-of-fit results of the SEM are reported in Table 5.27.

Table 5.27 Goodness-of-Fit Results for the Structural Equation Model

| Goodness-of-Fit indices | Values |
|---|---------------|
| Chi-square(χ^2) | 358.489 |
| Degree of Freedom (<i>df</i>) | (190-46) 144 |
| Normed Chi-square (χ^2/df) | 2.490 |
| Goodness-of-Fit Index (GFI) | 0.89 |
| Standardized Root Mean Residual (SRMR) | 0.052 |
| Comparative Fit Index (CFI) | 0.952 |
| Normed Fit Index (NFI) | 0.923 |
| Root Mean Square Error of Approximation (RMSEA) | 0.069 |

The standardized solutions of the structural equation model provided in Table 5.28 were reviewed and all estimates in the model are both reasonable and statistically significant at the 0.001 level. These results support the high reliability and validity of the measures relating to the SEM.

Table 5.28 The Standardized Solutions of the Structure Equation Model

| Variable Label | Factor Loading |
|-----------------------|-----------------------|
| SQ1 | 0.88(14.397)*** |
| SQ2 | 0.88(14.391)*** |
| SQ3 | 0.91(14.800)*** |
| SQ4 | 0.70*** |
| CS1 | 0.83(13.981)*** |
| CS2 | 0.81(13.590)*** |
| CS3 | 0.81(13.642)*** |
| CS4 | 0.73*** |
| PV1 | 0.87(14.048)*** |
| PV2 | 0.91(14.396)*** |
| PV3 | 0.70*** |
| PSC1 | 0.79(16.181)*** |
| PSC2 | 0.90(18.761)*** |
| PSC3 | 0.85*** |
| BI1 | 0.85(18.114)*** |
| BI2 | 0.86(18.627)*** |
| BI3 | 0.84(17.969)*** |
| BI4 | 0.87(18.957)*** |
| BI5 | 0.83*** |

*** Statistically significant at the 0.001 level

The direct causal effects on each endogenous variable in the SEM and the results of the hypotheses assessments are summarized in Table 5.29.

Table 5.29 Standardized Causal Effects of the Structural Equation Model and Hypotheses Assessments

| Outcomes | Determinants | Standardized Coefficients Paths (β) | | Hypotheses | Assessments |
|--|---------------------------|---|-----------------|------------|----------------------|
| | | Direct Causal Paths | Critical Ratios | | |
| Perceived Value ($R^2 = 0.420$) | Service Quality | 0.648 | 8.792*** | H:2 | Supported |
| Customer Satisfaction ($R^2 = 0.380$) | Service Quality | 0.413 | 5.175*** | H:3 | Supported |
| | Perceived Value | 0.263 | 3.438*** | H:5 | Supported |
| Perceived Switching-Costs ($R^2 = 0.357$) | Service Quality | 0.598 | 9.002*** | H:4 | Supported |
| Behavioural Intentions ($R^2 = 0.617$) | Customer Satisfaction | 0.350 | 5.677*** | H:8 | Supported |
| | Perceived Value | 0.291 | 4.542*** | H:6 | Supported |
| | Perceived Switching Costs | 0.338 | 5.822*** | H:7 | Supported |
| | Service Quality | 0.025 | 0.334 | H:1 | Not Supported |

*** Statistically significant at the 0.001 level

The exogenous variable, service quality, explains 42% of the variance of the endogenous variable, perceived value. Service quality has a significant total causal effect of 0.648 on perceived value and is statistically significant at the 0.001 level.

The exogenous variables, service quality and perceived value, explain 38% of the variance of the endogenous variable, customer satisfaction. The most important determinant of customer satisfaction is service quality, which has a significant total causal effect of 0.413, followed by perceived value with a total causal effect of 0.263.

The exogenous variable, service quality, explains 36% of the variance of the endogenous variable, perceived switching costs. Service quality has a significant total causal effect of 0.598 on perceived switching costs.

The exogenous variables, customer satisfaction, perceived value, perceived switching costs, and service quality, explain 61% of the variance in the endogenous variable, behavioural intentions. The most important determinant of behavioural intentions is customer satisfaction which has a significant total causal effect of 0.350, followed by the causal effect of perceived switching costs of 0.338. The statistical results demonstrate that the total causal effect of service quality on behavioural intentions is not statistically significant.

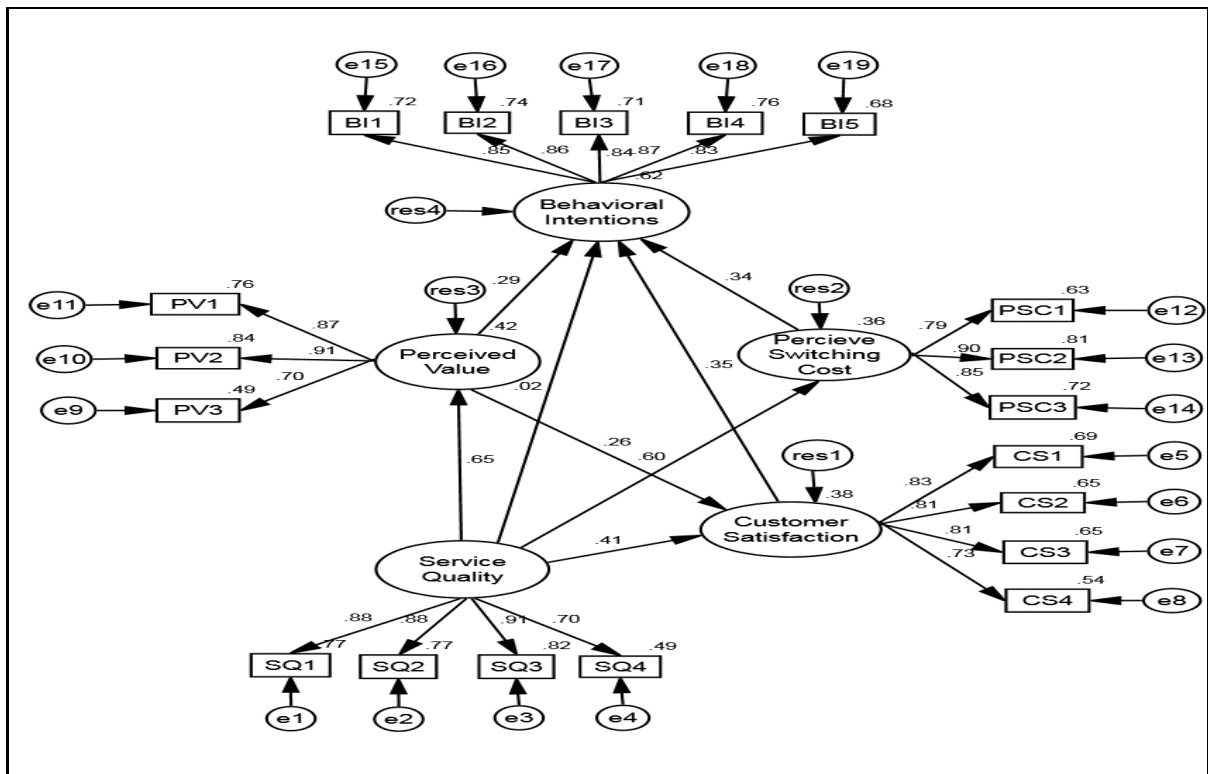


Figure 5.14 Structural Equation Model for the Five Higher-Order Constructs (Service Quality, Customer Satisfaction, Perceived Value, Perceived Switching Costs, Behavioural Intentions)

5.4.6 Mediating Variable Analysis Results

Customer satisfaction has been identified as a mediating variable on the relationship between service quality and behavioural intentions (Yu and Ramanathan 2012, Howat and Assaker 2013, Kuo, Chang et al. 2013). Consequently, a mediating variable analysis was designed to test the effect of the mediating variable (customer satisfaction) on the relationships between the exogenous variables (service quality and perceived value) and the endogenous variable (behavioural intentions). A mediating variable analysis begins by analysing the direct (and statistically significant) effect of the exogenous variables (service quality and perceived value) on the endogenous variable (behavioural intentions). With the mediating variable included in the model, the direct effect of the exogenous variable on the endogenous variable is reduced and no longer significant. Therefore, complete mediation is present. Alternatively, if the effect is reduced but still significant, then partial mediation has occurred (Awang 2012, Meyers, Gamst et al. 2013). The results of this analysis are presented in the following sections.

5.4.6.1 The Mediating Effect of Customer Satisfaction on the Relationship between Service Quality and Behavioural Intentions

The initial test for examining the statistically significant, direct effect between the exogenous (service quality) and endogenous (behavioural intentions) variables, shows that service quality has a significant direct effect on behavioural intentions. The regression weight value is 0.594, which is statistically significant at the 0.001 level (see Table 5.30 and Figure 5.15).

Table 5.30 Standardized Causal Effect of the Direct Effect of Service Quality on Behavioural Intentions

| Outcome | Determinant | Causal Effects | | Result |
|------------------------|-----------------|--------------------|----------------|-------------|
| | | Direct Causal Path | Critical Ratio | |
| Behavioural Intentions | Service Quality | 0.594 | 9.130 *** | Significant |

*** Statistically significant at the 0.001 level

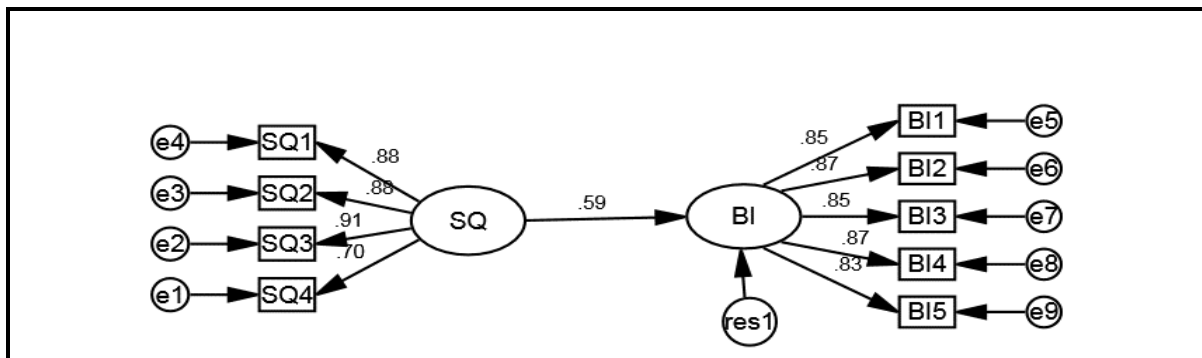


Figure 5.15 The Direct Effect of Service Quality on Behavioural Intentions

The mediating variable, customer satisfaction, was then included in the model to test the relationship between service quality and behavioural intentions. The direct effect between service quality and behavioural intentions is significantly reduced, as the regression weight is reduced from 0.594 to 0.327, but is still significant. Therefore, customer satisfaction is a partial mediator on the relationship between service quality and behavioural intentions (see Table 5.31 and Figure 5.16). This result supports Hypothesis 9 as stated in Chapter 3.

Table 5.31 Standardized Mediating Effect of Customer Satisfaction on the Relationship between Service Quality and Behavioural Intentions

| Outcomes | Determinants | Causal Effects | | Results |
|------------------------|-----------------------|---------------------|-----------------|-------------|
| | | Direct Causal Paths | Critical Ratios | |
| Customer satisfaction | Service Quality | 0.576 | 8.602 *** | Significant |
| Behavioural Intentions | Service Quality | 0.327 | 5.138 *** | Significant |
| Behavioural Intentions | Customer Satisfaction | 0.462 | 7.057 *** | Significant |

*** Statistically significant at the 0.001 level

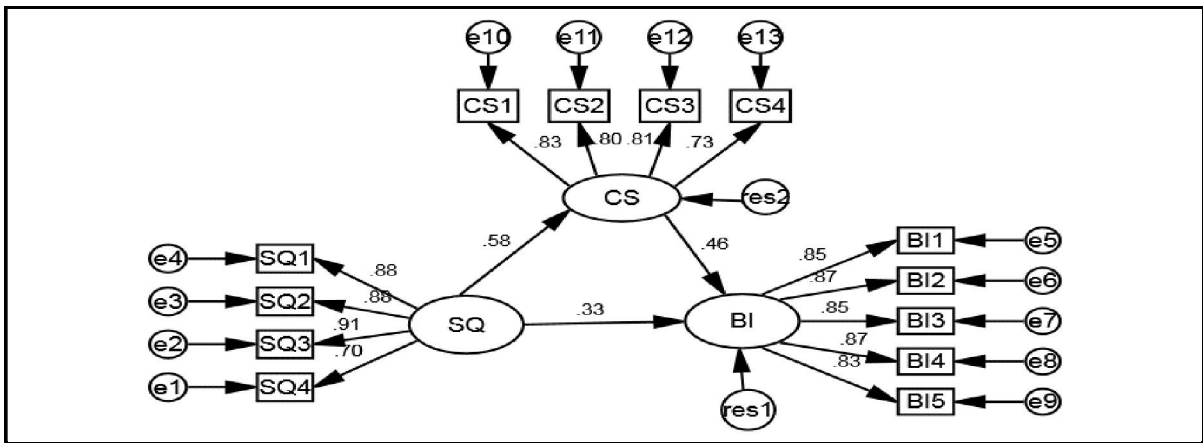


Figure 5.16 The Mediating Effect of Customer Satisfaction on the Relationship between Service Quality and Behavioural Intentions

5.4.6.2 The Mediating Effect of Customer Satisfaction on the Relationship between Perceived Value and Behavioural Intentions

The initial test for examining the statistically significant direct effect between the exogenous (perceived value) and endogenous (behavioural intentions) variables, shows that perceived value has a significant direct effect on behavioural intentions. The regression weight value is 0.661 which is statistically significant at the 0.001 level (see Table 5.32 and Figure 5.17).

Table 5.32 Standardized Causal Effect of the Direct Effect of Perceived Value on Behavioural Intentions

| Outcome | Determinant | Causal Effects | | Result |
|------------------------|-----------------|--------------------|----------------|-------------|
| | | Direct Causal Path | Critical Ratio | |
| Behavioural Intentions | Perceived Value | .661 | 9.955 *** | Significant |

*** Statistically significant at the 0.001 level

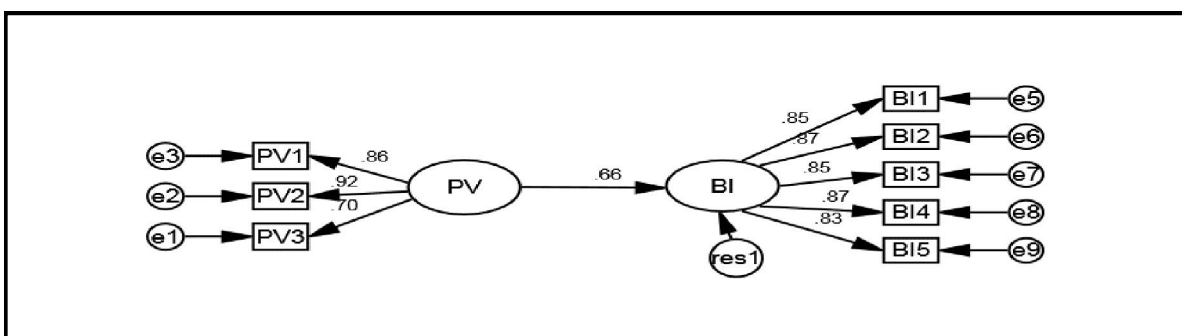


Figure 5.17 The Direct Effect of Customer Perceived Value on Behavioural Intentions

With the mediator variable, customer satisfaction, included in the model, the direct effect between perceived value and behavioural intentions is reduced. As seen in Figures 5.17 and 5.18, the regression weight reduces from 0.661 to 0.442 but is still significant. Therefore, customer satisfaction is a partial mediator on the relationship between customer perceived value and behavioural intentions (see Table 5.33 and Figure 5.18). This result supports Hypothesis 10 as stated in Chapter 3.

Table 5.33 Standardized Mediating Effect of Customer Satisfaction on the Relationships between Customer Perceived Value and Behavioural Intentions

| Outcomes | Determinants | Causal Effects | | Results |
|------------------------|-----------------------|---------------------|-----------------|-------------|
| | | Direct Causal Paths | Critical Ratios | |
| Customer satisfaction | Perceived Value | 0.528 | 7.865 *** | Significant |
| Behavioural Intentions | Perceived Value | 0.442 | 7.095 *** | Significant |
| Behavioural Intentions | Customer Satisfaction | 0.417 | 7.016 *** | Significant |

*** Statistically significant at the 0.001 level

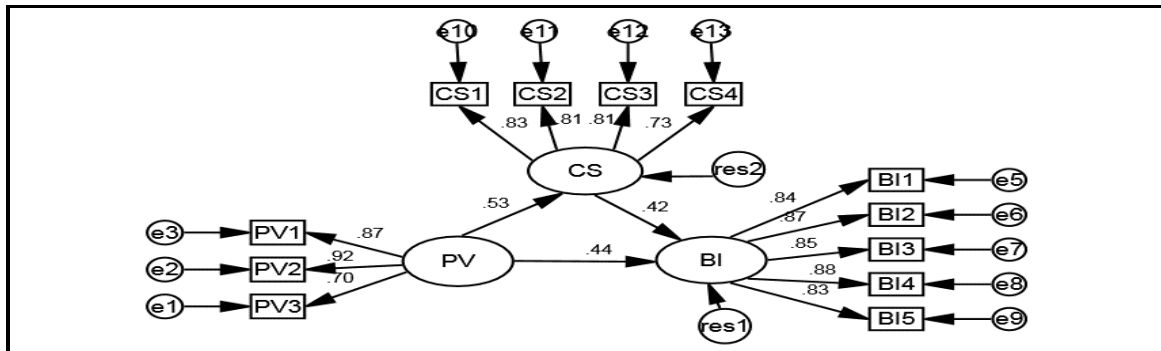


Figure 5.18 The Mediating Effect of Customer Satisfaction on the Relationships between Perceived Value and Behavioural Intentions

5.4.7 The Analysis of Variance Results

For this current study, the Analysis of Variance (ANOVA) was used to define whether a significant relationship exists between demographic characteristics and the constructs. Consequently, ANOVA was used to test Hypotheses 20 to 22, as stated in Chapter 3, in order to satisfy Research Objective 4. If the observed p- value is 0.05 or smaller, then there will be an association between the demographics characteristics and the constructs. Alternatively, If the observed p- value is larger than 0.05, it indicates that no relationship exists between the demographic characteristics and the constructs (Hair, Black et al. 2006, Zikmund, Babin et al. 2010). The results of this analysis are summarized in Table 5.34 below.

Table 5.34 ANOVA Results Relating to Hypothesis 20

| Sub-dimension | Gender | Age | Length of time as a customer | Types of spa customers | Frequency of having a spa | Occupation |
|----------------------|--------|-----|------------------------------|------------------------|---------------------------|------------|
| Communication skills | | | | | | |
| Friendliness | | | | | | |
| Atmosphere | | ** | | | | |
| Tangibles | | | | | | |
| Timeliness | | | | | | |
| Operation | | | | | | |
| Programme Variety | | | | * | | |
| Outcome | | | | | | |
| Staff expertise | | * | | | | |

** Statistically Significant at the 0.05 level

* Statistically Significant at the 0.1 level

These results support Hypothesis 20. Hypothesis 20 proposes that customers' perceptions of the sub-dimensions of service quality will vary due to gender, age, length of time as a customer, type of spa customer, frequency of having a spa, and occupation. The results are summarised in Table 5.34. The findings indicate that perceptual differences in the performance measures of atmosphere and staff expertise are found between the age group. Different types of spa customers perceive performance measures on support differently. However, the findings indicate that there are no perceptual differences in the performance measures on the sub-dimensions of service quality among the gender, length of time as a customer, frequency of having spa, and occupation, groups. As a result, Hypothesis 20 is only partially supported.

Table 5.35 ANOVA Results Relating to Hypothesis 21

| Primary Dimensions | Gender | Age | Length of time as a customer | Types of spa customers | Frequency of having a spa | Occupation |
|------------------------|--------|-----|------------------------------|------------------------|---------------------------|------------|
| Interpersonal Quality | | | | | | |
| Environment Quality | | | | | | |
| Administrative Quality | | * | | | * | |
| Technical Quality | | | | | * | |

* Statistically Significant at the 0.1 level

The results presented in Table 5.35 also satisfy Hypothesis 21. The findings indicate that significant perceptual differences in the performance measure of administrative quality are present between the age groups. Moreover, the mean scores for administrative quality and technical quality are significantly different between the frequency of having a spa, groups. However, the F-statistic results show that there are no perceptual differences in the performance measures on interpersonal quality, environment quality, administrative quality and technical quality among the gender, length of time

as a customer, type of spa customer, and occupation, groups. These results partially support Hypothesis 21.

Table 5.36 ANOVA Results Relating to Hypothesis 22

| Constructs | Gender | Age | Length of time as a customer | Types of spa customers | Frequency of having a spa | Occupation |
|---------------------------|--------|-----|------------------------------|------------------------|---------------------------|------------|
| Service Quality | | ** | *** | | | ** |
| Customer Satisfaction | | ** | *** | | | |
| Perceived Value | | | ** | ** | ** | |
| Perceived Switching Costs | | | | | * | ** |
| Behavioural Intentions | | ** | *** | ** | * | |

*** Statistically Significant at the 0.01 level

** Statistically Significant at the 0.05 level

* Statistically Significant at the 0.1 level

The results presented in Table 5.36 also partially satisfy Hypothesis 22. The findings indicate that the mean scores for service quality, customer satisfaction, and behavioural intentions are significantly different within the “age” group. The mean scores for service quality, customer satisfaction, perceived value, and behavioural intentions are significantly different within the “length of time as a customer” group. The mean scores for perceived value and behavioural intentions are significantly different within the “types of spa customer” group. The mean scores for perceived value, perceived switching costs, and behavioural intentions are significantly different within the “frequency of having a spa” group. The mean scores for service quality and perceived switching costs are also significantly different within the “occupation” group. However, the analysis indicates that there are no perceptual differences in the performance measures on the five higher-order constructs (service quality, customer satisfaction, perceived value, perceived switching costs, behavioural intentions) among the “gender group”. These results only partially support Hypothesis 22.

Summary

This chapter has shown the results of the statistical analysis conducted in order to satisfy all four Research Objectives. In the first analysis, EFA and CFA were used to identify the dimensions of service quality and the “importance rank” of the service quality dimensions, as perceived by Thai spa customers in Thailand, to satisfy Research Objective 2 and 3. In the second analysis, SEM was used to analyse the interrelationships between service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions in order to satisfy Research Objectives 1. Regarding the SEM analysis, all of the hypotheses were supported by the results except Hypothesis 1. However, the mediation variable analysis indicates that customer satisfaction is a partial mediator on

the relationship between service quality and behavioural intentions. In the third analysis, ANOVA was used to examine the Hypotheses 20 to 22 in order to satisfy Research Objective 4. Thus Hypotheses 20 to 22, relating to the different perceptions that may exist between demographic groups, shows that of all the groups, the “age” group has the most perceptual differences within their group, followed by the “types of spa customers” group, and “frequency of having a spa” group. The summary of the hypotheses tests is presented in Table 5.37.

Table 5.37 Summary of Hypotheses Testing

| Hypothesis | Results |
|---|--|
| H1: Higher perceptions of service quality positively affect behavioural intentions. | Not Supported , the relationship between service quality and behavioural intentions is insignificant. |
| H2: Higher perceptions of service quality positively affect perceived value. | Supported , service quality has a significant and direct impact on perceived value. |
| H3: Higher perceptions of service quality positively affect customer satisfaction. | Supported , service quality has a significant and direct impact on customer satisfaction. |
| H4: Higher perceptions of service quality positively affect perceived switching costs. | Supported , service quality has a significant and direct impact on perceived switching costs. |
| H5: Higher perceived value positively affects customer satisfaction. | Supported , perceived value has a significant and direct impact on customer satisfaction. |
| H6: Higher perceived value positively affects behavioural intentions. | Supported , perceived value has a significant and direct impact on behavioural intentions. |
| H7: Higher perceived switching costs positively affect behavioural intentions. | Supported , perceived switching costs has a significant and direct impact on behavioural intentions. |
| H8: Higher customer satisfaction positively affects behavioural intentions. | Supported , customer satisfaction has a significant and direct impact on behavioural intentions. |
| H9: Customer satisfaction mediates the relationship between service quality and behavioural intentions. | Supported , customer satisfaction partially mediates the relationship between service quality and behavioural intentions. |
| H10: Customer satisfaction mediates the relationship between perceived value and behavioural intentions. | Supported , customer satisfaction partially mediates the relationship between perceived value and behavioural intentions. |
| H11: There is a significant positive relationship between the sub-dimensions of interpersonal quality (H11a, H11b) and the interpersonal quality primary dimension. | Supported , interpersonal quality consists of two sub-dimensions (communication skills, friendliness) |
| H12: There is a significant positive relationship between the sub-dimensions of environment quality (H12a, H12b) and the environment quality primary dimension. | Supported , environment quality consists of two sub-dimensions (atmosphere, tangibles) |
| H13: There is a significant positive relationship between the sub-dimensions of administrative quality (H13a, H13b, H13c) and the administrative quality primary dimension. | Supported , administrative quality consists of three sub-dimensions (timeliness, operation, programme variety) |
| H14: There is a significant positive relationship between the sub-dimensions of technical quality (H14a, H14b) and the technical quality primary dimension. | Supported , technical quality is consisted of two sub-dimensions (outcome, staff expertise) |
| H15: There is a significant positive relationship between the interpersonal quality primary dimension and customers' overall perceptions of service quality. | Supported , interpersonal quality has a significant impact on overall service quality, second-order model. |
| H16: There is a significant positive relationship between the environment quality primary dimension and customers' overall perceptions of service quality. | Supported , environment quality has a significant impact on overall service quality, second-order model. |
| H17: There is a significant positive relationship between the administrative quality primary dimension and customers' overall perceptions of service quality. | Supported , administrative quality has a significant impact on overall service quality, second-order model. |
| H18: There is a significant positive relationship between the technical quality primary dimension and customers' overall perceptions of service quality. | Supported , technical quality has a significant impact on overall service quality, second-order model. |

| | |
|---|---|
| H19a: Customers will vary in their perceptions of the importance of each of the sub-dimensions. | Supported , communication skills, tangibles, programme variety, and staff expertise are significant. Communication skills most important sub-dimension for interpersonal quality. Tangibles most important sub-dimension for environment quality. Programme variety most important sub-dimension for administrative quality. Staff expertise most important sub-dimension for technical quality. |
| H19b: Customers will vary in their perceptions of the importance of each of the primary dimensions. | Supported , administrative quality is the most important of the primary dimensions, followed by technical quality, interpersonal quality, and environment quality. |
| H20: Customers' perceptions of sub-dimensions will differ in terms of their demographics. | Supported , customers' perceptions of sub-dimensions are different between the age group, and the type of spa customer group. |
| H21: Customers' perceptions of primary dimensions will differ in terms of their demographics. | Supported , customers' perceptions of primary dimensions are different between the age group and the frequency of having a spa group. |
| H22: Customers' perceptions of the five higher-order constructs will differ in terms of their demographics. | Supported , customers' perceptions of the five higher-order constructs are different in terms of their demographics except between the gender group. |

Chapter 6

Discussion and Conclusion

6.1 Introduction

The content of prior chapters have discussed the research project, the literature review, the research methodology, and the results of the data analysis. This chapter presents an evaluation of the research results and discusses the theoretical contributions this research makes through testing a comprehensive hierarchical model for the day spa industry. Moreover, practical contribution are identified and discussed in this chapter.

6.2 Summary of study's most important findings

The Day Spa service industry plays a key role in the economy of Thailand, generating substantial revenues and contributing to employment. Thai day spas endeavour to develop service quality and build strong customer loyalty in order to remain competitive and profitable.

A framework to conceptualize and measure service quality in the day spa industry is presented in this study. The literature review, the focus group interviews and the statistical analyses in this study provide support for the presence of a multi-dimensional structure and for four primary dimensions underlying service quality in Thai day spa industry: Interpersonal Quality, Environment Quality, Administrative Quality, and Technical Quality. An appropriate set of the sub-dimensions of service quality as perceived by customers of day spa in Thailand are also presented in the study.

Day spas are a place of relaxation, wellness, and beauty and also offer various personal care treatments. Four primary dimensions of service quality(interpersonal quality, technical quality, environment quality, and administrative quality are identified in this study and these four primary dimensions are consistent with the Dagger et al.'s (2007) findings for health service quality in Australia. However, the set of sub-dimensions for Thai day spa are different from Dagger et al. (2007)'s sub-dimensions for healthcare. For day spas, the sub-dimensions for interpersonal quality are Communication Skills and Friendliness whereas Dagger et al. (2007) identified Interaction and Relationship as sub-dimensions. The sub-dimensions for Administrative Quality were also slightly different with Timeliness, Operation, and Programme Variety for day spas and Timeliness, Operation, and Support for healthcare. Moreover, Channoi (2014) found that the outcome quality dimension was the most important primary dimension for overall service quality performancefor beach resort hotel stays in Thailand. However, administrative quality is the most important primary dimension for overall service quality performance in day spa visits.

While day spas may share a number of characteristics with healthcare and resort hotel services, the sub-dimensions representing the Service Quality hierarchical structure for day spas are different from these related industries. These differences provide justification for further exploration of a comprehensive hierarchical structure of different service industries and contexts.

In addition, several constructs related to service quality have been identified in the literature. Service quality has been related to customer satisfaction, perceived value, perceived switching costs which have positive significant and direct effects on behavioral intentions in Thai day spa. Specifically, customer satisfaction is the most important construct with the strongest impact on behavioral intentions, followed by perceived switching costs, and perceived value. In addition, service quality has the strongest effect on customer satisfaction, followed by perceived value. Consequently, Spa managers should focus on offering high service quality in order to increase customer satisfaction and ultimately build a loyal customer base.

6.3 Summary of study's research objectives and hypotheses

In order to achieve a better understanding of spa customer perceptions of service quality and the effects of these perceptions on the related constructs such as behavioral intentions, customer satisfaction, perceived value, and perceived switching costs, four specific research objectives were established:

1. To examine the interrelationships between the higher order marketing constructs (service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions) as perceived by Thai day spa customers using a comprehensive hierarchical model.
2. To identify service quality dimensions, as perceived by Thai day spa customers in Thailand.
3. To identify the importance ranking of service quality primary dimensions as perceived by Thai day spa customers in Thailand.
4. To examine the effects of demographic factors on behavioural intentions and related constructs as perceived by Thai day spa customers in Thailand.

The four research objectives are addressed through testing 22 hypotheses, as presented and discussed in Chapter 3.

- Hypotheses 1 to 10 address Research Objective 1
- Hypotheses 11 to 18 address Research Objective 2
- Hypotheses 19a to 19b address Research Objective 3
- Hypotheses 20 to 22 address Research Objective 4

Section 6.3 discusses the results relating to Research Objective 1; Section 6.4 discusses the results relating to Research Objective 2; Section 6.5 discusses the results relating to Research Objective 3; and Section 6.6 discusses the results relating to Research Objective 4. Section 6.7 discusses the theoretical and practical contributions. Section 6.8 discusses the limitations of this research and Section 6.9 discusses the directions for future research.

6.4 The Interrelationships between the Higher-Order Constructs (Research Objective 1)

The Structural Equation Model (SEM) is used as a framework to examine the interrelationships between the five higher-order constructs (service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions) in the comprehensive hierarchical model. Hypotheses 1 to 10 were formulated to satisfy Research Objective 1. Hypotheses 1 to 4 were tested to determine the effects of service quality on behavioural intentions, customer satisfaction, perceived value, and perceived switching costs. Hypotheses 5 and 6 were tested to determine the effects of perceived value on customer satisfaction and behavioural intentions. Hypothesis 7 was tested to determine the effect of perceived switching costs on behavioural intentions. Hypothesis 8 was tested to determine the effect of customer satisfaction on behavioural intentions. Hypotheses 9 and 10 were tested to determine the mediating effects of customer satisfaction on the relationships between service quality, perceived value, and behavioural intentions. The results obtained from SEM support Hypotheses 2 to 10 and satisfy Research Objective 1. However, Hypothesis 1 is not supported. The following sections present the results for each construct in detail.

6.4.1 Behavioural Intentions

The results pertaining to Hypotheses 1, 6, 7 and 8 indicate that 61% of the behavioural intentions construct variance is explained by service quality, perceived value, perceived switching costs, and customer satisfaction. Only the result pertaining to Hypothesis 1 indicates an insignificant path between service quality and behavioural intentions. Customer satisfaction, perceived value, and perceived switching costs are three significant determinants of behavioural intentions as shown in the results of this study. Customer satisfaction has the most significant effect on behavioural intentions.

The result pertaining to Hypothesis 8 indicates a significant and positive effect of customer satisfaction on behavioural intentions with the standardized coefficient path of $\beta = 0.350$. This significant and positive effect suggests that any changes in customer satisfaction will affect behavioural intentions proportionately (supporting Hypothesis 8). The positive causal relationship between customer satisfaction and behavioural intentions is consistent with studies conducted on spa resorts by González and Brea's (2005) and González, Comesaña and Brea's (2007), as well as on

the South Korean Jinan Red Ginseng Spa by Choi, Kim et al. (2015). Moreover, the result also coincides with previous studies on other service industries by Jalilvand, Pool et al. (2014) sport destination, Liang and Zhang's(2012) full-service seafood restaurant, Lertwannawit and Gulid's(2011) medical tourism, Chen, Lee et al. (2011) national parks, Chen and Chen's(2010) heritage tourism, Žabkar, Brenčič et al. (2010) tourist destination services, and Lai and Chen's (2011) public transport services.

The result pertaining to Hypothesis 7 reveals that perceived switching costs are a significant and positive predictor of behavioural intentions. The standardized coefficient path between perceived switching costs and behavioural intentions is $\beta = 0.338$, indicating that perceived switching costs has a significant and positive effect on behavioural intentions (supporting Hypothesis 7). Spa customers have a strong willingness to remain with their current day spa service when they perceive a high level of switching costs (costs such as uncertain risk, effort, time, and efficiency) to be high. The finding supports the argument that perceived switching costs can have a major impact on the behavioural intentions of customers (Clemes, Shu et al. 2014). The positive causal relationship between perceived switching costs and behavioural intentions is also supported in studies on various service industries (Caruana 2004, Lam, Shankar et al. 2004, Aydin and Özer 2005, Cheng, Lai et al. 2008, Chou and Lu 2009, Deng, Lu et al. 2010).

The results pertaining to Hypothesis 1 indicate that there is no statistically significant positive causal association between service quality and behavioural intentions. The standardized coefficient path between service quality and behavioural intentions is $\beta = 0.025$, demonstrating that the result does not support Hypothesis 1. Although this finding is inconsistent with the study on health spas conducted by González and Brea(2005), the insignificant effect of service quality on behavioural intentions is congruent with the other previous studies on private hospitals in Iran (Hnzaee, Bigdeli et al. 2012), heritage tourism(Chen and Chen 2010), and a university library usage in Indonesia (Gede Mahatma Yuda Bakti and Sumaedi 2013). Moreover, Žabkar, Brenčič et al. (2010) support the view that the direct effect of perceived service quality on behavioural intentions in a tourist destination context is weaker, when compared to the relationship between service quality and customer satisfaction, and the relationship between customer satisfaction and behavioural intentions.

In addition, Hnzaee, Bigdeli et al. (2012) suggest that although the relationship between service quality and behavioural intentions is non-significant in their study, the authors argue that managers can create very effective methods for developing positive behavioural intentions in customers by improving customer satisfaction and perceived value.

The result pertaining to Hypothesis 9 shows that the mediating impact of customer satisfaction on the relationship between service quality and behavioural intentions, has a significant path between

service quality and behavioural intentions. This result suggests that customer satisfaction has a partial mediating effect on the relationship between service quality and behavioural intentions (supporting Hypothesis 9). In addition, the result of the mediation test also shows that service quality directly drives customer satisfaction and indirectly drives behavioural intentions. This finding is supported by previous studies by González and Brea (2005) for spa resorts, Dagger, Sweeney et al. (2007) for healthcare, Tzetzis, Alexandris et al. (2014) for a beach volleyball tournament, Theodorakis, Alexandris et al. (2013) for professional football, and Lee, Graefe et al. (2004) for the Umpqua National Forest. These previous studies also report that customer satisfaction has a partial mediating role on the relationship between service quality and behavioural intentions.

The result pertaining to Hypothesis 6 indicates that perceived value is a significant and positive predictor of behavioural intentions. The standardized coefficient path between perceived value and behavioural intentions is $\beta = 0.291$ (supporting Hypothesis 6). The significant impact of perceived value on behavioural intentions is consistent with studies conducted on the Jinan Red Ginseng Spa (located in South Korea) by Choi, Kim et al. (2015), on the restaurant industry by Mansouri and Ebrahimi (2013), on the coach industry by Jen, Tu et al. (2011), on medical tourism by Lertwannawit and Gulid (2011), on heritage tourism by Chen and Chen (2010), on public transport service by Lai and Chen (2011), on airline services by Chen (2008), and on cruises by Petrick (2004). Jen, Tu et al. (2011) mention that perceived value also has a significant indirect effect on behavioural intentions. However, the authors did not test for a mediating effect between perceived value and behavioural intentions.

The result pertaining to Hypothesis 10 indicates that the mediating impact of customer satisfaction on the relationship between perceived value and behavioural intentions has a significant path between perceived value and behavioural intentions. This result shows that customer satisfaction has a partial mediating effect on the relationship between perceived value and behavioural intentions (supporting Hypothesis 10). This finding is consistent with the previous studies on outdoor aquatic centres by Howat and Assaker (2013), and on back packer hostels by Chitty, Ward et al. (2007). Although these studies on hospitality report that customer satisfaction has a complete mediating effect on the relationship between perceived value and behavioural intentions, the authors argue that perceived value is one of the important determinants of behavioural intentions as it has a positive and indirect effect on behavioural intentions through customer satisfaction. Accordingly, spa customers are generally driven by their satisfaction to recommend their day spa service to other customers. Moreover, spa customers are affected by both their satisfaction and perceived value of the day spa service when considering whether to have the spa service again.

6.4.2 Perceived Value

The result pertaining to Hypothesis 2 demonstrates that there is a significant and positive direct effect of service quality on perceived value. The standardized coefficient path between service quality and perceived value is $\beta = 0.648$, explaining 42% of the perceived value construct variance. The result confirms that service quality has a significant and positive effect on perceived value (supporting Hypothesis 2). This result infers that service quality is a major determinant of perceived value in day spas in Thailand. The positive and significant impact of service quality on perceived value is supported by the finding of Lai(2015) in the Hong Kong-style tea restaurant, Clemes, Shu et al. (2014) for mobile communications, Howat and Assaker(2013) for outdoor aquatic centres, Mansouri and Ebrahimi(2013) for the restaurant industry, Hnzaee, Bigdeli et al. (2012) for private hospitals, Jen, Tu et al. (2011) for the coach industry, and Lertwannawit and Gulid(2011) for medical tourism.

6.4.3 Customer Satisfaction

The results pertaining to Hypotheses 3 and 5 demonstrate that service quality and perceived value are a significant and positive predictor of customer satisfaction. The results show that 38% of the customer satisfaction construct variance is associated with service quality and perceived value, indicating that both variables are the important determinants of customer satisfaction for day spas in Thailand. The standardized coefficient path between service quality and customer satisfaction is $\beta = 0.413$ while the standardized coefficient path between perceived value and customer satisfaction is $\beta = 0.263$. Therefore, service quality is strong determinant of customer satisfaction, followed by perceived value.

The result pertaining to Hypothesis 3 confirms that higher perceptions of service quality positively affect customer satisfaction. The result is consistent with the González and Brea's(2005) and González, Comesaña and Brea's (2007) health spa studies. In addition, the positive impact of service quality on customer satisfaction is also supported in previous studies on other service industries by Lai(2015) for the Hong Kong-style tea restaurant, Clemes et al. (2014) for mobile communications, Jalilvand, Pool et al. (2014) for sport destinations, Clemes, Cohen et al. (2013) for universities, Howat and Assaker(2013) for public aquatic centres, Mansouri and Ebrahimi(2013) for the restaurant industry, Hnzaee et al. (2012) for private hospitals, Chen et al. (2011) for national park service, Clemes, Brush et al. (2011) for the professional sport, Jen et al. (2011) for the coach industry, Lertwannawit and Gulid (2011) for medical tourism, Deng et al. (2010) for mobile services, Kyle, Theodorakis et al. (2010) for ski resorts, Žabkar et al. (2010) for tourist destinations, and Dagger et al. (2007) for healthcare services. The result in the current study confirms that service quality is also a major determinant of customer satisfaction in day spas in Thailand. The causal model indicates a direct effect of service quality on customer satisfaction and an indirect effect on customer

satisfaction through perceived value. The results of the causal model infer that Thai spa customers who realize they have a superior service quality in Thai day spas will have a high level of satisfaction.

The result pertaining to Hypothesis 5 confirms that higher perceptions of perceived value positively affect customer satisfaction. This result infers that perceived value is a key driver of customer satisfaction in day spas in Thailand. The significant and positive effect of perceived value on customer satisfaction is congruent with a previous study on the spa industry by Choi et al. (2015). Moreover, the finding also is supported by prior studies on other various service industries by Lai(2015), Jalilvand, Pool et al. (2014), Clemes et al. (2014), Howat and Assaker (2013), Forgas-Coll, Palau-Saumell et al. (2012), Lai and Chen(2011), Jen et al., (2011), Chen and Chen(2010), and Chen(2008).

6.4.4 Perceived Switching Costs

The result pertaining to Hypothesis 4 demonstrates a significant and positive direct effect of service quality on perceived switching costs. The standardized coefficient path between service quality and perceived switching costs is $\beta = 0.598$, explaining 36% of the perceived switching costs construct variance. The finding indicates that service quality has a significant and positive effect on perceived switching costs (supporting Hypothesis 4). This finding infers that service quality is the important determinant of perceived switching costs in day spas in Thailand. Therefore, it is the contention of this study that when the level of service quality in Thai day spas is viewed as high by spa customers, they will also perceive switching costs to be high also. This significant and positive effect of service quality on perceived switching costs is consistent with the findings on a variety of service industries as reported by Clemes, Shu et al. (2014), Konuk and Konuk(2013), Chou and Lu (2009), Meng and Elliott (2009), and Aydin and Özer (2005).

6.4.5 Summary of the Findings of the Causal Model

The results of the direct causal relationships in the measurement model are statistically significant, except for the relationship between service quality and behavioural intentions. The results of the causal model show that customer satisfaction, perceived value, and perceived switching costs are the major constructs that directly affect behavioural intentions. In fact, customer satisfaction has the strongest effect on behavioural intentions followed by perceived switching costs, and perceived value. Further, customer satisfaction is affected mainly by perceived service quality.

According to the results, spa managers may increase the level of satisfaction by providing a favourable level of service quality. Moreover, the results support the view that service quality affects both perceived value and perceived switching costs. This result implies that spa customers who receive a superior service quality during the spa service process can increase customer perceived value and also increase the barrier perception of switching costs.

Although the results of this study demonstrate that service quality has no direct effect on behavioural intentions, service quality nevertheless affects behavioural intentions through customer satisfaction. The analysis also shows the direct effect of perceived value on customer satisfaction. Perceived value affects behavioural intentions through customer satisfaction. According to the findings, spa customers who have a favourable impression of their day spa service are more satisfied and more likely to revisit their Thai day spa. The following sections discuss the conceptualisation of service quality for Thai day spas.

6.5 Conceptualisation of Service Quality for Day Spas (Research Objective 2)

Several scholars conceptualise service quality as a multidimensional and hierarchical construct consisting of sub-dimensions and primary dimensions (Brady and Cronin 2001, Dagger, Sweeney et al. 2007, Pollack 2009, Prakash and Mohanty 2013, Clemes, Shu et al. 2014). Based on the empirical results of this study, the multidimensional and hierarchical model of service quality consist of nine first-order dimensions (communication skills, friendliness, atmosphere, tangibles, timeliness, operation, programme variety, outcome, staff expertise), four second-order dimensions (interpersonal quality, environment quality, administrative quality, technical quality), and one third-order dimension (service quality). The nine first-order dimensions in the model consists of two (communication skills, friendliness) that measure interpersonal quality; two (atmosphere, tangibles) that measure environment quality; three (timeliness, operation, programme variety) that measure administrative quality; and two (outcome, staff expertise) that measure technical quality.

The results of the statistical analysis show significant and positive relationships between the four primary dimensions and customers' overall perceptions of service quality (supporting Hypotheses 11 to 18). The results indicate that Thai day spa customers form their overall perceptions of service quality by evaluating the performance of Thai day spas on the four primary dimensions. Customers then combine their perceptions of the four primary dimensions to reflect their overall service quality perceptions. The results of the statistical analysis confirm the four primary dimensions (interpersonal quality, environment quality, administrative quality, and technical quality) are used by Thai spa customers to conceptualise service quality in the Thai day spa context.

6.5.1 Interpersonal Quality

The results of the measurement model for interpersonal quality confirm the significant and positive relationships between the two sub-dimensions (communication skills, friendliness) and the interpersonal quality primary dimension (supporting Hypotheses 11 and 15). This result shows that Thai day spa customers evaluate the communication skills and friendliness sub-dimensions in order to form their perceptions of interpersonal quality.

The empirical results in this current study show that the communication skills sub-dimension (the communication skills of day spa staff) is the most important indicator that spa customers consider when assessing the interpersonal quality of Thai day spas. The significant and positive relationship between the “communication skills” sub-dimension and the interpersonal quality primary dimension is also supported by the results of the focus group discussions. This is a new finding which cannot be compared to previous studies because to date, no published study has applied a multidimensional and hierarchical modelling approach to the day spa industry. In addition, the focus group discussions conducted in this study indicate that the role played by both spa concierges and therapists is very important. In the first stage, customers generally communicate with spa concierges in order to inquire about a suitable treatment programme to meet individual needs and expectations. In the next stage, customers mostly interact with therapists during their spa service process. Thus, enhancing staff communication skills (spa concierges and therapists) could generate a significant influence on customers’ perceptions of service quality, thereby generating greater demand for spa services from spa customers, as explained by Tsai, Suh et al. (2012).

The “friendliness” sub-dimension is also a significant indicator of the interpersonal quality primary dimension in this current study. This finding confirms the significant and positive relationship between the friendliness sub-dimension and the interpersonal quality primary dimension. This finding is also supported by the results of the focus group discussions. This finding is also supported by Czepiel, Solomon and Surprenant’s (1985) early research on services in general, that pointed out that the friendliness of staff has a significant effect on perceived service quality. This finding is also supported by Rauch, Collins et al. (2015) research on the hotel industry, that shows that the friendliness of personnel is important to travellers when they evaluate their perceptions of their service quality experience. Chan and Wong(2006) also suggest that friendly staff is an important attribute and requires constant attention. In addition, the authors also consider that friendly staff help to create a good impression for spa customers and may influence customer satisfaction.

6.5.2 Environment Quality

The results measurement model for environment quality has confirmed that there are significant and positive relationships between the two sub-dimensions (atmosphere, tangibles) and the environment quality primary dimension (supporting Hypotheses 12 and 16). In addition, the finding suggests that spa customers evaluate their perceptions of environment quality by assessing atmosphere and tangibles.

The “tangibles” sub-dimension is the most significant indicator of the environment quality primary dimension in this current study. The significant and positive relationship between the “tangibles” sub-dimension and the environment quality primary dimension is supported by the results of the

focus group discussions and the study on healthcare conducted by Dagger, Sweeney et al. (2007). This finding highlights the importance of the overall tangibles of a day spa (furniture, layout, interior architecture, colour, lighting, design) as the tangibles are an important visual stimulus and create an environment for spa customers to relax in. Moreover, Dagger, Sweeney et al. (2007) report a significant and positive relationship between the tangibles sub-dimension and the environment quality primary dimension. This finding is also supported by Lo, Wu and Tsai's (2015) study on hotel and resort spas in southern China. Lo, Wu et al. (2015) demonstrate that tangibles is one of the important determinant factors and is also identified as having a significant impact on spa customers' positive emotions, which then ultimately create a better spa service quality experience for customers.

6.5.3 Administrative Quality

The measurement model results for administrative quality have confirmed the significant and positive relationships between the three sub-dimensions (timeliness, operation, programme variety) and the administrative quality primary dimension (supporting Hypotheses 13 and 17). This result shows that day spa customers evaluate the timeliness, operation, and programme variety sub-dimensions in order to form their perceptions of administrative quality.

In this study, the "programme variety" sub-dimension is the most significant and important sub-dimension of administrative quality. This relationship is supported by the results of the focus group discussions. This current study has identified programme variety as an important dimension of service quality in day spas although to date, no other empirical study has identified programme variety as an important dimension of service quality in the spa industry. However, the findings of this study are consistent with the study of Lo, Qu and Wetprasisit's (2013), study on hotel and resort spas in China that highlights the importance of offering a variety of treatments to enhance the spa experience, and to attract more customers who like to try different spa treatments.

The "timeliness" sub-dimension is the second most important indicator of administrative quality in this study. This result confirms that there is a significant positive relationship between the timeliness sub-dimension and the administrative quality primary dimension. This result is consistent with both the results of the focus group discussions, and with the research on healthcare conducted by Dagger, Sweeney et al. (2007). In addition, several studies show that the length of waiting time significantly affects the level of perceived service quality (Hui and Tse 1996, Houston, Bettencourt et al. 1998, Butcher and Heffernan 2006). The majority of people living in a modern city do not have a great deal of time to spend in a spa, so consequently, minimizing the waiting time for spa services for example may positively influence spa customers' overall perceptions of service quality.

The “operation” sub-dimension is the third most important indicator of spa customers’ perceptions of administrative quality. The significant positive relationship between the operation sub-dimension and the administrative quality primary dimension is supported by the results of the focus group discussions, as well as by Dagger, Sweeney et al. (2007) study on healthcare. In addition, Urs, Harirao et al. (2014) point out that due to the different and changing needs of customers, operating (opening) hours must meet customers’ needs. The authors conclude that meeting those needs has a favourable impact on the customers’ perceptions of service quality. Further, Chiu, Radzuwan et al. (2014) recommend that constantly working to improve the daily operation assists a service organization in attracting and retaining customers.

6.5.4 Technical Quality

The measurement model results for technical quality have confirmed the significant and positive relationships between the two sub-dimensions (outcome, staff expertise) and the technical quality primary dimension (supporting Hypotheses 14 and 18). In addition, the finding suggests that spa customers assess their perceptions of technical quality by evaluating the outcome and staff expertise sub-dimensions.

The “staff expertise” sub-dimension is the most important indicator of technical quality. This result confirms that there is a significant positive relationship between the staff expertise sub-dimension and the technical quality primary dimension. This result is consistent with the results of the focus group discussions and with research on healthcare conducted by Dagger, Sweeney et al. (2007). The members of the focus group discussion stated that staff expertise plays the most important role in the delivery of service quality. More specifically, Lo et al. (2015) note that trained therapists with professional skills and qualifications play a role of the utmost importance in the delivery of personalized services and treatments appropriate to the customer. Therefore, staff expertise is an important criteria for enabling customers to perceive and assess service quality, and the findings of this study is supported by the findings of the previous study by Grönroos and Ravalid (2011).

The prior sections have discussed the interrelationships between the five higher-order marketing constructs and the conceptualisation of service quality for Thai day spas. The following section discusses the relative importance of the sub-dimensions and primary dimensions of service quality for Thai day spas.

6.6 The Relative Importance of the Sub-dimensions and Primary Dimensions of Service Quality for Day Spas (Research Objective 3)

Identifying the rank of importance of the service quality dimensions is valuable information for managers of service industries, who can then utilize the information in their strategic planning. For

example, day spa managers are able to efficiently allocate their resources with regard to the rank of the service quality dimensions, where the order of rank has been empirically identified (Furrer, Liu et al. 2000, Clemes, Shu et al. 2014). Further, where there are limited resources, day spa management may decide to increase resources for the most important service quality dimension and not to increase resources for the lowest ranked dimension, or even decrease resources for the lowest ranked dimension.

Hence, Research Objective 3 is satisfied through testing Hypotheses 19a and 19b, by identifying the relative importance of the primary dimensions and sub-dimensions of service quality as perceived by Thai day spa customers. The following sections present and discuss the most to least important primary dimensions and the most to least important sub-dimensions.

6.6.1 The Most Important Primary Dimension

The empirical results indicate that “administrative quality” is the most important primary dimension for measuring customers’ overall perceptions of service quality as perceived by Thai day spa customers, followed by “technical quality”, “interpersonal quality” and “environment quality” (supporting Hypothesis 19b).

Identifying the rankings of the service quality dimensions provide useful information which managers of service organisations can utilize in the development of their strategic planning. For example, day spa managers can allocate their resources more effectively and support the most important service quality dimension (administrative quality) (Furrer, Liu et al. 2000, Clemes, Shu et al. 2014). Further, managers can also consider how to reduce or reallocate resources for the dimensions that are lower in importance.

This finding is consistent with a previous study on the healthcare sector (Dagger, Sweeney et al. 2007), and in particular, this finding supports the administrative quality primary dimension as having the most significant impact on service quality. However, the results of this finding provide a different ranking for the remaining three primary dimensions of service quality when compared to the order identified by Dagger, Sweeney et al. (2007) . Several empirical studies support that the importance rankings of the primary dimensions of service quality can vary across the service industries (Clemes, Wu et al. 2009, Clemes, Cohen et al. 2013, Wu and Cheng 2013, Wu and Ko 2013). Therefore, researchers need to consider the relative importance of the primary dimensions for the particular service under investigation.

6.6.2 The Most Important Sub-dimension

The “programme variety” sub-dimension has the largest impact on customers’ perceptions of administrative quality, followed by the “timeliness” and “operation” sub-dimensions (supporting Hypothesis 19a). Although the most popular spa treatment used by Thai spa customers is Thai body massage, spa customers are still seeking other treatments and programmes with a varieties of massages, such as facial relaxation, body scrub, body mask, foot reflexology, floral bath, aromatic hot stone massage, Thai massage with hot herbal ball, and aromatherapy oil massage. A variety of treatments is an important factor for enhancing the spa experience (Lo, Qu et al. 2013). Younger customers may like to seek different exotic treatments while the traditional treatment appeals more to older customers. Therefore, if the spa provides a wide selection of health treatment programmes, then the customers may try different treatments (Lo, Qu et al. 2013). Similarly, Tsai, Suh et al. (2012) recommend that introducing a variety of authentic body massage such as a Thai traditional massage could possibly attract male spa-goers to experience a new massage in Hong Kong hotel spas. Therefore, spa customers’ satisfaction may be increased if the day spa industry offers a greater variety of treatment programmes for them to choose from, to meet their individual needs.

The “staff expertise” sub-dimension has the largest impact on customers’ perceptions of technical quality, followed by the “outcome” sub-dimension (supporting Hypothesis 19a). The day spa industry in Thailand has legend and ancient wisdom methods in a designer ambience that offers customers a remarkable experience, in particular Traditional Thai massage and Thai herbal healing (Apivantanaporn & Walsh, 2012; Georgiev & Vasileva, 2010).The heart of the Thai day spa is delivering an excellent service, combined with the unique features of the Thai culture (Supho , Yoopetch 2014). Specifically, Thai traditional massage is the most popular day spa service and is one of the unique massages of the world, due to its ability to sooth aches and pains, loosen joints and ease muscle tension, and leave customers feeling completely refreshed. Therefore, staff expertise is a crucial factor for the Thai day spas as it leads to spa customers being more comfortable and satisfied with their experiences. In addition, staff expertise, in particular, well-trained and highly skilled therapists and spa staff that have knowledge of the techniques used in Thai traditional treatments are also important for attracting and retaining more spa customers.

The “communication skills” sub-dimension is the most important indicator for measuring customers’ perceptions of interpersonal quality, followed by the “friendliness” sub-dimension (supporting Hypothesis 19a). This result shows that spa staff communication skills is the most important factor customers use when they evaluate the interpersonal quality. Spa customers place great importance on how spa staff (both spa concierges and therapists) perform when interacting with customers. Thus, how well spa concierges explain the process of the treatments with existing and potential

customers, provide relevant information about the products used, and discuss the benefits or results of spa treatments, must match the customer's perceived level of interpersonal quality. Moreover, initiating a conversation at the right time during the treatment process is also one of the important communication skills required for spa staff, in particular therapists (Lo, Qu et al. 2013).

In addition, the "tangibles" sub-dimension is the most important predictor of environment quality in this study, followed by the "atmosphere" sub-dimension (supporting Hypothesis 19a). Customers are returning to more traditional treatments, so they may prefer to visit a Thai day spa that has natural surroundings and is decorated in traditional Thai cultural style. Thus, indigenous architecture (exterior and interior), and earth-friendly materials make the spa more attractive for a number of environment-conscious customers, which results in a more relaxing atmosphere.

Distinguishing the levels of the relative importance of the sub-dimensions also supports the argument that the importance rank of the sub-dimensions of service quality varies depending on the service under investigation. This finding supports the recommendation of several researchers that the sub-dimensions of service quality must be determined industry-specific and cultural-specific measures (Brady and Cronin 2001, Clemes, Shu et al. 2014).

The following section discusses the effects of demographic factors on customers' perceptions of the five marketing constructs in detail.

6.7 The Effects of Demographic Factors on Customers' Perceptions of the Five Marketing Constructs (Research Objective 4)

Research Objective 4 was partially satisfied as each of the five high-order marketing constructs (service quality, customer satisfaction, perceived value, perceived switching costs, behavioural intentions) and the primary dimensions (interpersonal quality, environment quality, administrative quality, technical quality) and sub-dimensions (communication skills, friendliness, atmosphere, tangibles, timeliness, operation, programme variety, outcome, staff expertise) of service quality were perceived differently within the six demographic groups (gender, age, length of time as a customer, type of spa customer, frequency of having a spa, occupation). Based on the information presented in Section 5.4.7, the conclusions from the interrelationships between the six demographic groups, the five marketing constructs, and the primary dimensions and sub-dimensions of service quality, are discussed in the following sections.

The results for Hypothesis 20 indicate that there are no perceptual differences between the five marketing constructs within the "gender" group. However, this result does not coincide with the results of Oyewole's (2001) airline study and Levinson, Kao et al. (2005) healthcare study, as these studies show perceptual differences regarding customer satisfaction within the "gender" group.

However, the findings of this current study indicate that there are perceptual differences in the service quality constructs within the “age”, “length of time as a customer” and “occupation” groups. These results are partially consistent with a prior study on hotels by Wu and Ko(2013) who reveal that the service quality construct is perceived differently within the “occupation” group. However, the results are partially supported by Clemes, Cohen and Wang’s(2013) study on Chinese university students’ experiences as the authors show that there are differences in the students’ perceptions of the service quality constructs within the “age” group.

The findings of this study indicate that there are perceptual differences in the customer satisfaction constructs within the “age” and “length of time as a customer” groups. The findings are supported by Clemes, Gan et al. (2008) study on international air travel. The authors found that the customer satisfaction construct was perceived differently within the “age” group. Analysis of the mean responses of spa customers who are over 55 years old shows that they are more satisfied with the day spa services than young adults.

The results of this current study indicate that the perceived value construct is perceived differently within “the length of time as a customer”, “type of spa customer” and “frequency of having a spa” groups. However, these findings are inconsistent with the previous studies conducted by Clemes et al. (2013)who found that there are perceptual differences in the perceived value construct within the “age” group.

The results of this current study indicate that the perceived switching costs construct is perceived differently within the “frequency of having a spa” and “occupation” groups. The perceptual differences in this construct have not been investigated in the day spa context.

Finally, the results in this current study indicate that the behavioural intentions construct was perceived differently within the “age”, “length of time as a customer”, “type of spa customer”, “frequency of having a spa” and “occupation” groups. The perceptual differences among the behavioural intentions construct have also not previously been identified in day spa studies. However, the results of this study coincide with Skogland and Siguaw’s(2004) study on hotels in the United States as the authors found that there are perceptual differences on behavioural intentions within “age” group and “education” group.

The results regarding Hypothesis 21 indicate that there are no perceptual differences in the interpersonal quality and environment quality dimensions within the demographic groups. However, the results of this study also indicate that the administrative quality dimension is perceived differently within the “age” and “frequency of having a spa” groups. In addition, the findings of this study reveal that the technical quality dimension is perceived differently within the “frequency of

having a spa" group. The results of this study are partially supported by Ganesan-Lim, Russell-Bennett and Dagger's(2008) study on a railway travel service in Queensland, Australia as the authors show that there are no differences in the customers' perceptions of the primary dimensions (interaction quality, physical environment quality and outcome quality) within the "gender" group and "income" group. However, Ganesan-Lim et al. (2008) found that there are differences in the customers' perceptions of the primary dimensions within the "age" group.

The results regarding Hypothesis 22 show that most of the respondents in the demographic groups have similar perceptions of the sub-dimensions. However, the findings indicate that the atmosphere and staff expertise sub-dimensions are perceived differently within the "age" group. Further, the programme variety sub-dimension also is perceived differently among the "type of spa customer" group. The results of this study are partially supported by a previous study on the Taiwan hotel study conducted by Clemes, Wu et al. (2009). The authors show that there are differences in the customers' perceptions of the staff expertise sub-dimension within "age" group. In addition, the Clemes, Wu et al. (2009) also indicate that the "age" group exhibits perceptual differences on the Décor & Ambience sub-dimension.

The following sections identify and discuss theoretical and practical contributions in detail.

6.8 Contributions

This section outlines the contributions of this study from both a theoretical and practical perspectives.

6.8.1 Theoretical Contributions

This study uses comprehensive hierarchical modelling as the theoretical framework to identify and assess the interrelationships between the primary dimensions and sub-dimensions underlying customers' perceptions of service quality (the measurement model), and the interrelationships between several higher-order marketing constructs (the causal path model), within a single conceptual research model. In addition, perceptions of the sub-dimensions, primary dimensions, and higher-order marketing constructs are compared based on the demographic characteristics of the sample. Further, testing a causal path model between the five marketing constructs analysed in this study may result in different significant and insignificant paths from those that have been identified in this research. This section presents the six theoretical contributions this study makes to the service marketing literature.

The most important theoretical contribution of this study is it tests the suitability of comprehensive hierarchical modelling for understanding the complex interrelationships between the sub-dimensions

and primary dimensions of service quality, and noted important higher-order marketing constructs (service quality, customer satisfaction, perceived value, perceived switching costs, behavioural intentions) in a day spa industry context. Overall, the empirical results of the path model developed in this study illustrate that comprehensive hierarchical modelling, based on the perceptions of a single sample of customers, provides a useful theoretical framework for future studies on the day spa service industry.

The empirical results of this study also contribute to the marketing theory as they provide an improved understanding that customer satisfaction, perceived value, and perceived switching costs have positive, significant and direct effect on behavioural intentions in a day spa context in Thailand. Customer satisfaction has the strongest impact on behavioural intentions, followed by perceived switching costs and perceived value. In addition, service quality has the strongest effect on customer satisfaction, followed by perceived value. These findings suggest that customer satisfaction in Thai day spas is more quality-driven than value- or price- driven. Therefore, offering high service quality leads to increase customer satisfaction with the Thai day spa services, and plays a greater role in building strong future intentions. Moreover, providing favourable service quality also results in increases in the level of perceived switching costs and perceived value and these constructs are important drivers of behavioural intentions in the context of day spa services in Thailand. In addition, the results of this study uncovers the role customer satisfaction plays in mediating the relationships between service quality and perceived value on behavioural intentions. The results of this study show that service quality has an indirect effect on behavioural intentions as it is mediated by customer satisfaction. In addition, although perceived value has a significant and direct effect on behavioural intentions, the results of this study also suggest that the indirect effect of perceived value on behavioural intentions is mediated by customer satisfaction. Accordingly, modelling and measuring the interrelationships between service quality, perceived value, behavioural intentions should include customer satisfaction as a mediating factor.

The third theoretical contribution is in offering a hierarchical and multidimensional approach for the conceptualization and measurement of service quality in Thai day spas. The measurement model for the service quality construct provides a multi-level framework to assess perceived service quality and its dimensions for Thai day spas. Spa customers' form their overall service quality perceptions based on the aggregate perceptions of four primary dimensions (interpersonal quality, environment quality, administrative quality, and technical quality). The perceptions of the four primary dimensions are driven by the perceptions of their pertaining sub-dimensions. The empirical results of this study also support the validation of using a hierarchical and multidimensional approach consisting four primary dimensions to conceptualise service quality, similar to the model developed by Dagger, Sweeney et al. (2007). However, these findings are inconsistent with those of other previous studies that indicate

service quality consists of three primary dimension (interaction, physical environment and outcome quality) are a fundamental skeleton to conceptualise service quality (Dabholkar, Thorpe et al. 1996, Brady and Cronin 2001, Clemes, Gan et al. 2007, Clemes, Wu et al. 2009, Clemes, Shu et al. 2014).

The results demonstrate that the primary dimensions can vary across industries and cultural setting. Therefore, adopting appropriate qualitative and quantitative analyses to confirm the primary dimensions of the service quality construct for different industry and cultural settings is required as the number, types, and relative importance of the service quality primary dimensions may not be generic depending on the type of service under investigation.

The fourth theoretical contribution is identifying the primary dimensions of the service quality for Thai day spas. The results of this study confirm that customers assess their overall perceptions of service quality by evaluating four service quality primary dimensions (interpersonal quality, environment quality, administrative quality, technical quality) as suggested in healthcare studies by Dagger, Sweeney et al. (2007). In particular, this study identifies the comparative importance of the four primary dimensions based on customers' perceptions of service quality in Thai day spas. The results of this study indicate that administrative quality is the most important primary dimension of service quality, closely followed by technical quality, interpersonal quality, and environment quality. These results provide empirical support for the notion that administrative work that is the process of operating a service, has the greatest impact on customers' perceptions of healthcare service quality (Dagger, Sweeney et al. 2007).

The fifth theoretical contribution relates to the constructs in this research that were assessed based on the perceptions of the demographic groups. The "age" group has the most perceptual differences on several constructs such as the sub-dimensions pertaining to environment quality and technical quality. The result shows that customers in different "age" groups may have different perceptions of spa service quality. Nonetheless, if the spa service satisfies the demands of different "age" groups', then satisfaction levels will increase relatively and in turn, the customers may form intentions to revisit the day spa. The result indicates that customers of different "age" groups demand different levels of "atmosphere" and "staff expertise". For the "atmosphere" sub-dimension, older spa customers may look for a peaceful oasis with a high level of privacy and seclusion and a quiet escape at day spas, and not appreciate the social interaction that younger customers seek (Kucukusta and Denizci Guillet 2014). For the "staff expertise" sub-dimension, older spa customers may expect to be informed about the process of treatment and may not appreciate a continuous conversation initiated by the therapist while receiving spa services. Therefore, the day spa industry should pay attention to the special needs and expectations of customers in different "age" groups, in order to satisfy these segments. More specifically, the baby boomer generation (those who were born between 1946 and

1964) are becoming a major customer group for day spas in Thailand. This group of people are more likely to seek hedonic pleasures (peace of mind) as well as health for the body and this group may perceive that visits to day spas may result in lowering in the spiraling costs of healthcare (Kusol, 2008).

In addition, the “type of spa customer” group also has important perceptual differences on the service marketing construct; in particular, the “perceived value” construct and the “programme variety” sub-dimension pertaining to administrative quality. The result shows that different “types of spa customer” groups may have different perceptual levels of perceived value for Thai day spa services. A casual spa customer may expect to receive good value for money spent, before making a decision to become a member and even to revisit the Thai day spa. Moreover, the result also shows that different types of spa customers may demand different levels of the sub-dimension “programme variety”. Casual spa customers also expect to experience a suitable treatment programme and have a wide selection treatment menu, before deciding to revisit or to become a member.

The sixth and last theoretical contribution of this study is in providing empirical support for service quality and customer satisfaction as key antecedents of behavioural intentions in Thai day spas as supported in other studies on the health care industry (González and Brea 2005, Dagger, Sweeney et al. 2007, Kim, Kim et al. 2010). Moreover, the empirical results of this study also illustrate that perceived value is a major predictor of behavioural intentions (Lo and Wu 2014). Practitioners and researchers are particularly interested in uncovering the factors instrumental to understanding service evaluation. However to date, no studies have examined the impact of perceived switching costs on behavioural intentions in the context of day spas. This study provides a more comprehensive understanding of how perceived switching costs influence behavioural intentions. Perceived switching costs are an important driver of behavioural intentions. Therefore, as illustrated in this study, perceived switching costs should be included when evaluating behavioural intentions in the Thai day spa industry.

6.8.2 Practical Contributions

Day spas are one of the important service industries which are in a very competitive marketing environment in Thailand. Hence, in this environment, generating and maintaining favourable behavioural intentions is a crucial marketing strategy if organisations want to retain a competitive advantage. The empirical results of this study provide several insights for the management of day spas that will enable them to establish and implement effective marketing strategies. The following discussions detail each of these practical contributions.

Firstly, the results of this study provide help to simplify the complex interrelationships that exist between the service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions constructs for practitioners in the spa industry. Customer satisfaction is the most important driver of behavioural intentions. Satisfying spa customers is crucial for day spas to survive in a competitive environment. Day spa managers who aim to satisfy their customers need to focus on providing favourable service quality by understanding the needs and wants of their customer base. Service quality is also an antecedent of perceived value, and service quality has an indirect impact on behavioural intentions via customer satisfaction. Therefore, day spa managers need to recognize the importance of the service quality construct as a key driver of customer satisfaction and its importance in retaining customers over a longer period of time.

Secondly, the empirical results of this study provide a hierarchical framework for the day spa industry. The hierarchical framework developed in this study provides an improved understanding of how spa customers evaluate service quality at various levels. Day spa managers can use the hierarchical framework developed in this research to measure customers' perceptions of service quality and then use the results to develop their strategic marketing programmes. For example, day spa managers can measure their customers' perception of service quality at a primary dimension level, a sub-dimension level, or at all three levels depending on the situation and strategic requirement. Moreover, from a competitive perspective, day spa managers can use the measurement scale in the hierarchical model developed in this current study to measure the service quality of their competitors. However, day spa managers should be aware that the dimensions of service quality vary across industries and cultures. Hence, the primary and sub-dimensional structures must be specified for the particular industry and cultural setting, in order to measure properly customers' perceptions of their spa experiences.

Thirdly, the empirical findings of this research rank the importance of the primary dimensions and sub-dimensions driving customers' perceptions of service quality. The comparative importance of the ranks of the primary dimensions and sub-dimensions is valuable information that can be utilized in improving and implementing strategic marketing. Specifically, day spa managers can efficiently allocate resources according to the importance rank of the primary dimensions of service quality. For example, the findings of this day spa study indicate that spa customers perceive that administrative quality is the most important primary dimension of overall perceived service quality. Interestingly, the importance level of administrative quality is closely followed by technical quality. Therefore, day spa managers should allocate resources to both administrative and technical qualities with respect to their level of importance.

Among the three pertinent sub-dimensions (timeliness, operation, programme variety) of the administrative quality primary dimension, “programme variety” is the most important indicator in measuring customers’ perceptions of administrative quality. Spa management should create and develop some new treatment programmes for the “programme variety” sub-dimension, such as a spa membership programme, or seasonal or special value packages. These treatment programmes may be more interesting and lead to attracting spa customers who seek new experiences or treatments in a day spa.

Finally, the results (as discussed in Section 5.4.7) indicate that young customers and older customers may demand different levels of atmosphere and staff expertise. Spa managers should be aware of the presence of perceptual differences in the “age” groups of the spa customers. Day spa managers should consider segmenting the market and adjusting service strategies in order to satisfy spa customers’ demands within different “age” groups; such as the older age group (over 55years old) and the young age group (18-24 years old). More specifically, the older age group is becoming a significant group of customers in the day spas in Thailand because they are a specific group (baby boomers) of working people and would like to reward themselves for working so hard, with a range of experiences. Thus, day spa managers should pay more attention to the older age group and seek more information in order to satisfy them.

“Atmosphere” in a spa room is a major driver of the environment quality primary dimension. For example, day spa managers may offer different styles of appealing spa rooms for the old spa customers and younger spa customers, groups. The managers of day spas must ensure that the atmosphere in spa rooms is pleasing, comfortable, peaceful, quiet, and secluded with pleasant smells from aromatherapy or herbal essences, and relaxation music for stress relief and healing meditation, and fitted with air conditioning units to control room temperature. Spa managers should explain the options to all of their customers and then offer the appropriate spa room for each spa customer depending on their “age” group.

In addition, “staff expertise” is an important driver of the technical quality primary dimension. All service staff and therapists should be updated on current spa trends, treatment menus and types of spa services relating to physical well-being and mind relaxation, Thai natural herb healing recipes, and new equipment for treatment. Specifically, day spa managers also should focus on the training of their therapists in order to enhance their skills and knowledge. Further, training enables staff to discuss intelligently the process of the treatment and provide relevant information about the products used and the benefits or results of the treatment, with existing and potential customers. Consequently, spa customers then feel comfortable knowing the staff are well-trained and well-informed.

Furthermore, day spa managers also should be aware of the presence of perceptual differences between casual customers and membership customers. Casual customers may not have been to a day spa previously and therefore want in-depth information, whereas membership customers will already have the information and may only need to read about changes in the spa programmes. Day spa managers should offer a favourable service quality and a wide selection of health treatment programmes and treatment menus to spa customers, in particular casual customers. The casual customer may expect to receive an appropriate treatment plan from the day spa, before deciding to take out a membership.

6.9 Limitations of This Research

While this research provides a valuable contribution to the marketing literature for day spa management, service industries and individuals, this research has some limitations that need to be noted. The following sections discuss the limitations of this research.

The first limitation relates to sampling. This study obtained a relatively large sample ($n = 620$). However, the cross sectional sample was collected from spa customers who had experiences in day spas from Chiang Mai (seven day spas), Khon Kaen (five day spas), and Bangkok (five day spas), Thailand. This may limit the ability to generalise the results for day spa management in other countries.

This study also used convenience sampling (non-probability sampling method) to collect the data. Therefore, the sample from this study may not sufficiently represent the population of day spa customers in Thailand. Although the convenience sampling approach is a suitable method for research for testing theory (Reynolds, Simintiras et al. 2003, Leary 2004) as in the case of this research, caution must be used when generalising the results of the research obtained from a convenience sample.

The second limitation is the service marketing constructs examined in the research model. There are a number of other potential service marketing constructs that could have interrelationships with the five marketing constructs (service quality, customer satisfaction, perceived value, perceived switching costs, and behavioural intentions). For example, the research model in this study does not include corporate image or customer engagement. These are constructs that are also considered to be the determinants of behavioural intentions. These constructs may play mediating roles on the relationships between service quality and behavioural intentions, and also customer satisfaction and behavioural intentions.

The third limitation relates to the nine sub-dimensions of day spa service quality identified in this study. The nine sub-dimensions of service quality were developed and based specifically on day spas

in Chiang Mai and Khon Kaen provinces, and Bangkok City, in Thailand. This may limit the ability to generalise the sub-dimensions to the other types of spas such as resort/hotel spas, destination spas, and cruise ship spas.

6.10 Directions for Future Research

This study represents an important step in understanding the issues involved in the operationalization of spa customer behavioural intentions. However, several additional research areas of interest have surfaced that reflect the limitations noted in Section 6.9.

First, future researchers may apply the hierarchical and multidimensional approach used in this current study to conceptualise and measure the perceptions of spa customers in different regions of Thailand and in other countries. Hierarchically modelling the important constructs examined in this current study may improve the understanding of the interrelationships in different cultural settings.

Second, future research may extend the current comprehensive hierarchical model by including other potential service marketing constructs, such as commitment, customer engagement, customer emotion, corporate image, trust, involvement, and service dominant logic. Furthermore, testing the direct, mediating roles of the other constructs could provide an improved understanding of the interrelationships among the constructs.

Third, the sample for this study was drawn from Thai day spa customers only. Therefore, the replication of this study based on the perceptions of customers of different types of spas in other countries would be valuable as the information may provide a deeper understanding of the interrelationships between the constructs that have been identified in this study.

Appendix A

Questionnaire



Commerce Division
P O Box 84
Lincoln University
Canterbury 8150
NEW ZEALAND
Telephone 64 03 325 2811
Fax 64 03 325 3630
www.lincoln.ac.nz

Dear Respondents,

I am a PhD candidate in the Faculty of Agribusiness and Commerce at Lincoln University, in Christchurch, New Zealand. The attached questionnaire is part of my research project, design to study behavioural intentions in the day spa industry. The findings of this study will contribute to the service marketing literature and assist day spa management in future marketing activities.

You are invited to participate in a survey and your participation is completely voluntary. If you choose to complete the survey, it will be understood that you have consented to participate in the research project and to publication of the results of the research project.

In order to be eligible to answer the questions, you must be 18 years or older, and had experienced in a day spa. The questionnaire are anonymous. You are not required to provide any personal details and you may decline to answer any question. The results of this study will be published as a part of my PhD thesis and also will be made available to the day spa industry.

This questionnaire will take approximately 10 to 15 minutes to complete. Please **put it in the return box** when you have completed it. If you have any questions or concerns with this study, please do not hesitate to contact me at 0823373187 or e-mail at Thitiya.Thongkern@lincolnuni.ac.nz. Alternatively, you may contact my research supervisors, Mr. Michael D. Clemes at Michael.Clemes@lincoln.ac.nz or Dr. David Dean at David.Dean@lincoln.ac.nz.

Your kind assistance is absolutely vital to the success of this study. Each and every response is important and I appreciate your willingness to help. Thank you very much for your cooperation and assistance.

Best regards,

Thitiya Thongkern
PhD Candidate
Commerce Division
Lincoln University

A Survey of Assessing the Behavioural Intentions of Spa goers: An Empirical Analysis

This questionnaire contains 6 sections (A – F). Please answer all the questions in each section. Below are a series of statements that relate to your overall experiences as a customer of The Thai day spa industry. Please indicate how strongly you agree or disagree with each of the following statements on a scale of 1 to 7. 1 you strongly disagree, 7 you strongly agree, and 4 is neutral. Please circle your answers.

| Section A Interpersonal Quality | | | | | | | |
|--|-------------------|---|---------|---|---|----------------|---|
| | Strongly Disagree | | Neutral | | | Strongly Agree | |
| Communication Skills | | | | | | | |
| 1. The staff in the spa always listen to what I have to say | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. The spa's staff treats me as an individual and not just a number. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I feel the staff at the spa understand my need. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. The staff at the spa are concerned about my well-being. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I always get personalised attention from the staff at the spa | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. I find it easy to discuss things with the staff at the spa. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. The staff at the spa explain things in a way that I can understand. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. The staff at the spa are willing to answer my questions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. I believe the staff at the spa care about me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | | |
| Friendliness | | | | | | | |
| 1. The staff and I sometimes kid around, laugh, or joke with each other like close friends. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. The staff and I talk about the things that are happening in our lives, and not just about my spa service. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I have built a close relationship with some of the staff at the spa. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | | |
| Overall | | | | | | | |
| 1. The staff of the spa delivers superior services. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. Overall, the quality of the interaction with the staff of the spa is excellent. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| Section B Environment Quality | | | | | | | |
|--|-------------------|---|---|---------|---|----------------|---|
| | Strongly Disagree | | | Neutral | | Strongly Agree | |
| Atmosphere | | | | | | | |
| 1. The atmosphere at the spa is pleasing. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. I like the “feel” of the atmosphere at the spa. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. The spa has an appealing atmosphere. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. The temperature at the spa is pleasant. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. The spa smells pleasant. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | | |
| Tangibles | | | | | | | |
| 1. The furniture at the spa is comfortable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. I like the layout of the spa. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. The spa looks attractive. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I like the interior decoration (e.g., style of furniture) at the spa. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. The colour scheme at the spa is attractive. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. The lighting at the spa is appropriate for this setting. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. The design of the spa is customer friendly. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | | |
| Overall | | | | | | | |
| 1. I feel comfortable with the physical environment of the spa. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. Overall, the quality of the physical environment is excellent. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | | |
| Section C Administrative Quality | | | | | | | |
| | Strongly Disagree | | | Neutral | | Strongly Agree | |
| Timeliness | | | | | | | |
| 1. The spa keeps waiting time to a minimum. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. Generally, appointments at the spa run on time. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | | |
| Operation | | | | | | | |
| 1. The spa’s records and documentation are error free (e.g., billing) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. I believe the spa is well-managed. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. The registrations procedures at the spa are efficient. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. The discharge procedures at the spa are efficient. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. The spa’s opening hours meet my needs. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | | |
| Programme Variety | | | | | | | |
| 1. The spa provides customers with an excellent rang of treatment services. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. The spa provides customers with services beyond well- being. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. The spa frequently provide suitable treatments programmes for spa customers | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | | | | | | | |
|--|-------------------|---|---------|---|---|----------------|---|
| Overall | | | | | | | |
| 1. I feel confident with the administration of the spa | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. Overall, the administration of the spa is excellent. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Section D Technical Quality | | | | | | | |
| Outcome | Strongly Disagree | | Neutral | | | Strongly Agree | |
| 1. I feel energetic as a result of having spa services. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. Coming to the spa has increased my chance of improving my health. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I believe my future health will improve as a result of attending the spa. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I believe having spa at the spa industry has been worthwhile. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I leave the spa feeling encouraged about my treatment. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | | |
| Staff Expertise | | | | | | | |
| 1. I can rely on the staff at the spa to be well trained and qualified. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. The staff at the spa carry out their tasks competently. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I believe the staff at the spa are highly skilled at their jobs. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I feel good about the quality of the care given to me at the spa. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | | |
| Overall | | | | | | | |
| 1. It is always a good experience to use the service of the spa. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. Overall, I receive the desired outcome by using spa services. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| Section E Service Quality, Customer Satisfaction, Perceive value, Perceived Switching Costs, Behavioural Intentions | | | | | | | |
|---|-------------------|---|---------|---|---|----------------|---|
| | Strongly Disagree | | Neutral | | | Strongly Agree | |
| Service Quality | | | | | | | |
| 1. The overall quality of service provided by the spa is excellent. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. The service provided by the spa is impressive. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. The service provided by the spa is of a high standard. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I believe the spa offers service that is superior in every way. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | | |
| Customer Satisfaction | | | | | | | |
| 1. My feelings towards the spa are very positive. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. Overall I am satisfied with the spa and the service it provides. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I feel satisfied that the results of my treatment are the best that can be achieved. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. The extent to which my treatment has produced the best possible outcome is satisfying. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | | |
| Perceived Value | | | | | | | |
| 1. The services that I receive from the spa provide value for money. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. Compared to what I have to give up, such as money, time, energy, and effort, the services that I receive from the spa are excellent. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. Overall, I feel the services and goods in the spa are valuable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | | |
| Perceived Switching Costs | | | | | | | |
| 1. If I switch to a new spa provider, I will be concerned that the services offered by the new spa provider may not good as the regular one. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. I want to remain as a spa customer of the regular spa rather than switch to a new provider when I consider money, time, energy, effort, and relations. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. Overall, it is not worthwhile to switch to a new spa provider. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | | |
| Behavioural Intentions | | | | | | | |
| 1. If I had to start having spa services again I would want to come to this spa. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. I would highly recommend the spa to other customers. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I have said positive things about the spa to my family and friends. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I intend to continue having spa at this spa. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. Overall, I am glad I have a relaxation at this spa rather than somewhere else. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Section F Demographic Information

1. What is your gender?

Male Female

2. What is your age group?

18-25 26-35 36-45
 46-55 56-65 65+

3. How long have you been a spa customer of this spa?

_____ Years / _____ Months _____ Days

4. What type of a customer are you?

a casual customer a membership

5. How often do you have a day spa service?

1-2 time/month 3-4 times/month 5-6 times/month
 Others (Please specify) _____

6. What is your occupation?

Student Professionals
 Sale/Service Tradesperson
 Farmer Housewife
 Unemployed Other (Please specify) _____

Thank you very much for your time. Please return the survey to the distributor immediately.

Wishing you have a nice day!

Appendix B

B.1 Skewness and Kurtosis (Sample 1)

| | N | Mean | Skewness | Kurtosis |
|------|-----------|-----------|----------|----------|
| | Statistic | Statistic | | |
| Com1 | 310 | 5.80 | -.234 | -.687 |
| Com2 | 310 | 6.05 | -1.079 | 3.354 |
| Com3 | 310 | 5.83 | -.193 | -.933 |
| Com4 | 310 | 5.95 | -.350 | -.698 |
| Com5 | 310 | 5.92 | -.229 | -.798 |
| Com6 | 310 | 5.86 | -.394 | -.534 |
| Com7 | 310 | 5.87 | -.363 | -.394 |
| Com8 | 310 | 5.93 | -.494 | -.294 |
| Fri1 | 310 | 5.54 | -.449 | -.569 |
| Fri2 | 310 | 5.27 | -.558 | -.144 |
| Fri3 | 310 | 5.35 | -.870 | .886 |
| Atm1 | 310 | 5.89 | -.665 | .700 |
| Atm2 | 310 | 5.96 | -.427 | -.386 |
| Atm3 | 310 | 5.85 | -.593 | .008 |
| Atm4 | 310 | 5.71 | -.214 | -.426 |
| Atm5 | 310 | 5.81 | -.823 | .969 |
| Tan1 | 310 | 5.52 | -.486 | .202 |
| Tan2 | 310 | 5.73 | -.491 | -.153 |
| Tan3 | 310 | 5.68 | -.638 | .123 |
| Tan4 | 310 | 5.56 | -.380 | -.132 |
| Tan5 | 310 | 5.62 | -.647 | .687 |
| Tan6 | 310 | 5.69 | -.554 | -.151 |
| Tim1 | 310 | 5.67 | -.651 | .295 |
| Tim2 | 310 | 5.79 | -.496 | -.462 |
| Tim3 | 310 | 5.71 | -.255 | -.018 |
| Ope1 | 310 | 5.69 | -.461 | .691 |
| Ope2 | 310 | 5.62 | -.456 | .225 |
| Ope3 | 310 | 5.61 | -.466 | .648 |
| Ope4 | 310 | 5.54 | -.426 | .638 |
| Ope5 | 310 | 5.73 | -.517 | .797 |
| Pro1 | 310 | 5.46 | -.342 | -.691 |
| Pro2 | 310 | 5.33 | -.279 | -.684 |
| Pro3 | 310 | 5.44 | -.468 | -.150 |
| Out1 | 310 | 6.13 | -.660 | -.210 |
| Out2 | 310 | 6.03 | -.531 | -.617 |
| Out3 | 310 | 5.98 | -.295 | -1.096 |
| Out4 | 310 | 6.07 | -.397 | -.591 |
| Exp1 | 310 | 5.83 | -.587 | -.257 |
| Exp2 | 310 | 5.85 | -.354 | -.108 |
| Exp3 | 310 | 5.86 | -.451 | -.315 |
| Exp4 | 310 | 5.88 | -.313 | -.525 |
| SQ1 | 310 | 5.85 | -.319 | -.192 |
| SQ2 | 310 | 5.71 | -.678 | 1.080 |
| SQ3 | 310 | 5.66 | -.549 | .397 |
| SQ4 | 310 | 5.78 | -.362 | -.098 |

| | | | | |
|------|-----|------|--------|-------|
| CS1 | 310 | 5.99 | -.653 | .054 |
| CS2 | 310 | 6.03 | -.350 | -.799 |
| CS3 | 310 | 5.95 | -.269 | -.925 |
| CS4 | 310 | 6.03 | -.298 | -.935 |
| PV1 | 310 | 5.86 | -.687 | 1.262 |
| PV2 | 310 | 5.86 | -.700 | 1.133 |
| PV3 | 310 | 5.78 | -.794 | 1.710 |
| PSC1 | 310 | 5.57 | -.872 | 1.264 |
| PSC2 | 310 | 5.64 | -1.117 | 2.182 |
| PSC3 | 310 | 5.72 | -.973 | 1.216 |
| BI1 | 310 | 5.82 | -.726 | 1.215 |
| BI2 | 310 | 5.81 | -.324 | -.462 |
| BI3 | 310 | 5.76 | -.878 | 1.699 |
| BI4 | 310 | 5.83 | -.619 | .306 |
| BI5 | 310 | 5.50 | -.810 | .776 |

B.2 Skewness and Kurtosis (Sample 2)

| | N | Mean | Skewness | Kurtosis |
|------|-----------|-----------|----------|----------|
| | Statistic | Statistic | | |
| Com1 | 310 | 5.93 | -.421 | -.500 |
| Com2 | 310 | 6.15 | -1.275 | 3.456 |
| Com3 | 310 | 5.97 | -.367 | -.983 |
| Com4 | 310 | 5.95 | -.420 | -.701 |
| Com5 | 310 | 5.96 | -.243 | -1.111 |
| Com6 | 310 | 5.97 | -.441 | -.686 |
| Com7 | 310 | 5.96 | -.443 | -.363 |
| Com8 | 310 | 5.98 | -.423 | -.440 |
| Fri1 | 310 | 5.56 | -.575 | -.122 |
| Fri2 | 310 | 5.50 | -.734 | .156 |
| Fri3 | 310 | 5.51 | -.945 | 1.776 |
| Atm1 | 310 | 5.84 | -.653 | .511 |
| Atm2 | 310 | 5.96 | -.470 | -.503 |
| Atm3 | 310 | 5.84 | -.565 | -.062 |
| Atm4 | 310 | 5.71 | -.174 | -.499 |
| Atm5 | 310 | 5.79 | -.746 | .890 |
| Tan1 | 310 | 5.34 | -.430 | .163 |
| Tan2 | 310 | 5.45 | -.277 | -.126 |
| Tan3 | 310 | 5.41 | -.349 | -.406 |
| Tan4 | 310 | 5.32 | -.286 | .193 |
| Tan5 | 310 | 5.43 | -.532 | .251 |
| Tan6 | 310 | 5.47 | -.406 | -.238 |
| Tim1 | 310 | 5.77 | -.785 | .268 |
| Tim2 | 310 | 5.87 | -.614 | -.312 |
| Tim3 | 310 | 5.79 | -.295 | -.082 |
| Ope1 | 310 | 5.82 | -.566 | .539 |
| Ope2 | 310 | 5.73 | -.529 | -.030 |
| Ope3 | 310 | 5.69 | -.504 | .367 |
| Ope4 | 310 | 5.64 | -.505 | .275 |
| Ope5 | 310 | 5.80 | -.572 | .592 |
| Pro1 | 310 | 5.56 | -.431 | -.608 |
| Pro2 | 310 | 5.44 | -.302 | -.726 |
| Pro3 | 310 | 5.48 | -.387 | -.448 |
| Out1 | 310 | 6.16 | -.565 | -.725 |
| Out2 | 310 | 6.10 | -.492 | -.914 |
| Out3 | 310 | 6.10 | -.464 | -1.034 |
| Out4 | 310 | 6.09 | -.435 | -.772 |
| Exp1 | 310 | 5.80 | -.603 | -.183 |
| Exp2 | 310 | 5.82 | -.331 | -.009 |
| Exp3 | 310 | 5.82 | -.429 | -.241 |
| Exp4 | 310 | 5.85 | -.267 | -.642 |
| SQ1 | 310 | 6.00 | -.338 | -.603 |
| SQ2 | 310 | 5.87 | -.263 | -.679 |
| SQ3 | 310 | 5.83 | -.277 | -.682 |
| SQ4 | 310 | 5.87 | -.404 | .003 |
| CS1 | 310 | 5.93 | -.406 | -.074 |
| CS2 | 310 | 5.88 | -.102 | -.824 |
| CS3 | 310 | 5.83 | -.196 | -.508 |
| CS4 | 310 | 5.91 | -.232 | -.746 |

| | | | | |
|------|-----|------|-------|-------|
| PV1 | 310 | 5.94 | -.545 | -.158 |
| PV2 | 310 | 5.85 | -.563 | -.266 |
| PV3 | 310 | 5.84 | -.946 | 1.930 |
| PSC1 | 310 | 5.73 | -.952 | 2.393 |
| PSC2 | 310 | 5.86 | -.734 | .996 |
| PSC3 | 310 | 5.88 | -.815 | 1.208 |
| BI1 | 310 | 5.86 | -.686 | 1.337 |
| BI2 | 310 | 5.85 | -.342 | -.324 |
| BI3 | 310 | 5.77 | -.666 | .927 |
| BI4 | 310 | 5.84 | -.681 | .570 |
| BI5 | 310 | 5.51 | -.832 | 1.117 |

Appendix C

Exploratory Factor Analysis for Interpersonal Quality

C.1 Correlation Matrix (Interpersonal Quality)

| | Com1 | Com2 | Com3 | Com4 | Com5 | Com6 | Com7 | Com8 | Fri1 | Fri2 | Fri3 |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Com1 | 1.000 | .610 | .578 | .475 | .566 | .428 | .520 | .520 | .370 | .262 | .272 |
| Com2 | .610 | 1.000 | .551 | .512 | .599 | .518 | .485 | .422 | .321 | .262 | .231 |
| Com3 | .578 | .551 | 1.000 | .665 | .595 | .545 | .567 | .526 | .402 | .290 | .371 |
| Com4 | .475 | .512 | .665 | 1.000 | .561 | .505 | .531 | .495 | .440 | .328 | .303 |
| Com5 | .566 | .599 | .595 | .561 | 1.000 | .681 | .571 | .504 | .399 | .266 | .333 |
| Com6 | .428 | .518 | .545 | .505 | .681 | 1.000 | .599 | .466 | .428 | .339 | .362 |
| Com7 | .520 | .485 | .567 | .531 | .571 | .599 | 1.000 | .644 | .386 | .304 | .376 |
| Com8 | .520 | .422 | .526 | .495 | .504 | .466 | .644 | 1.000 | .409 | .297 | .325 |
| Fri1 | .370 | .321 | .402 | .440 | .399 | .428 | .386 | .409 | 1.000 | .712 | .633 |
| Fri2 | .262 | .262 | .290 | .328 | .266 | .339 | .304 | .297 | .712 | 1.000 | .682 |
| Fri3 | .272 | .231 | .371 | .303 | .333 | .362 | .376 | .325 | .633 | .682 | 1.000 |

C.2 Anti-Image Correlation Matrix (Interpersonal Quality)

| | | | | | | | | | | | |
|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Com1 | .903 ^a | -.330 | -.200 | .041 | -.168 | .126 | -.102 | -.164 | -.088 | .000 | .039 |
| Com2 | -.330 | .915 ^a | -.099 | -.107 | -.195 | -.119 | -.035 | .036 | .047 | -.097 | .091 |
| Com3 | -.200 | -.099 | .914 ^a | -.385 | -.074 | -.098 | -.067 | -.079 | .012 | .086 | -.160 |
| Com4 | .041 | -.107 | -.385 | .914 ^a | -.121 | -.011 | -.098 | -.075 | -.141 | -.065 | .117 |
| Com5 | -.168 | -.195 | -.074 | -.121 | .909 ^a | -.400 | -.042 | -.055 | -.050 | .114 | -.076 |
| Com6 | .126 | -.119 | -.098 | -.011 | -.400 | .900 ^a | -.255 | .009 | -.079 | -.058 | .002 |
| Com7 | -.102 | -.035 | -.067 | -.098 | -.042 | -.255 | .910 ^a | -.380 | .055 | .021 | -.124 |
| Com8 | -.164 | .036 | -.079 | -.075 | -.055 | .009 | -.380 | .918 ^a | -.105 | .001 | .015 |
| Fri1 | -.088 | .047 | .012 | -.141 | -.050 | -.079 | .055 | -.105 | .870 ^a | -.465 | -.230 |
| Fri2 | .000 | -.097 | .086 | -.065 | .114 | -.058 | .021 | .001 | -.465 | .789 ^a | -.438 |
| Fri3 | .039 | .091 | -.160 | .117 | -.076 | .002 | -.124 | .015 | -.230 | -.438 | .844 ^a |

a. Measures of Sampling Adequacy(MSA)

C.3 Factor Extraction Table (Interpersonal Quality)

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 5.649 | 51.357 | 51.357 | 5.649 | 51.357 | 51.357 |
| 2 | 1.554 | 14.125 | 65.483 | 1.554 | 14.125 | 65.483 |
| 3 | .672 | 6.113 | 71.595 | | | |
| 4 | .631 | 5.735 | 77.330 | | | |
| 5 | .573 | 5.208 | 82.538 | | | |
| 6 | .422 | 3.836 | 86.374 | | | |
| 7 | .379 | 3.447 | 89.821 | | | |
| 8 | .324 | 2.942 | 92.763 | | | |
| 9 | .302 | 2.744 | 95.507 | | | |
| 10 | .258 | 2.349 | 97.856 | | | |
| 11 | .236 | 2.144 | 100.000 | | | |

Extraction Method: Principal Component Analysis.

C.4 Rotated Component Matrix with VARIMAX rotation (Interpersonal Quality)

| Items No. | Components | |
|-----------|------------|----------|
| | Factor 1 | Factor 2 |
| Com5 | .806 | |
| Com3 | .784 | |
| Com2 | .767 | |
| Com1 | .753 | |
| Com7 | .752 | |
| Com4 | .725 | |
| Com6 | .714 | |
| Com8 | .690 | |
| Fri2 | | .896 |
| Fri3 | | .848 |
| Fri1 | | .821 |

Extraction Method: Principal Component Analysis.

Rotation Method: VARIMAX with Kaiser Normalization

Appendix D

Exploratory Factor Analysis for Environment Quality

D.1 Correlation Matrix (Environment Quality)

| | Atm1 | Atm2 | Atm3 | Atm4 | Atm5 | Tan1 | Tan2 | Tan3 | Tan4 | Tan5 | Tan6 |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Atm1 | 1.000 | .718 | .766 | .563 | .650 | .560 | .581 | .554 | .582 | .571 | .535 |
| Atm2 | .718 | 1.000 | .721 | .576 | .554 | .408 | .436 | .450 | .501 | .565 | .548 |
| Atm3 | .766 | .721 | 1.000 | .654 | .713 | .520 | .588 | .568 | .558 | .597 | .561 |
| Atm4 | .563 | .576 | .654 | 1.000 | .592 | .485 | .443 | .420 | .508 | .486 | .448 |
| Atm5 | .650 | .554 | .713 | .592 | 1.000 | .557 | .559 | .516 | .536 | .556 | .542 |
| Tan1 | .560 | .408 | .520 | .485 | .557 | 1.000 | .724 | .688 | .637 | .627 | .597 |
| Tan2 | .581 | .436 | .588 | .443 | .559 | .724 | 1.000 | .743 | .603 | .548 | .536 |
| Tan3 | .554 | .450 | .568 | .420 | .516 | .688 | .743 | 1.000 | .656 | .585 | .583 |
| Tan4 | .582 | .501 | .558 | .508 | .536 | .637 | .603 | .656 | 1.000 | .734 | .674 |
| Tan5 | .571 | .565 | .597 | .486 | .556 | .627 | .548 | .585 | .734 | 1.000 | .792 |
| Tan6 | .535 | .548 | .561 | .448 | .542 | .597 | .536 | .583 | .674 | .792 | 1.000 |

D.2 Anti-Image Correlation Matrix (Environment Quality)

| | | | | | | | | | | | |
|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Atm1 | .928 ^a | -.363 | -.314 | .041 | -.135 | -.130 | -.075 | .003 | -.122 | .024 | .057 |
| Atm2 | -.363 | .917 ^a | -.254 | -.180 | .045 | .130 | .053 | -.012 | .031 | -.101 | -.142 |
| Atm3 | -.314 | -.254 | .914 ^a | -.252 | -.291 | .134 | -.131 | -.112 | .069 | -.092 | -.006 |
| Atm4 | .041 | -.180 | -.252 | .937 ^a | -.175 | -.158 | .043 | .077 | -.145 | .023 | .049 |
| Atm5 | -.135 | .045 | -.291 | -.175 | .955 ^a | -.102 | -.072 | .030 | -.003 | -.022 | -.084 |
| Tan1 | -.130 | .130 | .134 | -.158 | -.102 | .924 ^a | -.349 | -.198 | -.060 | -.155 | -.085 |
| Tan2 | -.075 | .053 | -.131 | .043 | -.072 | -.349 | .916 ^a | -.388 | -.057 | .045 | .006 |
| Tan3 | .003 | -.012 | -.112 | .077 | .030 | -.198 | -.388 | .928 ^a | -.218 | .022 | -.087 |
| Tan4 | -.122 | .031 | .069 | -.145 | -.003 | -.060 | -.057 | -.218 | .944 ^a | -.328 | -.121 |
| Tan5 | .024 | -.101 | -.092 | .023 | -.022 | -.155 | .045 | .022 | -.328 | .904 ^a | -.495 |
| Tan6 | .057 | -.142 | -.006 | .049 | -.084 | -.085 | .006 | -.087 | -.121 | -.495 | .918 ^a |

a. Measures of Sampling Adequacy(MSA)

D.3 Factor Extraction Table (Environment Quality)

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 6.826 | 62.051 | 62.051 | 6.826 | 62.051 | 62.051 |
| 2 | 1.059 | 9.629 | 71.680 | 1.059 | 9.629 | 71.680 |
| 3 | .716 | 6.510 | 78.189 | | | |
| 4 | .508 | 4.614 | 82.803 | | | |
| 5 | .413 | 3.759 | 86.562 | | | |
| 6 | .325 | 2.952 | 89.514 | | | |
| 7 | .312 | 2.833 | 92.347 | | | |
| 8 | .238 | 2.168 | 94.514 | | | |
| 9 | .226 | 2.052 | 96.566 | | | |
| 10 | .204 | 1.859 | 98.425 | | | |
| 11 | .173 | 1.575 | 100.000 | | | |

Extraction Method: Principal Component Analysis.

D.4 Rotated Component Matrix with VARIMAX rotation (Environment Quality)

| Items No. | Components | |
|-----------|------------|----------|
| | Factor 1 | Factor 2 |
| Tan1 | .821 | |
| Tan3 | .818 | |
| Tan2 | .782 | |
| Tan4 | .758 | |
| Tan5 | .715 | |
| Tan6 | .708 | |
| Atm2 | | .832 |
| Atm3 | | .825 |
| Atm1 | | .766 |
| Atm4 | | .751 |
| Atm5 | | .692 |

Extraction Method: Principal Component Analysis.

Rotation Method: VARIMAX with Kaiser Normalization

Appendix E

Exploratory Factor Analysis for Administrative Quality

E.1 Correlation Matrix (Administrative Quality)

| | Tim1 | Tim2 | Tim3 | Ope1 | Ope2 | Ope3 | Ope4 | Ope5 | Pro1 | Pro2 | Pro3 |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Tim1 | 1.000 | .632 | .550 | .417 | .405 | .432 | .478 | .426 | .242 | .246 | .199 |
| Tim2 | .632 | 1.000 | .689 | .482 | .482 | .476 | .515 | .518 | .271 | .342 | .323 |
| Tim3 | .550 | .689 | 1.000 | .301 | .343 | .389 | .354 | .371 | .173 | .204 | .168 |
| Ope1 | .417 | .482 | .301 | 1.000 | .683 | .604 | .626 | .610 | .237 | .296 | .273 |
| Ope2 | .405 | .482 | .343 | .683 | 1.000 | .684 | .727 | .685 | .287 | .350 | .336 |
| Ope3 | .432 | .476 | .389 | .604 | .684 | 1.000 | .686 | .638 | .256 | .347 | .316 |
| Ope4 | .478 | .515 | .354 | .626 | .727 | .686 | 1.000 | .700 | .370 | .457 | .448 |
| Ope5 | .426 | .518 | .371 | .610 | .685 | .638 | .700 | 1.000 | .359 | .358 | .385 |
| Pro1 | .242 | .271 | .173 | .237 | .287 | .256 | .370 | .359 | 1.000 | .621 | .523 |
| Pro2 | .246 | .342 | .204 | .296 | .350 | .347 | .457 | .358 | .621 | 1.000 | .725 |
| Pro3 | .199 | .323 | .168 | .273 | .336 | .316 | .448 | .385 | .523 | .725 | 1.000 |

E.2 Anti-image Correlation Matrix (Administrative Quality)

| | | | | | | | | | | | |
|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Tim1 | .909 ^a | -.308 | -.201 | -.069 | .043 | -.045 | -.152 | .009 | -.079 | .012 | .079 |
| Tim2 | -.308 | .856 ^a | -.511 | -.140 | -.025 | .029 | -.030 | -.107 | .031 | -.058 | -.089 |
| Tim3 | -.201 | -.511 | .818 ^a | .109 | -.017 | -.117 | .052 | -.023 | .000 | .000 | .054 |
| Ope1 | -.069 | -.140 | .109 | .929 ^a | -.300 | -.139 | -.100 | -.137 | .026 | -.014 | .043 |
| Ope2 | .043 | -.025 | -.017 | -.300 | .912 ^a | -.226 | -.284 | -.205 | .004 | -.008 | .012 |
| Ope3 | -.045 | .029 | -.117 | -.139 | -.226 | .936 ^a | -.232 | -.158 | .066 | -.071 | .028 |
| Ope4 | -.152 | -.030 | .052 | -.100 | -.284 | -.232 | .925 ^a | -.233 | -.020 | -.089 | -.113 |
| Ope5 | .009 | -.107 | -.023 | -.137 | -.205 | -.158 | -.233 | .934 ^a | -.144 | .105 | -.094 |
| Pro1 | -.079 | .031 | .000 | .026 | .004 | .066 | -.020 | -.144 | .866 ^a | -.396 | -.104 |
| Pro2 | .012 | -.058 | .000 | -.014 | -.008 | -.071 | -.089 | .105 | -.396 | .787 ^a | -.550 |
| Pro3 | .079 | -.089 | .054 | .043 | .012 | .028 | -.113 | -.094 | -.104 | -.550 | .819 ^a |

a. Measures of Sampling Adequacy(MSA)

E.3 Factor Extraction Table (Administrative Quality)

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 5.465 | 49.680 | 49.680 | 5.465 | 49.680 | 49.680 |
| 2 | 1.600 | 14.545 | 64.224 | 1.600 | 14.545 | 64.224 |
| 3 | 1.152 | 10.474 | 74.699 | 1.152 | 10.474 | 74.699 |
| 4 | .517 | 4.696 | 79.394 | | | |
| 5 | .452 | 4.110 | 83.504 | | | |
| 6 | .411 | 3.732 | 87.236 | | | |
| 7 | .372 | 3.384 | 90.620 | | | |
| 8 | .293 | 2.660 | 93.280 | | | |
| 9 | .256 | 2.323 | 95.603 | | | |
| 10 | .244 | 2.215 | 97.817 | | | |
| 11 | .240 | 2.183 | 100.000 | | | |

Extraction Method: Principal Component Analysis.

E.4 Rotated Component Matrix with VARIMAX rotation (Administrative Quality)

| | Component | | |
|------|-----------|----------|----------|
| | Factor 1 | Factor 2 | Factor 3 |
| Ope2 | .855 | | |
| Ope1 | .806 | | |
| Ope3 | .789 | | |
| Ope4 | .782 | | |
| Ope5 | .767 | | |
| Pro2 | | .874 | |
| Pro3 | | .838 | |
| Pro1 | | .798 | |
| Tim3 | | | .874 |
| Tim2 | | | .800 |
| Tim1 | | | .761 |

Extraction Method: Principal Component Analysis.

Rotation Method: VARIMAX with Kaiser Normalization

Appendix F

Exploratory Factor Analysis for Technical Quality

F.1 Correlation Matrix (Technical Quality)

| | | Out1 | Out2 | Out3 | Out4 | Exp1 | Exp2 | Exp3 | Exp4 |
|-------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Correlation | Out1 | 1.000 | .723 | .676 | .692 | .397 | .330 | .359 | .277 |
| | Out2 | .723 | 1.000 | .684 | .623 | .363 | .295 | .323 | .316 |
| | Out3 | .676 | .684 | 1.000 | .718 | .402 | .331 | .376 | .341 |
| | Out4 | .692 | .623 | .718 | 1.000 | .370 | .244 | .293 | .228 |
| | Exp1 | .397 | .363 | .402 | .370 | 1.000 | .742 | .742 | .647 |
| | Exp2 | .330 | .295 | .331 | .244 | .742 | 1.000 | .732 | .699 |
| | Exp3 | .359 | .323 | .376 | .293 | .742 | .732 | 1.000 | .749 |
| | Exp4 | .277 | .316 | .341 | .228 | .647 | .699 | .749 | 1.000 |

F.2 Anti-image Correlation Matrix (Technical Quality)

| | | | | | | | | |
|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Out1 | .853 ^a | -.429 | -.150 | -.317 | -.021 | -.081 | -.081 | .113 |
| Out2 | -.429 | .859 ^a | -.292 | -.082 | -.017 | .027 | .056 | -.122 |
| Out3 | -.150 | -.292 | .871 ^a | -.419 | .005 | -.014 | -.046 | -.075 |
| Out4 | -.317 | -.082 | -.419 | .845 ^a | -.144 | .087 | .015 | .058 |
| Exp1 | -.021 | -.017 | .005 | -.144 | .878 ^a | -.394 | -.334 | -.071 |
| Exp2 | -.081 | .027 | -.014 | .087 | -.394 | .867 ^a | -.225 | -.276 |
| Exp3 | -.081 | .056 | -.046 | .015 | -.334 | -.225 | .856 ^a | -.425 |
| Exp4 | .113 | -.122 | -.075 | .058 | -.071 | -.276 | -.425 | .859 ^a |

a. Measures of Sampling Adequacy(MSA)

F.3 Factor Extraction Table (Technical Quality)

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 4.424 | 55.301 | 55.301 | 4.424 | 55.301 | 55.301 |
| 2 | 1.805 | 22.562 | 77.863 | 1.805 | 22.562 | 77.863 |
| 3 | .412 | 5.147 | 83.009 | | | |
| 4 | .372 | 4.645 | 87.654 | | | |
| 5 | .283 | 3.540 | 91.195 | | | |
| 6 | .260 | 3.249 | 94.444 | | | |
| 7 | .245 | 3.058 | 97.502 | | | |
| 8 | .200 | 2.498 | 100.000 | | | |

Extraction Method: Principal Component Analysis.

F.4 Rotated Component Matrix with VARIMAX rotation (Technical Quality)

| Item No. | Component | |
|----------|-----------|----------|
| | Factor 1 | Factor 2 |
| Exp3 | .886 | |
| Exp2 | .882 | |
| Exp4 | .862 | |
| Exp1 | .836 | |
| Out4 | | .863 |
| Out1 | | .861 |
| Out3 | | .847 |
| Out2 | | .843 |

Extraction Method: Principal Component Analysis.

Rotation Method: VARIMAX with Kaiser Normalization

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