AN EXAMINATION OF QUALITY MANAGEMENT PRACTICES, HUMAN-ORIENTED ELEMENTS, AND ORGANIZATIONAL PERFORMANCE IN THE MALAYSIAN HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

The study of quality management practices (QMPs) and organizational performance (OP) in higher education institutions are gaining attention due to the demand for excellence. However, there is no clear consensus on the comprehensive model for QMPs and OP. To examine this issue, grounded by the Systems Theory, this study proposes a framework by decomposing quality management practices, human-oriented elements (satisfaction, commitment, loyalty) and organizational performance. A total of 251 head of departments from twenty public universities in Malaysia participated in this study. Data was collected through personal-administered survey questionnaires. The Partial Least Squares approach to Structural Equation Modelling (PLS-SEM) was the main statistical technique employed in this study. The study exposes that QMPs were found to have a significant relationship with OP and Human-oriented Element (Satisfaction) while Human-oriented Element (Commitment) was found not to have a significant relationship with OP. As expected, the hypotheses of interrelationship amongst all the constructs of Human-oriented Elements (satisfaction, commitment, loyalty) were supported. For the mediation test, the finding indicated that the QMPs and Human-oriented Element (Loyalty) had a positive and significant relationship through the mediating effect of Human-oriented Element (Satisfaction). The results also revealed that the Human-oriented Element (Commitment and Loyalty) were found not to mediate the relationship of QMPs and OP. Several plausible reasons were discussed. Based on the findings, the theoretical and practical implications as well as limitations and direction for further research are also discussed.

Keywords: Human-oriented elements, quality management practices, organizational performance

ABSTRAK

Kajian tentang amalan pengurusan kualiti (QMPs) dan prestasi organisasi (OP) di institusi pengajian tinggi mula mendapat perhatian kesan daripada tuntutan terhadap kecemerlangan. Walau bagaimanapun, tidak ada kesepakatan yang jelas berhubung model yang komprehensif untuk QMPs dan OP. Bagi meneliti isu ini dengan bersandarkan Teori Sistem, kajian ini menyarankan satu kerangka kerja dengan memenggalkan amalan pengurusan kualiti, elemen yang bersumberkan manusia (kepuasan, komitmen, kesetiaan) dan prestasi organisasi. Seramai 251 orang ketua jabatan dari dua puluh buah universiti awam di Malaysia telah mengambil bahagian dalam kajian ini. Data dikumpul melalui soal selidik kendiri. Pendekatan Kuasa Dua Terkecil Separa untuk Pemodelan Persamaan Berstruktur (PLS-SEM) merupakan teknik statistik utama yang digunakan dalam kajian ini. Dapatan kajian memperlihatkan bahawa QMPs mempunyai hubungan yang signifikan terhadap OP dan Elemen bersumberkan Manusia (Kepuasan). Manakala, Elemen bersumberkan Manusia (Komitmen) didapati tidak mempunyai hubungan yang signifikan dengan OP. Seperti yang dijangka, hipotesis hubungan inter dalam kalangan semua konstruk Elemen bersumberkan Manusia (kepuasan, komitmen, kesetiaan) telah disokong dalam kajian ini. Untuk ujian perantaraan, dapatan menunjukkan bahawa QMPs dan Elemen bersumberkan Manusia (Kesetiaan) mempunyai hubungan yang positif dan signifikan menerusi kesan perantaraan Elemen bersumberkan Manusia (Kepuasan). Dapatan kajian juga memaparkan bahawa Elemen bersumberkan Manusia (Komitmen dan Kesetiaan) didapati tidak menjadi perantara dalam hubungan QMPs dengan OP. Beberapa sebab yang munasabah telah diperincikan. Implikasi teori dan praktis serta batasan dan hala tuju untuk kajian masa hadapan turut dikemukakan berdasarkan dapatan kajian.

Kata Kunci: Amalan pengurusan kualiti, elemen bersumberkan manusia, prestasi organisasi

DEDICATION

This thesis is dedicated to my beloved parents, Allahyarhamah Hajjah Ramlah Binti Haji Man (1944-2009) and Allahyarham Haji Romle Bin Haji Bakar (1943-2012). Both of you have always been in my heart and soul, forever and ever. This journey would not have been possible without your spirit and inspiration.

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To my wonderful kids, Rabiyatul, Rafiqah, Rashidah, Muhammad, may the principles and insights contained in this journey bring you clarity, balance, focus, and confidence to help you accomplish your greatest dreams and create a meaningful transformation in your lives

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LIST OF ABBREVIATIONS

ACN	Three-Component Model
ACS	Affective Commitment Scales
ACRULeT	The Asian Center for Research on University Learning and Teaching
AGFI	Adjusted Goodness-of-Fit Index
AMOS	Analysis of Moment Structures
ANOVA	Analysis of Variance
AVE	Average Variance Extracted
BOCS	British Organizational Commitment Scale
CBSEM	Covariance Based Structural Equation Modeling
CCS	Continuance Commitment Scale
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CR	Construct/Composite Reliability
CSFs	Critical Success Factors
DV	Dependent Variable
EDT	Expectancy Disconfirmation Theory
EFA	Exploratory Factor Analysis
EFQM	European Foundation for Quality Management
GFI	Goodness-of-Fit Index
GOF	Goodness-of-Fit
HOE-Comm	Human-Oriented Element Commitment
HOE-Loy	Human-Oriented Element Loyalty
HOE-Sat	Human-Oriented Element Satisfaction
ISO	International Organization for Standardization
ITM	Institut Technology Mara
IV	Independent Variable
KMO	Kaiser-Meyer-Olkin
LISREL	Linear Structural Model
LV	Latent Variables
MANOVA	Multivariate Analysis of Variance
MBNQA	Malcolm Baldrige National Quality Award
ML	Maximum Likelihood
MLE	Maximum Likelihood Estimation
MS ISO	Malaysia Sirim for International Organization for Standardization
MV	Mediating Variable
NC	Normed Chi-square
NCS	Normative Commitment Scale
NQAs	National Quality Awards
OCQ	Organizational Commitment Questionnaire
OP	Organizational Performance
PDCA	Plan-Do-Check-Act
PGFI	Parsimony Goodness-of-Fit Index
PLS-PM	Partial Least Squares- Path Modeling

PLS-SEM	Partial Least Squares- Structural Equation Modeling
Q^2	Cross-Validated Redundancy Measure
QM	Quality Management
QMPs	Quality Management Practices
QOC	Quality of Conformance
QOD	Quality of Design
QOP	Quality of Performance
RM	Ringgit Malaysia
RMSEA	Root Mean Square Error of Approximation
SEM	Structural Equation Modeling
SERVQUAL	Service Quality
SETARA	The MQA Rating System for Higher Education Institutions in Malaysia
SPSS	Statistical Package for the Social Sciences
TQC	Total Quality Control
TQM	Total Quality Management
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
TLI	Tucker Lewis Index
UIAM	Universiti Islam Antarabangsa Malaysia
UiTM	Universiti Teknologi MARA
UKM	Universiti Kebangsaan Malaysia
UM	Universiti Malaya
UMK	Universiti Malaysia Kelantan
UMP	Universiti Malaysia Pahang
UMS	Universiti Malaysia Sabah
UMT	Universiti Malaysia Terengganu
UniMAP	Universiti Malaysia Perlis
UNIMAS	Universiti Malaysia Sarawak
UniSZA	Universiti Sultan Zainal Abidin
UPM	Universiti Putra Malaysia
UPNM	Universiti Pertahanan Nasional Malaysia
UPSI	Universiti Pendidikan Sultan Idris
USIM	Universiti Sains Islam Malaysia
USM	Universiti Sains Malaysia
UTeM	Universiti Teknikal Malaysia Melaka
UTHM	Universiti Tun Hussein Onn Malaysia
UTM	Universiti Teknologi Malaysia
UUM	Universiti Utara Malaysia
VBSEM	Variance Based Structural Equation Modeling
VIF	Variance Inflation Factor
5S	Seiri, Seiton, Seiso, Seiketsu, Shitsuke

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

The discussion of 'quality' entails a variety of views, the orientations of the different people, things and the way it defined. The link of quality management practices (QMPs) and organizational performance is an important issue and difficult to evaluate. Defining the accurate role of QMPs and organizational performance is difficult because it covers many areas (Dumond, 1994), and wide subjects (Neely, Gregory & Platts, 2005). As Thiagarajan, Zaire & Dale (2001) mentioned that ignoring QMPs matter is equivalent to lack of success, and the winning strategy in a competitive environment is improvement of QMPs in the organization (Lee, Pae & Wong, 2000). Therefore, efforts have to be undertaken to improve the management of quality practices because organizational performance is centrally based on it.

A general consensus in the literature that QMPs affect performance (Martínez-Costa, Choi, Martínez & Martínez-Lorente, 2009). The bulk of the QMPs and organizational performance literature highlighted the favorable results (*e.g.* Heras, Arana & Casadesús, 2006; Li, Andersen & Harrison, 2003; Martínez-Costa & Martínez-Lorente, 2007; Yasin, Alavi, Kunt & Zimmerer, 2004). Specifically, literature reported the improvement in term of financial (Corbett, Montes-Sancho & Kirsch, 2005), quality of product (Mahadevappa & Kotrshwar, 2004; Noori, 2004), employee involvement (Sacchetti, 2007; White, Samson, Jones & Thomas, 2009), image (North, Blackburn & Curran,

1998), quality consciousness (Nwanko, 2000), and communication (Heras, Casadesus & Dick, 2002).

However, there have been disagreement reports from the past investigations about how QMPs drive to the expected organizational performance outcomes. A large body of previous studies does not give much evidences on how precisely QMPs affect organizational performance (Kumar, Choisnede, Grosbois & Kumar, 2009), and it remains questionable (Jiménez-Jiménez & Martínez-Costa, 2009).

Various studies presented unfavorable outcomes, such as high volume of paperwork (Chini & Valdev, 2003), lack of flexibility (Dick, 2000; Wilkinson & Dale, 2002), maintenance of QMPs (Chin, Poon & Pun, 2000), the cost issue (Briscoe, Fawcett & Todd, 2005; Nwanko, 2000; White *et al*., 2009), not improve the organizational performance (Feng, Terziovski & Samson, 2008; Terziovski, Samson & Dow, 1997), and do not help organizations to achieve competitiveness, business success and market value (Martinez-Costa & Martinez-Lorente, 2003; Pivka, 2004). Asif, de Bruijn, Douglas & Fischer (2009) concluded that QMPs program is becoming a liability to the organization, and there is still unacceptable among the scholars about its advantages (Martínez-Costa *et al*., 2009). In short, QMPs do not work for all organizations (Terziovski, 2006), and the suitability of the present QMPs are still not clear (Klefsjö, Bergquist & Garvare, 2008; Mehralizadeh & Safaeemoghaddam, 2010; Reed, Lemak & Mero, 2000).

Furthermore, there is no a clear consensus on the comprehensive model for QMPs (Antony, 2009; Klefsjo *et al*., 2008; Tari, 2005), and organizations were blurred to adopt the real QMPs model in order to avoid its unsatisfied outcomes (Shenawy, Baker & Lemak, 2007). At the beginning stages in development of QMPs dimension were based on the pioneer quality scholars' perspective (*e.g*. Deming, Juran, Crosby, Feigenbaum, Taguchi and Ishikawa). According to Sila and Ibrahimpour (2002), Saraph, Benson and Schroeder (1989) were known as the first contributors in suggesting the dimension of QMPs based on critical success factors (CSFs). The volume of empirical works in the field of QMPs increased after the introduction of these CSFs (Sila & Ibrahimpour, 2002). On the other hand, a number of organization formulated their QMPs dimension based on the key national quality awards (NQAs) criteria (Sila & Ebrahimpour, 2002; Tari, 2005). By applying these NQAs, previous investigations have examined the relationship between QMPs and performance. Unfortunately, there is certainly not a clear consensus on the dimensions of QMPs (Samson & Terziovski, 1999), and in the higher education institutions, what dimensions postulate QMPs has not been comprehensively performed (Sakhtivel, Rajendran & Raju, 2005).

Whereas QMPs area mainly studied by operations management scholars, organizational performance appears to have been scattered in many disciplines such as human resources, organizational behavior, information systems, marketing, management accounting, and operations management (Franco-Santos & Bourne, 2005; Marr & Schiuma, 2003). The main purpose of any organizational performance measure is to check the internal process (Amaratunga & Baldry, 2002), and as a key to organizational change (Bititcti, Turner &

Bagemann, 2000). In short, organizational performance improvement is a continuous process to achieve the organizational objectives (Parthiban & Goh, 2011).

In operations management area, organizational performance was conceptualized in a variety ways throughout the scholars. Previous studies in this area differ in term of profit-based performance (Abdullah, Uli & Tari, 2008; Feng *et al*., 2008; Heras *et al*., 2002; Kaynak, 2003; Piskar & Dolinsek, 2006; Sun, 2000; Terziovski & Samson, 1999), and non-profit based performance (Adu, 1998; Bontis, Keow & Richardson, 2000; Casadesus & de Castro, 2005; Li, 2000; Neely, Fillippine, Vinell & Hii, 2001; Sin & Tse, 2000).

Moreover, operationalization of organizational performance also differ in term of dimensionality used to measure the performance concept (multi-dimensions or one dimension), objective and subjective measures issue, methodologies, and unit of analysis applied to examine the relationship between QMPs and organizational performance (Abdullah *et al*., 2008; Anderson & Sohal, 1999; Das, Handfield, Calantone & Ghosh, 2000; Fotopoulos & Psomas, 2009; Ho, Duffy & Shih, 2001; Kaynak, 2003). In brief, there is no widely accepted consensus on what a specified type of organizational performance measure can be employed to observe the organizational results specifically in operations management (Jitpaiboon & Rao, 2007; Parthiban & Goh, 2011).

Thus, this section shows that there is an inconclusive form of exactly how QMPs affects the organizational performance. Furthermore, it is also still unclear what dimensions and other variables should be considered when measuring or conceptualizing QMPs and organizational performance (Kumar *et al*., 2009), and how these dimensions and variables are connected to each other (Boiral & Roy, 2007). As pointed by Shenawy, Baker & Lemak (2007), the literature was not intensively examined the relationship between QMPs and organizational performance. For this reason, as coinciding by Ehigie & McAndrew (2005), Gadenne and Sharma (2009), Martínez-Costa & Martínez-Lorente (2007), and Samson & Terziovski (1999), a further investigation into this topic is warranted.

1.2 OVERVIEW OF QMPs AND ORGANIZATIONAL PERFORMANCE IN THE HIGHER EDUCATION INSTITUTIONS

Prior to the issues of globalization, liberalization, and sustainability, studies on quality management practices (QMPs) in the higher education institutions have got attention due to demand for excellence. In fact, the QMPs currently applied in higher education institutions originally came from manufacturing. Due to this reason, the consensus among the previous scholars on usefulness of QMPs in education is still not achieved (Kwan, 1996; Mehralizadeh & Safaeemoghaddam, 2010; Sahney, Banwet, & Karunes, 2008). Currently, the compatibility of QMPs in higher education is questionable and still remaining as unresolved issues (Mehralizadeh & Safaeemoghaddam, 2010; Sultan & Wong, 2010).

In this regards, Grant, Mergen and Widrick (2002) conducted a study that looked at QMPs in the United States of America's higher education institutions. In their model, the basic parameters of QMPs can be grouped into three areas namely quality of design (QOD), quality of conformance (QOC) and quality of performance (QOP). These three parameters are interconnected and were chosen because frequently used in quality practices (Grant *et al*., 2002). Basically, their model rooted in two well-known QMPs models; Juran Trilogy (quality planning, quality control, quality improvement), and plan-do-check-act (PDCA) by Deming. The quality planning refers to QOD, quality control is correspondents to QOC, and quality improvement is QOP (*see* Table 1.1).

Table 1.1
Connections between Juran, Deming and Grants' Model

Juran	Deming	Grant *et al*. (2002)
Quality planning	Plan, Do	Design
Quality control	Check	Conformance
Quality improvement	Act	Performance

Source: Grant *et al*. (2002)

In this investigation, Grant *et al*. (2002) reviewed nine articles from QMPs literature and they found that quality of design (QOD) and quality of conformance are largely covered, whilst quality of performance (QOP) was obviously overlooked. In other words, little work reports on QOP in the higher education institutions arena. They insisted that two main possible reasons for the lack of QOP may also be explained by the lack of quality models and performance measure in higher education institutions (Grant *et al*., 2002). In the absences of quality model and organizational performance measure,

higher education institutions may not be ensuring continuous efforts to distinguish their targeted performance when designing any QMPs program. For that fact, this allows an area of study to focus the quality management practices (QMPs) and organizational performance in the higher education institutions.

1.3 PROBLEM STATEMENTS

The internationalization of education remains as main challenge faced by tertiary institution systems around the world (Arambewela & Hall, 2009). Derived from the growth of worldwide education and deduction of government allocation budget, public higher education institutions as well as private institutions are focused on commercial competition enforced by economic effects (Kagaari, Munene & Ntayi, 2010). These situations are forcing higher education institutions to search other sources of financing. Such competitive environments demand that higher education institutions over the world specifically in Malaysia have had an impact on the delivery of educational services, how institutions operate, and at the same time increased their organizational performance.

Stressing the importance on quality of services and maintain excellence organizational performance in higher education, the Malaysian government has launched the quality revolution and implemented various QMPs initiatives like TQM, ISO 9000 series, 5S, and Customer Charter as a means to improve quality (Agus & Abdullah, 2000; Ahmad & Yusof, 2010; Fauziah & Morshidi, 2011; Othman & Abdullah, 2007). In brief, QMPs was formalized by the Malaysian government through Development Administration

Circular Number 4/1991, named *"Guidelines on Strategies for Quality Improvement in the Public Sector"* (Development Administration Circular, 1991).

However, after more than 20 years of the above mentioned circular has been launched, the organizational performance of the Malaysian higher education institutions still obtained many complaints that show the inability of this sector in delivering their quality of services as shown in Table 1.2.

Table 1.2
Number of Complaints to Ministry of Higher Education, Malaysia

Year	Total Complaints
2011	268
2010	259
2009	247
2008	33
2007	28

Sources: Public Complaints Bureau Annual Report (2008, 2009, 2010, 2011,2012)

The above annual reports gave us the indicators that the incompetency of organizational performance in the Malaysian higher education institutions based on the increasing number of complaints by public. As widely covered by previous scholars, all these quality management initiatives (TQM, ISO 9000, 5S, Client Charter) would gain various advantages such as service quality (Agus & Abdullah, 2000), customer satisfaction (Sit, Ooi, Lin & Chong, 2009), and organizational performance (Sohail & Teo, 2003).

Recently, studies that have focused on QMPs on services have increased. Significantly, higher education institutions can be considered as a service industry (Gruber, Fuß, Voss & Glaser-Zikuda, 2010; Oldfield & Baron, 2000), and they started to pay more attention to achieved their customers need (Renkema, Schaap & van Dellen, 2009; Spivey,

Chisholm-Burns, Murphy, Rice & Morelli, 2009). As the service industry is a major contributor to the economy than other industries (Neely *et al*., 2005; Pei Mey *et al*., 2005), Gotzamani, Tsiotras, Nicolaou, Nicolaides & Hadjiadamou (2007) and Hassan (2010) proposed that future research should focus on the issue of soft factors (human-oriented elements) along the relationships between QMPs and organizational performance.

Surprisingly, Gadenne and Sharma (2009), Guimaraes (1997), and Kartha (2004) provide evidences that QMPs does not fully cover certain human-oriented issues (*e.g.* employee welfare, and satisfaction). Understanding the human-oriented elements such as satisfaction thus is important because it is associated with positive and negative organizational performance (Buch & Tolentino, 2006), and other related issues such as turnover, lateness, absenteeism, and intention to leave (Buch & Tolentino, 2006; Fischer & Sousa-Poza, 2009; Wilson *et al*., 2004; Wreder, Gustavsson & Klefsjo, 2008).

Several studies have been carried to evaluate the effects of QMPs on human-oriented elements, including job satisfaction (Chang & Hancock, 2003), employee involvement (Sacchetti, 2007; Wahid & Corner, 2009; White, Samson, Jones & Thomas, 2009), organizational commitment (Lankau, Carlson & Nielson, 2006), improvement among employees communication (Heras *et al*., 2002), and loyalty (Yaya, Marimon & Casadesus, 2011). Although the numbers of studies on the effect of human-oriented elements in QMPs are varied and still growing, the issue of the interrelationship between

QMPs, human-oriented elements and organizational performance has not been fully searched.

An extensive reviewed on the literature, it has been found that human-oriented elements are the most critical variable (*see* Agus & Abdullah, 2000; Dimitriades, 2006; Douglas, McClelland & Davies, 2008; Dow *et al*., 1999; Helgesen & Nesset, 2007; Kanji, Tambi & Wallace, 1999; Navarro *et al*., 2005; Powell, 1995; Sayeda, Rajendran & Lokachari, 2010). That is, human-oriented elements as assessed by satisfaction, commitment, and loyalty, presents the most beneficial judgement of elements intensity (Boudreau, 2004; Chang, Chiu & Chen, 2010; Nilsson, Johnson & Gustafsson, 2001; Sila & Ebrahimpour, 2005), and achieving organizational performance is the aim of the QMPs initiative (Kaynak, 2003; Kwak & Anbari, 2006). Within the field of human-oriented elements literature, focus in this study has changed for organizational constructs because human-oriented elements are not solely related to intrapersonal (individual) constructs (*e.g.* Chang *et al*., 2010; Lee, Ooi, Tan & Chong, 2010).

Moreover, direct relationships examined in the previous scholars have raised inconsistent outcomes (*e.g.* Chin, Poon & Pun, 2000; Chini & Valdev, 2003; Dick, 2000; Feng *et al*., 2008; Heras, Arana & Casadesús, 2006; Li, Andersen & Harrison, 2003; Martínez-Costa & Martínez-Lorente, 2007; Sayeda *et al*., 2010; Yasin, Alavi, Kunt & Zimmerer, 2004; White *et al*., 2009; Wilkinson & Dale, 2002). The usual exercise on direct relationship to predict organizational performance neglects the significant of indirect effects (mediation) on the relationship of QMPs and organizational performance (Nair, 2006; Sila &

Ebrahimpour, 2005). Thus, this study also allows both direct and mediation effects by testing the variables and mediating links between QMPs, human-oriented elements (satisfaction, commitment, loyalty), and organizational performance simultaneously.

As mentioned by Kunnanatt (2007), and Nonthaleerak and Hendry (2006), little known about the effect of QMPs on the human part of a service organization and studies linking these human-oriented elements are needing attention (Hassan, 2010). Because human-oriented elements have become the focus of QMPs recently (Hassan, 2010; Gadenne & Sharma, 2009), this study intentions to satisfy this gap in the QMPs literature by analyzing the relationships amongst QMPs, human-oriented elements (satisfaction, commitment, loyalty), and organizational performance.

1.4 RESEARCH QUESTIONS

This study tries to answer the following research questions:

1. Do quality management practices relate to organizational performance in Malaysian higher education institutions?
2. Do quality management practices relate to human-oriented elements (satisfaction, commitment, loyalty) in Malaysian higher education institutions?
3. Do human-oriented elements (satisfaction, commitment, loyalty) relate to organizational performance in Malaysian higher education institutions?
4. Do human-oriented elements (satisfaction, commitment, loyalty) are interrelated in Malaysian higher education institutions?

5. To what extent human-oriented elements (satisfaction, commitment, loyalty) mediate the relationship between quality management practices and organizational performance in Malaysian higher education institutions?

1.5 RESEARCH OBJECTIVES

Generally, the objective of this study is to examine the relationship of quality management practices on organizational performance when human-oriented elements (satisfaction, commitment, loyalty) are involved among head of departments working in Malaysian higher education institutions. More specifically, this study has five main objectives:

1. To investigate the relationship between quality management practices and organizational performance.
2. To determine the relationship of quality management practices on human-oriented elements.
3. To examine the relationship of human-oriented elements on organizational performance.
4. To determine the interrelationship among human-oriented elements (satisfaction, commitment, loyalty).
5. To investigate the extent to which the mediating effects of human-oriented elements (satisfaction, commitment, loyalty) on the relationship between quality management practices and organizational performance.

1.6 SIGNIFICANCES OF STUDY

The significances of study are investigated based upon from both theoretical and practical contributions.

1.6.1 Theoretical Contributions

From the theoretical view, this study will offer a tested model based on data in Malaysia, other countries are generally able to share knowledge and experience in quality management practices in developing countries.

Another main contribution is the esablishment of a theoretically based model which combines the variables of QMPs, human-oriented elements, and organizational performance. Deriving from QMPs literature, several investigations have been made in examining the effects of QMPs on human-oriented elements, including job satisfaction (Chang & Hancock, 2003), employee involvement (Sacchetti, 2007; Wahid & Corner, 2009; White, Samson, Jones & Thomas, 2009), organizational commitment (Lankau, Carlson & Nielson, 2006), improvement in communication (Heras *et al*., 2002), and loyalty (Yaya, Marimon & Casadesus, 2011).

Consequently, Hartline and Ferrell (1996) strongly emphasized that these human-oriented elements such as satisfaction and performance are able to enhance through refinement of their organizational practices. This pointed that past investigations have found that the human-oriented elements are affected by the levels of QMPs experienced by the employees of the organization. However little known about how implementations of

QMPs affect human-oriented elements (*i.e.* satisfaction, commitment, loyalty) and turns to organizational performance experienced by departments in a single model. Clearly, theoretical contribution of this study is significant because the research model will form theoretical and practical variables to relate QMPs, human-oriented elements and organizational performance. This iniatiative will cover the latest research gap on the QMPs, human-oriented elements and organizational performance in the literature.

Furthermore, by integrating the area of QMPs, human-oriented elements and performance, this study attempts to add value to the interdisciplinary field of studies, which are operations management, marketing, organizational behavior/psychology, and management accounting. Due to the inconclusive findings on the relationship of QMPs and performance from the literature, this study also attempts to improve on the existing literature by investigating the mediating effect of human-oriented elements in describing the links of QMPs and organizational performance. The comprehensive studies trying to identify the mediating effects of QMPs and organizational performance are rather limited. It would be exciting to look into the function of human-oriented elements on organizational performance through its impact derived from QMPs initiative.

In addition, the present study offers a research model which theoretically grounded on Systems Theory that described for the each variable. When applying Systems Theory to higher education institutions, a clearer picture of how the implementation of QMPs affected the human-oriented elements and turn to organizational performance emerged. The application of this theory in higher education institutions context involved with four

main stages namely, input, process, output and feedback. All of these four stages interact with the environment in the open system, where an assessment is made periodically with customers (*i.e.* administrative authorized personnel that can represent the department) to obtain information on their refinements and changing needs. The input stage is QMPs that involved with six dimensions namely, Leadership, Strategic Planning, Customer and Market Focus, Measurement Analysis and Knowledge Management, Human Resource Focus, and Process Management. The process stage is human-oriented elements that consist three main dimensions namely, Satisfaction, Commitment, and Loyalty. The output stage is organizational performance that involved with four main dimensions, as follows Financial, Customer, Internal Process, and Learning and Growth. Lastly, the feedback stage reflects the voice of customers after the end of the process or while the process is still in progress and can be used as an input for the next process. This study, therefore, believes that all the four stages in Systems Theory (input, process, output, feedback), may contribute to the improvement in higher education institutions.

Another contribution of this study is simultaneously modeling the relationships among several variables: QMPs, human-oriented elements and organizational performance by using Structural Equation Modeling (SEM). This SEM provides a potential contribution on the validation issue in the area of QMPs. This study also offers an understanding of internal customer (*i.e.* administrative authorized personnel that can represent the department) perception across academic and non-academic of QMPs and organizational performance and its mediating variable. This finding is significant as the study among academic and non-academic employees in the higher education institutions has been

given little attention in the literature. Lastly, it is believed that this study can be replicated in other educational context such as school, private education institutions or other service industry.

1.6.2 Practical Implications

While human-oriented elements were examined as independent variable (*e.g.* Abdullah, Uli & Tari, 2008), and dependent variables in the previous study (*e.g.* Kanji *et al*., 1999; Sayeda *et al*., 2010; Yaya *et al*., 2011), the research design of this study is different from previous works by empirically examined human-oriented elements (satisfaction, commitment, loyalty) as mediating variable. Hence, this study constitues a key change in the research design of the Independent Variable (IV), Dependent Variable (DV) and Mediating Variable (MV) that is employed in the area of operations management, organizational psychology and organizational behavior research.

Furthermore, the analysis of indirect effects (mediation) has been neglected in most empirical research specifically in quality management area (Nair, 2006; Sila & Ebrahimpour, 2005). Many scholars (*e.g.* Kanji *et al*., 1999; Sayeda *et al*., 2010; Yaya *et al*., 2011) have examined direct effects among QMPs, human-oriented elements, and organizational performance. The present study varies from previous studies by demonstrating and analyzing IV, DV and MV relationships of QMPs, human-oriented elements and organizational performance concurrently. Since the present study allows direct and mediating effects, this study imparts to the growth of research methodology for

the study of relationships amongst QMPs, human-oriented elements and organizational performance.

Human-oriented elements are recognized as critical elements of unsuccessful QMPs' implementation (Chang & Hancock, 2003; Wahid & Corner, 2009; White *et al*., 2009). From a practical perspective, the increasing levels of implementation of QMPs have emphasized the need for understanding of human-oriented elements (satisfaction, commitment, loyalty). Significantly, the present study renders a crucial direction for answering to these challenges.

Moreover, the Malaysian government through the Ministry of Education has promoted QMPs with an aim to achieve better organizational performance at the local and global level. However, the performance of Malaysian higher education institutions were affected by global education and reduction of funds that are forcing the Malaysian higher education institutions to deliver and maintain good service as a basis in their organizational performance requirement. By integrating the human-oriented elements literature into the QMPs and organizational performance literature, this study do able to scientifically prove the practitioners of higher education institutions that the introduction of QMPs is a compulsory step to gain a high level of organizational performance. But, this initiative must be supported by the effective and efficient human-oriented elements and strategically should be focused on their satisfaction, commitment, and loyalty toward the organization.

This study also will help the practitioners in higher education institutions to understand how human-oriented elements formulate QMPs and organizational performance. It demonstrates how human-oriented elements have an effect upon the performance of their organization derived from the QMPs initiative. Identification of these effects will enable the practitioners to develop more suitable strategies to maintain current employees and have a big potential to attract external customers (*i.e.* international students).

Finally, this study was investigated the academic and non-academics (*i.e.* administrative authorized personnel that can represent the department) view on QMPs and organizational performance. By exposing these employees' view, this study will help practitioners in higher education institutions to further investigate their human-oriented elements, whether these effects were systemic developed and implemented consequently with the requirements of QMPs or otherwise.

1.7 SCOPES OF STUDY

This study attempts to investigate within the following scopes:

1. This study is a quantitative nature and the samples were collected at one time (cross-sectional), specifically from twenty public higher education institutions in Malaysia. In short, private institutions/universities are not involved in based on the main two following reasons.

First, the adoptions of QMPs are compulsory for public universities. QMPs emerged and was formalized by the Malaysian government with the publish of Development Administration Circular Number 4/1991, namely *"Guidelines on Strategies for Quality Improvement in the Public Sector"* (Development Administration Circular, 1991). Followed by Development Administration Circular Number 1/1992 entitled *"Guidelines for Total Quality Management in the Public Sector"* (Development Administration Circular, 1992). In 1996, the government launched for Development Administration Circular Number 2/1996, entitled *"Guidelines for Implementing MS ISO 9000 in the Civil Service"* (Development Administration Circular, 1996). With the publish of these three government circulars, QMPs became as a compulsory task for the Malaysian public sector including higher education institutions. However, not all the private institutions/universities were followed on the above mentioned QMPs (Othman & Abdullah, 2007) as recommended by the government (through the circulars) to follow since 1996.

Second, the budget allocation from government. Private institutions/universities imply the application of market principles in the operation and management of these institutions may or may not receive a budget allocation from the government. Unlike public universities, most of private universities are profit oriented and fees are charged for cost recovery and approximately five to ten times higher than public universities (Sirat, 2005). The objectives, functioning, funding and modus operandi of private universities differ from public universities

(Gupta, 2008). In brief, the survival of private universities depends on their ability to innovate and experiment with different kinds of programs of study that required a large number of budget and resource allocation (Lee, 2005). Thus, the budget allocation and scarcity of resources have created obstacles in the smooth implementation of QMPs at private universities. Based on these differences, only public institutions/universities were selected.

2. This study was related with the self-completion questionnaire that employed in the data collection process. Data were gathered from academic and non-academic employee (internal customer). Students are not participating in this study as all employees were known as the primary internal customer (Kanji & Tambi, 1999).

3. The research framework in this study engaged with several variables: quality management practices, human-oriented elements, and organizational performance. The detailed discussion on the related papers by Agus and Abdullah (2000), Dimitriades (2006), Douglas, McClelland and Davies (2008) Dow, Samson and Ford (1999), Helgesen and Nesset (2007), Kanji, Tambi and Wallace (1999), Navarro, Iglesias and Torres (2005), Powell (1995), Sayeda, Rajendran and Lokachari (2010), and Yaya, Marimon and Casadesus, (2011) concerning these variables is presented in Section 2.6 Chapter Two.

1.8 DEFINITION OF TERMS

The following subsections will discuss the variables definition of the independent, dependent, mediating variable and context of this study.

1.8.1 Quality Management Practices

Generally, quality management practices as defined by Karapetrovic and Willborn (1999, p.459) are a set of processes and resources. This set is functioning harmoniously aims to achieve objectives that related to customer satisfaction (Karapetrovic & Willborn, 1999, p.459). This study operationalized the term of QMPs with the given definition by (Hoyle, 2003, p.654; Tricker, 2002, p.442) that QMPs also best determined as a system of interconnected processes, to establish a quality policy, quality objectives, and to achieve the organizational objectives.

1.8.2 Human-oriented Elements

The human-oriented elements that are operationalized in this study also known as soft factors (*e.g.* Abdullah *et al.*, 2008; Fotopoulos & Psomas, 2009; Gadenne & Sharma, 2009; Lagrosen & Lagrosen, 2005), human aspects (*e.g.* Tari, 2005), and employees' work-related attitudes (*e.g.* Boon & Arumugam, 2005) in the literature. In the present study, human-oriented elements refer to behavioural elements and dealt with people elements. Specifically, it reflects to satisfaction, commitment, and loyalty.

1.8.3 Satisfaction

Satisfaction in the present study reflects the degree to which the department's needs and desires are met and the extent to which this is perceived by the other employees within the department. Commonly, satisfaction is a multi-dimensional concept, which is defined as the degree to which customer of an organization believe that their needs and wants are continuously satisfied with the organization (Surechandar, Rajendran and Anantharaman, 2001, p.353). An organization must not only have a focus on service quality or external customers, but also concentrate on internal customer satisfaction, as research has shown much evidence of strong relationships between their perceptions of well-being and perceptions of service quality and satisfaction (Surechandar *et al*., 2001, p.353).

1.8.4 Commitment

Commitment can be best referred to O'Reilly and Chatman (1986, p.493) as the psychological attachment felt by the person in the organization that will reflect the degree to which the individual internalizes or adopts characteristics or perspectives of the organizations. Committed customers believe, accept the organizational objectives and beliefs, want to stay in the organization and commit themselves to provide quality service on behalf of the organization (Chen, 2007). A high level of commitment in an organization can have beneficial consequences, resulting in lower absenteeism, higher performance and lower turnover (Mathieu and Zajac, 1990). In this study, commitment is referred to the all forces of a department's designation and participation in an institutions.

1.8.5 Loyalty

Bettencourt, Gwinner and Meuter (2001, p.29) defined loyalty as an organizational citizenship behavior that reflects to the organization through the promotion of its interests and image to outsiders. In other hands, Mowday, Steers and Porter (1979, p.226) defined loyalty as a manifestation of organizational commitment, the relative strength of an individual's identification with and involvement in a particular organization. Consistent with Mathieu and Zajac (1990, p.171), loyalty in this study is best defined as an adherence to the institution that perhaps regarded as an emotional reaction, specifically when a department believes strongly in institutional objectives and beliefs, and has a strong hope to stay in an institutions.

1.8.6 Organizational Performance

In short, performance is a process of quantifying actions (Parthiban & Goh, 2011). Organizational performance is defined as the process of collecting, processing and delivering information on the performance of people, activities, processes, products, services, and business units (Forza & Salvador, 2000, p.359). In other hands, orgazational performance is also identified or equated with effectiveness and efficiency and refers simultaneously to the action, the result of the action and to the success of the results compared to some benchmark (Neely, 2002, p.67). It therefore could be measured using the planned and actual outcome. In this study, organizational performance describes as to takes organizational to a higher place by trying to understand causes of unusual organizational performance and everything that could possibly go wrong with

QMPs, and the process that related to the human-oriented elements such as satisfaction, commitment and loyalty.

1.8.7 Higher Education Institutions

Higher education institutions or tertiary education is defined as courses that provide to degrees, postgraduate and diploma programs and these institutions can be categorized into two: public and private (Arokiasamy, Ismail, Ahmad & Othman, 2009, p.61). In this study, higher education institutions correspondence to the public higher education institutions (universities) those are fully funded by the federal government under the Ministry of Education (formerly known as Ministry of Higher Education). Currently, there are twenty public universities in Malaysia (established 1962-2007), and these institutions are administered as a self-managed institutions (Arokiasamy *et al*., 2009). These institutions also are subject to the Universities and University College (Amendment) Act 1996 and ITM Act 1976 (Amendment) 1996 (ACRULeT, 2006).

1.9 ORGANIZATION AND SUMMARY OF STUDY

This study comprises of five chapters. The first chapter demonstrates the gaps related to the area under investigation. Chapter Two recaps the literature related to quality management practices, human-oriented elements (satisfaction, commitment, loyalty), organizational performance, and their linkages, and the previous studies examining QMPs and organizational performance variables. Chapter Three is involved with theoretical framework and hypotheses, research design, population and sample, instrumentation, data distribution and collection strategies, and analysis involved.

Chapter Four shows and discusses the results of the analysis undertaken in this study. Finally, Chapter Five offers discussion, a conclusion as well as the implications for the theoretical, practical, and future research based on the results presented in Chapter Four.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter focuses on the identification of relevant literature related to the five research objectives raised in Chapter One and consists of eight sections. Section 2.2, 2.3 and 2.4 elaborate the notion of QMPs, human-oriented elements, and organizational performance in an attempt to examine the conceptual and empirical evidences on QMPs and organizational performance as the basis for developing research model for this study. Section 2.5 and 2.6 concentrate on the methodologies used in the previous studies and relationships between the variables involve in this study. Section 2.7 reviews the underpinning theory of this study. Finally, Section 2.8 presents a chapter summary.

2.2 QUALITY

2.2.1 Defining Quality Concepts

Quality is widely studied aspects of operations management and marketing research (Boudreau, 2004; Nair, 2006; Sila & Ebrahimpour, 2002). The concepts of quality can be defined into three sub-categories; quality, quality management and quality management practices.

2.2.1.1 Quality

In short, quality best defined as satisfied and being loyal by clients (Gryna, Chua & Defeo, 2007, p.9). In other words, quality is reaching customer desires and demands (Seymour, 1993, p.13), or their perceived on product or service that achieved an acceptable degree of excellency (Senior & Akehurst, 1991, p.102). A broader perspective definition is "conformance to requirements" (Crosby, 1984, p.60). As Deming (1986, p.168) said, the best way to define quality is based on the representative who acts on behalf of other persons or organizations. It means that the word of quality implies different things to different people, evaluation and setting (Sahney *et al.*, 2003).

To sum up, Adam, Hershauer & Ruch (1986, p.9) defined quality as the degree to which a product or service conforms to a set of predetermined standards related to the characteristics that determine its value in the marketplace and its performance of the function for which it was designed.

2.2.1.2 Quality Management

In general, Tricker (2002, p.442) mentioned that the quality management (QM) is all scene of management function that sets and enforces the quality policy and procedures. Foster (2001, p.23) stated QM is the management process that be central or dominant of actions of the quality control and quality assurance. Therefore, the integrative view of QM supports the idea that quality is the responsibility of all management, not just a quality manager (Foster, 2001, p.23). Thus, QM is best referred to Flynn, Schroeder and Sakakibara (1994, p.342) as "…an integrated approach to achieving and sustaining high

quality output, focusing on the maintenance and continuous improvement of processes and defect prevention at all levels and in all functions of the organization, in order to meet or exceed customer expectations".

2.2.1.3 Quality Management Practices

In order to form the base for modern quality management, operations management employs the systems perspective (Foster, 2001, p. 9). The systems perspective involves with the practices for understanding that product and service quality are the result of the interactions of several variables, such as machines, labor, procedures, planning, and management. As a consequence, the systems perspective also put concentration on management of the practices as the induce of quality problem (Foster, 2001, p.9).

Quality management practices (QMPs) best defined as one system and the set of interconnected procedures (Hoyle, 2003, p.654), to establish a quality policy, quality objectives to achieve those objectives (Hoyle, 2003, p.654; Tricker, 2002, p.442). Within a QMPs, the necessary ingredients exist to enable the organization's employees to identify, design, develop, produce, deliver and support products or services that the customer wants (Summers, 2003, p.54).

In other words, Hill, Self & Roche (2003) elaborate that QMPs offer the model for continuous developmentt to enhance organizational performance of increasing satisfaction amongst the customer and other parties. It also renders self-confidence

(organization and customers) on their abilities to supply products/services that systematically satisfy the needs (Hill *et al*., 2003).

2.2.1.4 Quality Management Practices in Higher Education

Definition of quality management practices in higher education is difficult to recognize. This is because the notions of quality management practices in higher education are originated from business practices (Srikanthan & Dalrymple, 2002). In the quality movement, the new dispension is that quality is totally based on customer (Evan & Lindsay, 2008, p.67). For example, as a result of fund deducation from government and globalization issue in education (Abdullah, 2006), higher education institutes are diverted from their core purposes.

Despite the fact that there is a tremendous number of publications quality management practices subject, the scholars always misrepresented or misunderstood on the concept of quality (Doherty, 2008). Obviously, quality management practices definition in higher education institutions constituting several perspectives such as perfection, fitness for purpose, value for money, stakeholder views and achieving the objectives (Harvey & Green, 1993; Middlehurst, 1992; Vroeijenstijn, 1992).

Furthermore, most of the problem in defining quality management practices in higher education comes from the problem of identifying the customer. Many scholars (*i.e*. Abukari & Corner, 2010; Kistan 2005) in higher education ignore the central question of "who is the customer?" when defining quality. For example, Green (1994) identifies a

definition of quality management practices as that of "fitness for purpose". The "fitness for purpose" framework focuses on examining quality management practices in higher education institutions at the organizational level of unit of analysis. In other words, the greater quality of higher education institutions is based on how they set their objectives and distinctly exceeding these objectives (Green, 1994, p.15).

Thus, the above approaches of several scholars in describing the concepts of quality seem to fit into two major categories: quality of product and quality of service. In other words, quality can be defined accordingly to its two major groups. First, the quality is built into the design of a product and inspected after the product has been produced. Second, the customer is the final judge of quality. Therefore, the further definition of quality will be divided into two parts, that is, quality of product, and quality of service.

2.2.2 Quality of Product

Quality management can be considered as most important research themes in the area of operations management (Nair, 2006). At the beginning, the area of operations management focused primarily for manufacturing production (Bayraktar, Tatoglu & Teresa, 2007), and most of the past quality scholars have started and focused their early works in this setting (*see* Lau, Zhao & Xiao, 2004; Salah, Carretero & Rahim, 2010; Samson & Terziovski, 1999; Sun, 2000; Zu, Fredendall & Douglas, 2008).

Furthermore, Garvin (1988) classified product quality into eight characteristics such as performance, features, reliability, conformance, durability, serviceability, aesthetics, and

perceived quality. In short, these dimensions cover at various operations, ranging from the inspection process on purchases parts and raw material to the inspection of final output before delivering to customers.

However, the conversion to service-driven institutions has made a key shift in manufacturing sectors (Evans & Lindsay, 2008). Consequently, the pressure of global competition on profitability, employment, and other resources causes the demand for higher quality product and services. This competition has now been widely extended to other sectors including organizations in the service and public sectors (Lo & Sculli, 1996).

In brief, the field of operations management has expanded to service systems includes all the functions and departments of the organization: marketing, accounting, purchasing/logistics, information management to engineering and human resources (Bayraktar *et al*., 2007).

2.2.3 Quality of Service

Quality initiative being the responsibility of all employees in the organization and is not limited to the manufacturing department alone (Mehra & Ranganathan, 2008). In fact, most of the previous scholars in service quality are from marketing arena (*e.g.* Grönroos, 1988; Gummesson, 1988; Parasuraman, Zeithaml & Berry, 1988). According to Vargo and Lusch (2004), marketing area shifted from a goods-dominant perspective (touchable)

to services-dominant perspective (untouchable), and the associated consequences to the service organization need to be fully understood (Nakhai & Neves, 2009).

To elaborate the point, Lakhe and Mohanty (1995) described the criterions of a service organization into five specifications as follows:

(a) Service organization produces tangible or intangible services and delivers directly to the customer.

(b) In delivering its services, the service organization establishes mutual direct contact with its customer.

(c) Service organization has to be in a state of "eveready", to deliver its service when it is required by the customer.

(d) Service organization has to successfully complete the services within the period acceptable by the customer.

(e) Services are not storable or transportable.

To sum up this section, in many companies, service has been important and profitable part of the business for a long time, but until recent research in quality management mainly focused to manufacturing organizations especially on production and product development (Cronemyr & Witell, 2010; Hasan & Kerr, 2003). QMPs were analyzed in both sectors (manufacturing and service), but scantly research in the service institutions (Gustafsson *et al*., 2003; Sureshchandar *et al*., 2001). Thus, more studies is required to bridge this gap specifically for the higher education institutions.

2.2.4 Contributions of Pioneers Quality Scholars

The early stages of empirical research in quality management created based on the quality scholars' contributions from Western countries such as William Edwards Deming (1986), Joseph Moses Juran (1988), Armand Vallin Feigenbaum (1991), Philip Bayard "Phil" Crosby (1984), and Japanese scholars like Kaoru Ishikawa (1985), and Genichi Taguchi (1986).

2.2.4.1 William Edwards Deming (1900-1993)

W. Edwards Deming is the utmost influential person in the area of quality management (Evans & Lindsay, 2008). Deming (1986) emphasized on the importance role of upper management, relationships of customer and supplier, and never-ending progress in development. Deming also underlined that the upper management to making an environment that contribute to the progress of growth (Deming, 1986).

Deming (1986) believed that the key success of an organization is through continuous improvement cycle. He introduced a "never-ending cycle" of product or service design, namely Plan, Do, Check, Action (PDCA). This cycle used to check the problems in the improvement of quality. Deming also claimed that enhancement in quality will reduce the costs. An organization can ensure its survivability in the market with better quality and price (Summers, 2003). In order to improve quality in organizations, Deming (1986) also strongly stressed on the employee involvement through his fourteenth principles.

2.2.4.2 Joseph Moses Juran (1904-2008)

Juran is widely known as the influential thinker contributes to adding the human factor to quality management movement. In other words, Juran's viewed quality management outside of the manufacturing department to comprehend the non-manufacturing or service related processes.

Similarly with Deming (1986), he also agreed the quality problems are derived from upper management. In order to manage the quality issues, the upper management requires for training and experience. However, Juran did not suggest a shift in cultural. Instead, he attempted to enhance quality through the common systems for managers (Evans & Lindsay, 2008). Juran (1988) emphasized that the way to quality should be with other departments and excellence cooperation to develop techniques and skills and understand how to apply them simultaneously.

Furthermore, Juran (1988) proposed three major quality management process, called the Quality Triology (quality planning, quality control, quality improvement). There are the process of preparing to meet quality goal (quality planning), process of meeting quality goals during operations (quality control), and process of breaking through to unprecedented levels of performance (quality improvement).

2.2.4.3 Armand Vallin Feigenbaum (1920-present)

Feigenbaum is considered to be the originator of total quality movement whereas he coined the phrase Total Quality Control (TQC) and afterward known as Total Quality Management (TQM) (Summers, 2003). Evans and Lindsay (2008 p.111) stated that Feigenbaum defined TQC as "…an effective system for integrating the quality development, quality maintenance, and quality improvement efforts of the various groups in an organization so as to enable production and service at the most economical levels which allow full customer satisfaction".

Likewise Deming and Juran, Feigenbaum (1991) also emphasized that statistical methods and problem solving techniques should be utilized to effectively support business strategies. Feigenbaum (1991) also emphasized that top management is responsible for creating an atmosphere that enables employees to provide the right product or service (at the first and every time).

Feigenbaum (1991) proposed Three Steps to Quality as follows:

(a) Quality Leadership: management must maintain a constant focus and lead the quality effort.

(b) Modern Quality Technology: requires the integration of employees in the process who continually evaluate and implement new techniques to satisfy customers in the future.

(c) Organizational Commitment: related to continuous training and motivation of the entire employees in all aspects of the organization's activities.

2.2.4.4 Philip Bayard "Phil" Crosby (1926-2001)

Crosby is regarded as the person who introduced "zero defects" concept. Crosby (1984) supported Deming (1986), Juran (1988) and Feigenbaum (1991) that the upper management must take action on quality progress. Crosby (1984) also agreed that all employees of the organization need to know the process of quality initiative's implementation. Notwithstanding with Deming (1986), Juran (1988), Feigenbaum (1991), Crosby's idea was mainly related to behaviour. Crosby stressed on employing the process of organizational and management processes instead of statistical techniques in order to alter attitudes and culture.

Crosby (1984) promoted the four major principles for a continuous quality improvement process. First, the definition of quality is "conformance to requirements". Crosby emphasized the importance of determining customer requirements that must be defined the products or services in term of measurable characteristics. Second, the system of quality is prevention.

According to Crosby (1984), prevention of quality problems in the first place is much more cost effective in the long run. Third, the performance standard is zero defects. It is concern to doing product in an accurate manner for the first time with perfection. The last principle is a measurement of quality is the "costs of quality". "Costs of quality" is the costs related with serving clients with a service or product that to be in line to their fulfilments.

2.2.4.5 Kaoru Ishikawa (1915-1989)

Ishikawa is widely known as one of the first individuals to encourage total quality control. He established on TQC concept by Feigenbaum and strongly encouraged commitment of every members in organization and not only depending on quality officers or quality departments (Ishikawa, 1985).

Like other pioneers in quality management systems, Ishikawa also thought that basis of quality is customers and knowing their requirements is an utmost priority in any quality initiatives. Ishikawa (1985) strongly advocated with Juran (1988) on the training. Furthermore, he advocated the use of seven quality tools such as histogram, check sheets, Pareto charts, scatter diagrams, flowcharts, control charts and fish-bone diagrams.

2.2.4.6 Genichi Taguchi (1924-2012)

Taguchi is also known for his work in experimental design (Summers, 2003). Therefore, design department brings an importance function in finding out the final product quality (Taguchi, 1986). Evans and Lindsay (2008) stated that Taguchi formulated ways for quality consistency and improvement, high profits, and recognize the main criteria of product and process before production. However, Taguchi (1986) did not agreed with Crosby (1984) on the "zero defects" and he claimed that this concept as not practical. He believed that in earlier stage of designing a product is more important to fluctuation instead of responding to problems that may occur in production (Taguchi, 1986).

Quality pioneers such as Deming (1986), Crosby (1984), Juran (1988) and Feigenbaum (1991) have written much on the idea of TQM philosophies and the importance of human-oriented elements. For example, Crosby (1979, p. 8) stated "…therefore causing management at all levels to have the right attitude about quality, and the right understanding, is not just vital-it is everything". Deming (1986) also discussed and emphasized the importance of human-oriented elements through his fourteenth principles such as principle number two "Learn the new philosophy" and principle number eight "drive out fear". Juran (1988) further maintained that the staff motivation is a critical aspect in implementing his trilogy of quality. Surprisingly, a limited amount of rigorous research has been done towards identifying the effects of human-oriented elements on the relationship between QMPs and organizational performance.

In sum, this subsection presents the QMPs description from six pioneers quality scholars, outline personal implications, and examine similarities and dissimilarities to the latest

practices. As proposed by Hunt (1995) that modern organizations inclined to adopt, mix and made some modification for their practices and not only based on one particular pioneer or scholar. The above-mentioned thinking and descriptions brought for QMPs framework development such as critical success factors (CSFs) and national quality awards (NQAs).

2.2.5 Measuring Quality Management Practices

In general, there is no formulation of a theory associated with QMPs or any final short list of practices related to it (Lawler III, 1994; Tari, 2005). The extensive review on literature shows that there is not a clear consensus about what are the real factors of the QMPs and the best way to digest the QMPs into factors or elements (Samson & Terziovski, 1999). Dean and Bowen (1994) mentioned that QMPs characterized by principles allow a universal road map and enforced by a variety of practices and techniques. Consequently, in order to study QMPs, previous investigations focused on recognizing factors that linked with QMPs implementation.

2.2.5.1 Critical Success Factors (CSFs)

Consistent with Boynlon and Zmud (1984), critical success factors (CSFs) are vital components for manager or organization for assuring the successful of any QMPs implementation. Furthermore, by synthesizing the ideas of pioneer quality scholars like Deming, Juran, Crosby, Feigenbaum, Ishikawa and Taguchi, Saraph *et al*. (1989)

developed and tested an instrument namely critical success factors (CSFs) in quality management. Furthermore, by using the CSFs, a number of quality management scholars (*e.g.* Ahire, Golhar & Waller, 1996; Black & Porter, 1996; Joseph, Rajendran & Kamalanabhan, 1999; Sanchez-Rodriguez & Martinez-Lorente, 2004; Sureshchandar, Rajendran & Anantharaman, 2001) empirically developed and examined the relationship between QMPs and organizational performance based on their own research setting.

In the earlier study, Saraph *et al*. (1989) established eight CSFs (top management leadership, the role of quality department, training, product design, supplier quality management, process management, quality data reporting, and employee relations), whilst Flynn *et al*. (1994) found eleven (quality leadership, quality improvement rewards, process control, feedback, cleanliness and organization, inter-functional design process, new product quality, selection for teamwork potential, teamwork, supplier relationship, and customer interaction). In other setting, Ahire *et al*. (1996) suggested twelve (top management commitment, supplier quality management, supplier performance, customer focus, usage, benchmarking, internal quality information usage, employee involvement, employee training, design quality management, employee empowerment, and product quality).

On the other hand, Sureshchandar *et al.* (2001) also identified twelve CSFs (top management commitment and visionary leadership, human resource management, technical system, information and analysis system, benchmarking, continuous improvement, customer focus, employee satisfaction, union intervention, social

responsibility, servicescapes, and service culture). Furthermore, Sanchez-Rodriguez and Martinez-Lorente (2004) proposed eight CSFs, and Agus (2005) suggested six.

In brief, there is inconclusive agreement among the scholars about the numbers or specific CSFs that should be applied in organizations either manufacturing or service setting.

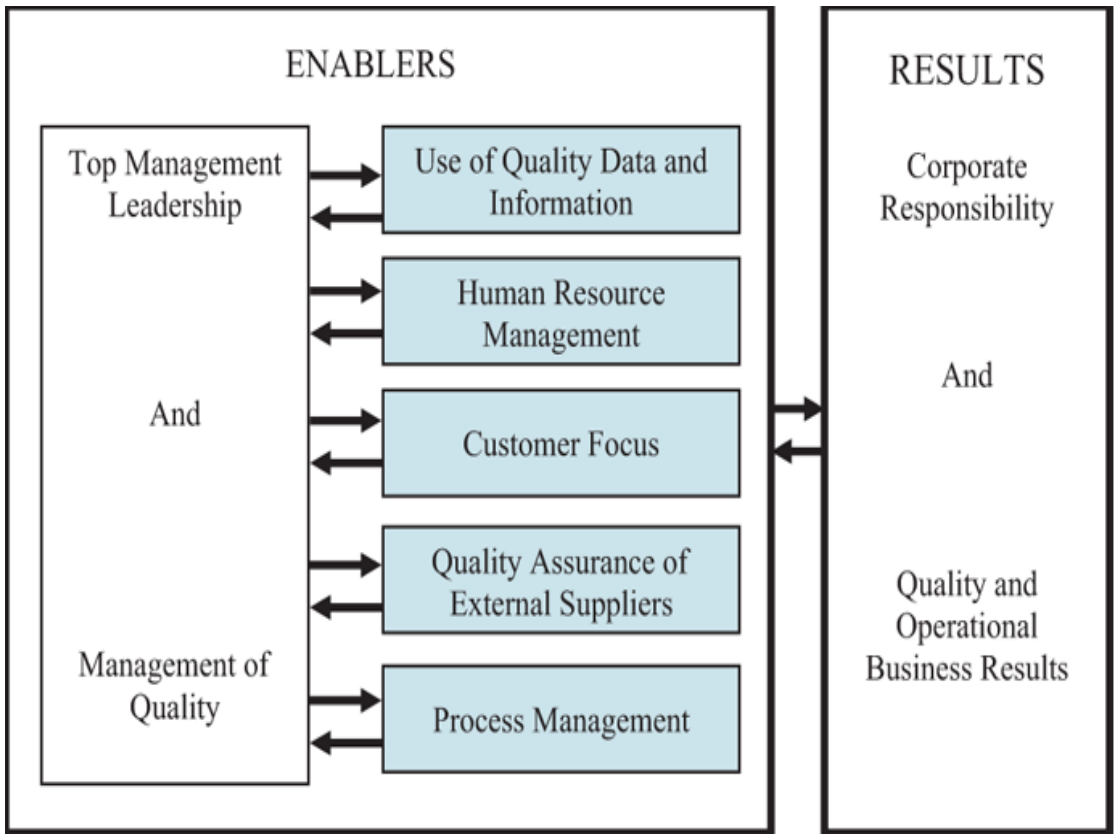
2.2.5.2 National Quality Awards (NQAs)

Subsequently, organizations developed their QMPs framework by following the evaluation criteria for national quality awards (NQAs) (Sila & Ebrahimpour, 2002; Tari, 2005). Commonly, a number of QMPs scholars are using these NQAs criteria as a framework for their studies (*e.g.* Black & Porter, 1996; Chuan & Soon, 2000; Dean & Bowen, 1994; Kartha, 2004; Lai, Weerakon & Cheng, 2002). In brief, Bou-Llusar, Escrig-Tena, Roca-Puig and Beltran-Martin (2009) revealed that the well-demonstrated NQAs are Deming Prize (Japan), Malcolm Baldrige National Quality Award (MBNQA) (U.S), and the European Foundation for Quality Management (EFQM) (Europe).

Furthermore, Chuan and Soon (2000) carried a framework based on a comparison to the seventeen NQAs that have been applied around the world. In this framework, eleven major criteria identified in their analysis. There are leadership, strategy and planning, people management, information analysis, resources, quality systems and processes,

customer or market focus, people satisfaction, impact on society, supplier partner relationship, and results.

Recently, Talwar (2011) analyzed the framework, criteria and criterion weighting of twenty NQAs including the Prime Minister Quality Award of Malaysia (*see* Figure 2.1). He identified nine generic criteria: leadership, strategic planning, people, supplier/partner, customer, knowledge and information management, processes, society, and business results. To sum up, both of these studies provide the information that the most commonly used NQAs are MBNQA, EFQM and Deming Prize.



Source: NPC (2000)

Figure 2.1
Framework of Prime Minister Quality Award of Malaysia

2.2.6 Quality Management Practices in this Study

The pioneers of QMPs scholars such as Deming, Juran, Feigenbaum, Crosby, Ishikawa and Taguchi have been very influential in the QMPs movement. Chuan and Soon (2000) explained that Deming introduced Deming Prize to the Japanese and the success of the Deming Prize has inspired the introduction of the MBNQA and EFQM.

A number of scholars (*e.g.* Ahire *et al*., 1996; Black & Porter, 1996; Dean & Bowen, 1994; Flynn *et al*., 1994; Lau *et al.*, 2004) attempted to adopt these NQAs such as MBNQA and EFQM framework to develop their instrument to measure QMPs operational model in their studies. Although Bou-Llousar *et al*. (2009) strongly proposed that EFQM can be applied as an operational framework for QMPs measurement, this study attempts to choose the MBNQA criteria based on the following justifications.

First, the criteria involved in the MBNQA reflect all main factors of QMPs (Kartha, 2004). Besides, to be in-line with Kartha (2004), Curkovic, Melnyk, Calantone and Handfield (2000) also claimed that MBNQA framework does capture the concept of QMPs. Evans and Lindsay (2008) also supported that the MBNQA's criteria establish a framework for integrating QMPs in any organization.

Second, based on the above-mentioned reflection, most of the countries around the world seeking to establish a NQA are modelled the MBNQA as their basis framework (Chuan & Soon, 2000). DeBaylo (1999) reported that the NQAs of 56 countries are based on

MBNQA. In the case of Malaysia, the framework of Prime Minister Quality Award of Malaysia and the overall structure of the SETARA 2009 rating instrument (applied in Malaysian public higher education institutions) reflected the MBNQA measures (Talwar, 2011).

Third, the MBNQA form a model for business excellence in any organization; manufacturing or service, large or small (Evans & Lindsay, 2008). Besides the criteria for the MBNQA are updated yearly (Summers, 2003), it also covers a variety of industries including education and scholars do agree that the MBNQA present best framework for QMPs (Knotts, Parrish & Evans, 1993; Summers, 2003).

Likewise, MBNQA includes one criterion of organizational performance (result), and six practices of QMPs, namely leadership, strategic planning, customer focus, information analysis, human resource focus, and process management (Arumugam, Chang, Ooi, & The, 2009; Prajogo & Sohal, 2003; Teh, Ooi & Yong, 2008). Thus, for these justifications, the QMPs variable in this study was operationalised in six dimensions based on dimensions presented in MBNQA.

2.3 HUMAN-ORIENTED ELEMENTS

In general, QMPs can be categorized into two types; "hard" or technical elements and "soft" or human-oriented elements (Powell, 1995). Technical elements generally deal with quality management tools and techniques such as flow charts, relations diagram,

scatter diagram, control charts, Pareto analysis, quality function deployment, and design of experiment (Fotopoulos & Psomas, 2009).

On the other hand, human-oriented elements relate to behavioral elements such as training and education, loyalty, leadership, teamwork, empowerment, customer focus and satisfaction, human resource utilization, contacts with suppliers and professional associates, integration of the voice of the customer and supplier, communication, performance awards, quality culture, and social responsibility (Lewis, Pun & Lalla, 2006). As opposed to technical elements, human-oriented elements are more intangible and difficult to quantify.

Moreover, past investigations on the technical and human-oriented elements of QMPs and organizational performance have provided consistent findings on human- oriented elements issue. For instance, Dow *et al.* (1999) found that the human- oriented elements such as employee commitment, shared vision, and customer focus practices are positively related to organizational performance, but technical elements such as benchmarking, advanced manufacturing technologies, close supplier relations were unrelated to organizational performance. Besides, in-line with Dow *et al*. (1999), Samson and Terziovski (1999) also found that human-oriented elements of QMPs such as leadership, people management and customer focus had a significant relationship with organizational performance.

In a study by Lagrosen and Lagrosen (2005) also showed that there is an association between the adoption of human- oriented elements such as continuous improvement, management by facts and participation of everybody, and how well the implementation of QMPs initiatives. Significantly, Bayazit (2003) also revealed that employee involvement and commitment, customer focus, quality education and training, and teamwork were the main factors that contributed to the success of QMPs efforts. Abdullah *et al*. (2008) ascertained that the human- oriented elements of management commitment, customer focus, and employee involvement also have an effect on organizational performance. In sum, most of the previous studies (*e.g.* Abdullah *et al*., 2008; Bayazit, 2003; Dow *et al*., 1999; Lagrosen & Lagrosen, 2005; Samson and Terziovski, 1999) agreed that the main influential factor contributing to the success of QMPs implementation is from the "soft" or human- oriented elements.

The above discussions underline the importance of studying the human-oriented elements of the QMPs. Review on literature presents that the QMPs have received attention and much written on the technical elements but has neglected the human- oriented elements to a certain extent (Boon, Arumugam & Hwa, 2005). As stressed by Fotopoulos and Psomas (2009), the human-oriented elements are long-term effects and therefore must be addressed accordingly in an organization's QMPs implementation plan. Gotzamani *et al.* (2007) also proposed that further study need to concentrate on the human-oriented elements of QMPs to boost the organizational performance towards excellence.

Thus, it is essential that, in examining QMPs in the service sector such as higher education institutions, human-oriented elements should be involved as basis as main measurement. An extensive reviews in the literature, it has been established that human-oriented elements are the most critical variable (*see* Agus & Abdullah, 2000; Dimitriades, 2006; Douglas, McClelland & Davies, 2008; Dow *et al*., 1999; Helgesen & Nesset, 2007; Kanji, Tambi & Wallace, 1999; Navarro *et al*., 2005; Powell, 1995; Sayeda, Rajendran & Lokachari, 2010).

However, the common practice of testing on direct relationships to predict organizational performance neglects the significance of mediation effects of human-oriented elements on the relationship of QMPs and organizational performance (Nair, 2006; Sila & Ebrahimpour, 2005). As strongly proposed by a number of scholars (*e.g.* Boudreau, 2004; Chang, Chiu & Chen, 2010; Nilsson, Johnson & Gustafsson, 2001; Sila & Ebrahimpour, 2005), that is, human-oriented elements as assessed by satisfaction, commitment, and loyalty, provide the most beneficial measurement of elements intensity as mediator on the relationship between QMPs and organizational performance.

The next sub-sections discuss the above mentioned human-oriented elements (*i.e* satisfaction, commitment, and loyalty).

2.3.1 Satisfaction

The study of satisfaction typically falls under the area of marketing (Dean & Bowen, 1994). On the other hands, service quality is always considered in the previous literature

as a unique construct (Kassim & Bojei, 2002), and antecedent to satisfaction (Carrillat, Jaramillo & Mulki, 2007; Gruber *et al*., 2010; Sahney *et al*., 2004; Yavas, Benkenstein & Stuhldreier, 2004). Although several studies (*e.g.* Chitty, Ward & Chua, 2007; Juwaheer, 2004) operationalized the satisfaction and service quality as separated variables, this study do agree with Carrillat *et al*. (2007), Gruber *et al*. (2010), Yavas *et al*. (2004), and Sahney *et al*. (2004) that satisfaction has thus, can been defined, conceptualized and measured in terms of service quality.

In brief, customer is an individual who determines what is quality and their perception is extremely importance (Soutar & McNeil, 1996). However, there are differences between how does an organization and customer perceives the quality (Lovelock & Wirtz, 2007). Hence, satisfaction can best determined as an assessment that a product, or service feature, or the product or service it provides a pleasurable level of consumption and it relates to the a feeling of satisfaction at having achieved the desires (Oliver, 1997, p.13). Therefore, Loveman (1998) recommended that service organizations should pay more attention to the issue of satisfaction, and strive to achieve higher levels of satisfaction among the customers.

2.3.1.1 Customers of Higher Education Institutions

In higher education institutions context, the utmost challenge that needs to be resolved is identification of the customer (O'Brien & Deans, 1995). As pointed out by Lovelock & Wirtz (2007), and identifying the customer proper is important since perceived service quality should be measured from the customer's viewpoint. But, there are several

customers in higher education institutions and have a different feel on the service (Aldridge & Rowley, 1998; McAdam & Welsh, 2000; Owlia & Aspinwall, 1996).

With a variety of stakeholders/customers, the educational system finds itself in a state of confusion over the identification of such design characteristic that would impact the process part, integrate the interest of the various stakeholders and lead to customer satisfaction (Sahney *et al*., 2008). Aldridge and Rowley (1998) identified the students, their parents and family, the local community, society, the government, the governing body, staff, local authorities, and current and potential employers as the customers of tertiary institutions. Similarly, Trivellas & Dargenidou (2009) mentioned that the stakeholders of higher education are students, their parents and family, academic and administration staff, and society.

Furthermore, the majorities of the studies in higher education institution's service quality have focused on the student's view of satisfaction, while little known on the perspective of internal customer (employee) satisfaction (Chen *et al*., 2006; Trivellas & Dargenidou, 2009). Gilbert (2000) and Ramseook-Munhurrun *et al*. (2010) coincided that in most cases, the previous research just focused on the external customer, while generally neglecting the internal customer. Obviously, there is currently a lack of consensus in the literature in term of who exactly the true customer in higher education, this study regards to choosing only the internal customers (employees). As proposed by Kanji and Tambi (1999), the employee is classified as the primary internal customer, the student (as

educational partner) is the secondary internal customer while in the system. Thus, this study only considered employees as the main subject instead of other stakeholders.

In this study, the internal customers refer to be any administrative authorized personnel that can represent the department; those who are "re-purchasing" the service of the institution. Repeat purchase means recruiting at the same institutions every year. This study also proposed to seek the data from academic and non-academic across the department. Although students do participate in the service delivery (*i.e.* classroom), they do not present during quality process, procedure and training. The selections of administrative authorized personnel are based on their experience with quality initiatives and also their service was present when they evaluated the services in higher education institutions context.

2.3.1.2 Measuring Satisfaction in the Higher Education Institutions

Another issue that needs to be resolved in the higher education is about the measurement of satisfaction, specifically in term of service quality. A comprehensive review of the service marketing literature provides that the service quality can be conceptualized into two groups: Nordic and American. The Nordic approach led by Grönroos (1988) and Gummesson (1988) propose that a customer's focus on the subject of service quality consists of two basic dimensions: technical and functional. The American is headed by Parasuraman *et al*. (1985; 1988) and they proposed that that service quality consists of five elements namely, reliability, responsiveness, empathy, assurance, tangible, and also known as SERVQUAL.

There is little doubt that among these two approaches, SERVQUAL model introduced by Parasuraman *et al.* (1988) has proved to be the most popular. In spite of large coverage in many sectors, a number of unfavourable judgement has been detected at the SERVQUAL. Most of the scholars (*e.g.* Buttle, 1996; Robledo, 2001; Sureshchandar *et al*., 2002) focused on the formation and operational views of the service quality variable.

Even though Parasuraman *et al.* (1988) asserted that the SERVQUAL dimensions can be applied to all service sector, several findings found by another scholars have demonstrated differently (Cuthbert, 1996a, 1996b; Galloway, 1998; Joseph & Joseph, 1998; Mehta, Lalwani & Han, 2000). For example, Joseph and Joseph (1998) have employed SERVQUAL in measuring the higher educational service and have suggested alternative model that are more suitable for measuring service quality.

Again, Galloway (1998), Cuthbert (1996b), and Cronin & Taylor (1992) in their findings did not support the five SERVQUAL dimensions. Thus, it seems that the SERVQUAL model is inadequate to apply in an educational context.

2.3.1.3 Satisfaction Measurement in this Study

On the other hand, Dotchin and Oakland (1994) suggested that Grönroos's (2001) service quality dimensions are suitable for measuring both technical and functional quality. Smith and Ennew (2001) contemplated that Grönroos's (2001) technical and functional quality are appropriate in the evaluation of high credence service such as education.

Little known about research that applies the Grönroos's (2001) service quality dimensions in order to measure satisfaction especially in the higher education context.

Grönroos (2001) pointed out that the services are basically processes and not physical entities. Again, according to Grönroos (2001), there are two basic aspects to service quality namely technical and functional features of service. Technical features of services are an evaluation based on what the customer receives and functional features of services describe as an evaluation based on how the service is delivered (Grönroos, 2001). Brown and Swartz (1989) elaborate that the technical (or outcome) is evaluated after service performance while functional (or process) is evaluated during service delivery.

However, the proposition that customer perception of the process (functional quality dimension of the service production and delivery process) is frequently more important to satisfy and overall quality perception than the technical quality of outcome (Grönroos, 2001). Grönroos (2001) added that the functional quality becoming important determinant perception of customers if the technical quality is meeting the requirements (acceptable). Furthermore, the image dimension was inserted into the model based on the assumption that the customers perception derived from their past experience (Grönroos, 2001). Thus, for these reasons, this study employed the items from Grönroos in order to measure the satisfaction.

Although the above-mentioned discussions cannot identify the reasons why satisfied internal customer (employee) link to other variables, the previous scholars revealed that satisfaction is not only can be a variable (either independent or dependent), but also potentially mediates (mediating variable) (Agus & Abdullah, 2000) the relationship between the QMPs and organizational performance (*further discussed in Section 2.4*). Thus, it is important that satisfaction is included as one of the human-oriented elements dimension in this research.

2.3.2 Commitment

Satisfaction is closely related to commitment (Vandenberg & Lance, 1992). The extensive body of literature on commitment, largely within organizational behavior/psychology (Allen & Grisaffe, 2001). Hagen, Oubre, White and Nelson (2005) discussed when employees became emotionally committed to their work, they will invest more to pursue excellence and the required targets.

In general, Oliver (1990, p.30) defined commitment as "…inclination to act in a given way toward a particular commitment target", whilst Allen & Meyer (1990, p.14) described commitment as "…a psychological state that binds the individual to the job or organization". Therefore, this study prefers that commitment can be best referred as a feeling of affection for a person in the department that will reflect the degree to which the individual internalizes or adopts characteristics or perspectives of the department.

2.3.2.1 Measuring Commitment

Most of previous investigations using different measures across commitment studies: British Organizational Commitment Scale (BOCS) (Cook & Wall, 1980), Three-Component Model (ACN) (Meyer & Allen, 1991), and Organizational Commitment Questionnaire (OCQ) (Mowday, Steers & Porter, 1979).

In general, BOCS was formulated with particular reference to manual workers (Cook & Wall, 1980). Meyer and Allen (1991, p.67) proposed three factors of the employees' relations with the organisational commitment, namely affective commitment, continuance commitment and normative commitment. Affective commitment pertains to the feeling of employee to, identify, and participate in an institution. Continuance commitment is an awareness of costs associated with getting out or the rewards for staying with the organization. Normative commitment is associated with the emotional obligation to remain in employment (Meyer & Allen, 1991, p.67). In the earlier study, by using 7-point Likert scale with 15 items, and through a variety of analyses (reliability, validity, norms), Mowday *et al*. (1979) introduced the OCQ. A review of the literature indicates that amongst these three, the most widely used measures of commitment are OCQ (Liu, Chiu & Fellows, 2007; Mathieu & Zajac, 1990).

On the other hand, previous studies (*e.g.* Becker, 1992; Becker & Billings, 1993; Meyer, Allen & Smith, 1993; Randall, 1988) also view commitment as having multiple foci and bases. For example, Becker and Billings (1993) detected four practices. That are, to supervisor or work group (the locally committed), to top management and organization (the globally committed), to both local and global foci (the committed), and individuals

committed to neither global nor local foci. Significantly, recent empirical studies suggest that workers can be different committees to occupations, top management, supervisors, co-workers, and customers (Becker, 1992; Lee & Olshfski, 2002; Meyer *et al*., 1993).

Interestingly, several comprehensive studies examined the personal characteristics on the commitment. For example, age (Mathieu & Zajac, 1990; Newman & Sabherwal, 1996), gender (Madsen, Miller & John, 2005), tenure (Mathieu & Zajac, 1990), job position (McCaul, Hinsz & McCaul, 1995), educational level (Mathieu & Zajac, 1990), professional and non-professional (Cohen, 1992) have been found to be associated with commitment. Thus, behaviour and attitudes are resulted from the interaction of demographic factors as discussed above.

2.3.2.2 Commitment Measurement in this Study

This study assessed the Affective Commitment Scales (ACS) (Allen & Meyer, 1990) in order to capture the affective orientation of authoritative personnel towards the department. The ACS (Allen & Meyer, 1990) is shorter than the OCQ (Mowday *et al*., 1982), and the OCQ come together with ACS (Dunham, Grube & Castenada, 1994). The continuance component of commitment was not assessed because it is measured as other variables (*i.e*. loyalty and performance). The normative component of commitment is still a lack of agreement among the scholars regarding on the validity issue (Allen & Meyer, 1990; Ko, Price & Mueller, 1997).

The majority studies on QMPs (*e.g.* Agus, 2005; Cruz & del Val, 2000; Fuentes, Benavent, Moreno, Cruz & Val, 2002) do agree that commitment is an important factor that directly or indirectly influencing QMPs to organizational performance. As emphasized by Poksinska, Eklund and Dahlgaard (2006), the QMPs cannot be operated without the commitment and understanding of the employees. Dow *et al*. (1999) strongly proposed that the dimension of commitment can mediate the relationship between the QMPs to organizational performance (*further discussed in Section 2.6*). Thus, it is essential that this variable is included as one of the human-oriented elements dimension in this study.

2.3.3 Loyalty

Literature on relationship commitment shows that commitment is positively related to loyalty (Bendapudi & Berry, 1997; Morgan & Hunt, 1994). Loyalty is most significant construct in the marketing area (Oliver, 1999; Sheth & Sisodia, 2005). Loyalty is defined as the "…willingness to continue patronizing a business over a long term, purchasing and using its goods and services on a repeated and preferably exclusive basis, and voluntarily recommending the organization's products to friends and associates" (Lovelock, Patterson & Walker, 2001, p.151). Oliver (1997, p.392) offers a more unitary view of loyalty, which he defined as "…a deeply held commitment to rebuy or re-patronize a preferred product or service consistently in the future, despite situational influences and marketing efforts having the potential to cause switching behaviour".

2.3.3.1 Measuring Loyalty

Current conceptualizations of loyalty adopted one of three approaches. As suggested by Li and Petrick (2010), loyalty may relate to the behavioural, attitude or composite approach. On the early stage of loyalty research, previous scholars tend to use the behavioural approach and translated this construct as similar with repetition (Li & Petrick, 2008). According to Back and Parks (2003), the utmost unfavourable judgement on this approach is that it overlooks in the process of decision making made by customer, specifically on their purchase behaviour.

On the other hand, the attitudinal approach was introduced to cover the weaknesses of the behavioural approach (Dick & Basu, 1994). In short, this approach encompasses psychological commitment (Iwasaki & Havitz, 1998), abstract concepts and resultant construct (Ajzen, 1989). Hence, this approach has been debated amongst the scholars on the conceptual rather the behavioural (Li & Petrick, 2010).

Moreover, Dick & Basu (1994) proposed a composite approach that combining the both approaches in order to examine the customer loyalty. In short, loyalty cannot been described on the repetition behaviour alone, but also the effects of an attitudinal process (Dick & Basu, 1994). It seems that a number of scholars have adopted the composite loyalty approach (*see* Dick & Basu, 1994; Pritchard, Havitz & Howard, 1999; Shoemaker & Lewis, 1999).

Most recently, several scholars suggested a multi-dimensional (*e.g.* Dick & Basu, 1994; Pritchard *et al*., 1999), but one of the most scrutinized this concept is Oliver (1997, 1999). Oliver (1997, 1999) proposed that loyalty establishment should start with cognitive, affective, conative, and lastly action.

2.3.3.2 Loyalty Measurement in this Study

This study articulated the composite loyalty (attitudinal and behavioural) approach in order to measure the loyalty concept in higher education institutions context. Knox and Walker (2001) maintained that these two dimensions suggested a simultaneous consideration has a greater intensity of effected the direction of subsequent loyalty studies. These dimensions are comprehensively suitable based on the nature of higher education institutions whereas not only focused on the outcome of repeat "purchase" behaviour amongst the internal customer (employees), but also the consequences of an attitudinal process in their daily works.

Therefore, loyalty can be seen as a mean of maintaining or increasing an employee's patronage over the long term, thereby increasing the value of the employee to the department/organization. Ehigie (2006) noted that employees are the greatest assets and the purpose of any organization is to create and keep their employees. In other words, a loyal employees is unlikely to leave their job (Guimaraes, 1997), and thus preserving a loyal employees is a requirement for any QMPs initiative to success (Jun, Cai & Shin, 2006).

In short, the mainstream of these above-mentioned studies indicate that loyalty, directly or indirectly, has integrated this important determinant in examining QMPs and organizational performance. Thus, this study includes loyalty as one of the variables of human-oriented elements on the link of QMPs and organizational performance.

This section elaborates and identified the three important variables of human-oriented elements (*i.e.* satisfaction, commitment, and loyalty) in the link of QMPs and organizational performance. The next section discusses the organizational performance as one of the main variable in this study.

2.4 ORGANIZATIONAL PERFORMANCE

2.4.1 Defining Organizational Performance

Organizational performance is widely studied aspects of management accounting (Neely, 2005). However, scholars in the fields like strategic management, operations management, human resources management, organizational behaviour and marketing also contributed to the area of organizational performance (Marr & Sciuma, 2003; Neely, 2005).

According to Neely (2002, p.67), organizational performance is "…identified or equated with effectiveness and efficiency and refers simultaneously to the action, the result of the action and to the success of the results compared to some benchmark". It therefore could be measured using the planned and actual outcome. Effectiveness and efficiency are

attained by the ability to focus the attention of organization members on a common objective and stimulate them to attain this objective (Balogun, 2003). Organizational performance takes organization to a higher place by trying to understand the causes of unusual organizational performance and everything that could possibly go wrong with strategic planning, decision rules, institutions, processes and people.

In general, organizational performance is the instrument that the organization employs to check the contractual relationship between senior management with its stakeholders (Atkinson, Waterhouse & Wells, 1997, p.26). It's also defined as the "…process of collecting and delivering information on the performance of people, activities, processes, products, services, and business units" (Forza & Salvador, 2000, p.359).

In a broader view, Ittner, Larcker and Randall (2003, p.715) contemplate that "…a strategic organizational performance measurement system provides information that allows the firm to identify the strategies offering the highest potential for achieving the organizational's objectives. It also aligns management processes, such as target setting, decision-making, and organizational performance evaluation, with the achievement of the chosen strategic objectives" (Ittner *et al*., 2003, p.715).

Significantly, Lebas (1995, p.34) stated that the organizational performance measurement system can be a key success factor, measures for detection of deviations, measure to track past achievements, measures to describe the status potential, measures of output and

measure of input. It also should include a component that will continuously check the validity of the cause-and-effect relationships among the measures (Lebas, 1995, p.34).

To sum up, as described by Neely (1998, p.5-6) that "…an organizational performance measurement system enables informed decisions to be made and actions to be taken because it quantifies the efficiency and effectiveness of past actions through the acquisition, collation, sorting, analysis, interpretation, and dissemination of appropriate data within an organization. Organizations also measure their performance in order to check their position (as a means to establish position, compare position or benchmarking, monitor progress), communicate their position (as a means to communicate performance internally and with the regulator), confirm priorities (as a means to manage performance, cost and control, focus investment and action), and compel progress (as a means of motivation and rewards)" (Neely, 1998, p.5-6).

2.4.2 Measuring Organizational Performance

In fact, there is no general consensus on what type of organizational performance measure should be applied in an organization (Jitpaiboon & Rao, 2007). Fundamentally, the early research of organizational performance measurement has long been of key interest to management accounting researchers (Dixon, Nanni & Vollmann, 1990; Neely *et al.*, 1995), and early indicator has tended to consider only financial performance (Neely, Adams & Crowe, 2001; Otley, 1999). Kaplan and Norton (1992) strongly asserted that an organization should adopt a balanced set of performance measures, either financial or non-financial.

Furthermore, Yasin *et al.* (2004) divided the measurements of organizational performance accrued from QMPs into two groups; financial and non-financial. Specifically, the financial-based performance is the main prominent in examining the organizational performance of profit-oriented and non-financial based organizational performance might be more relevant for nonprofit institutions (Kaplan & Norton, 2000).

2.4.2.1 Financial and Non-financial

In the QMPs study, a number of previous scholars (*e.g.* Feng *et al*., 2008; Heras *et al*., 2002; Kaynak, 2003; Piskar & Dolinsek, 2006; Sun, 2000; Terziovski & Samson, 1999) emphasized on financial performance. In brief, scholars discussed organizational performance in term of market share (Das, Handfield, Calantone, & Ghosh, 2000; Douglas & Judge Jr, 2001; Martínez-Lorente, Dewhurst & Gallego-Rodríguez, 2000; Sanchez-Rodriguez & Martinez-Lorente, 2004), return on assets (Das *et al*., 2000; Douglas & Judge Jr, 2001; Sanchez-Rodriguez & Martinez-Lorente, 2004), profitability (Douglas & Judge Jr, 2001), return on investment (Douglas & Judge Jr, 2001), and return on sales (Sanchez-Rodriguez & Martinez-Lorente, 2004).

However, financial indicators are not highly correlated with the long-term strategic goal of an organization, and cannot help organizations obtain a greater competitive advantage in highly-competitive environments (Wu & Liu, 2010).

On the contrary, the non-financial performances were divided into marketing (Adu, 1998; Bontis *et al*., 2000; Casadesus & de Castro, 2005; Li, 2000; Neely *et al*., 2001; Sin &

Tse, 2000), quality (Augustyn & Pheby, 2000; Feurer & Chaharbaghi, 1996; Love & Holt, 2000), and human resource (Anderson & Sohal, 1999; Caruana & Pitt, 1997; Yung, 1997).

Specifically, several investigations regarded organizational performance measure in term of quality process and inventory (Ahire & O'Shaughnessy, 1998; Choi & Eboch, 1998; Dow *et al*., 1999; Flynn *et al*., 1995; Ho, Duffy & Shih, 2001; Kaynak, 2003), and customer satisfaction (Agus & Abdullah, 2000; Anderson *et al*., 1995; Choi & Eboch, 1998; Das *et al*., 2000; Forza & Filippini, 1998; Fotopoulos & Psomas, 2009; Rungtusanatham, Forza, Filippini & Anderson, 1998; Sakhtivel *et al*., 2005; Sayeda *et al*., 2010) in order to capture organizational performance benefits derived from QMPs efforts.

2.4.2.2 Objective and Subjective

The objective and subjective measures are another issue concerning on the organizational performance in QMPs studies. Powell (1995) and Zahra and Covin (1993) mentioned that the subjective measure is essential instead of objective measure specifically in the case of cross-sectional study which almost difficult to measure non-financial performance through objective data. Kaynak (2003) highlighted that the main challenge when searching organizational performance at the organizational level is the difficulty of getting objective performance measure and it is difficult to find secondary data on financial performance.

Interestingly, Fuentes-Fuentes (2004) formulated a set of perceptual statements for measuring organizational performance. This set provided evidence that the objective and subjective measures are correlated significantly. The performance measurement was divided into three categories. First, financial in term of growth in profit, and profitability growth. Second, operational that concerns with sales growth, market share growth, reducing customer complaints, level of customer satisfaction, level of defects in the product/services, the product/services to meet or exceed customer demands. Third, employee that refer to the level of employee satisfaction, and level of absenteeism. Hence, in order to check the validity of the perception of financial performance items, objective information data also collected and through correlation analysis resulted that the positive and significant correlation between subjective financial with objective-based organizational performance (Fuentes-Fuentes, 2004).

In short, it had been decided that it was suitable to apply subjective measures instead of objective that are unavailable or not formally published specifically for the case of this study.

2.4.2.3 Dimensionality

Moreover, they're still not achieved consensus on the dimensionality of organizational performance measurement in QMPs studies. Several scholars (*e.g.* Das *et al*., 2000; Wilson & Collier, 2000) used a multi-dimensional, whilst others (*e.g.* Ahire & O'Shaughnessy, 1998; Anderson *et al*., 1995; Ho *et al.*, 2001) have been considered one dimension organizational performance variable. Significantly, QMPs literature has

affirmed that the success of QMPs can enhance more than one dimension, such as better product and service, lower cost, customer satisfaction and financial improvement (Prajogo & Sohal, 2006).

Next guidance in QMPs literature as proposed by Sila and Ebrahimpour (2002) needs to reveal the link of QMPs and multi-dimensional organizational performance. This suggestion is may be due to the reason that quality drives key decisions, which requires a much broader set of organizational performance measures that are aligned to an organization's strategy.

2.3.3 Organizational Performance Measurement in this Study

On the other hand, Kanji (2002) has established a "Business Excellence Index" that consist of four dimensions for measuring organizational performance. There are maximize stakeholder value, achieve process excellence, improve organizational learning, and delight the customer. These dimensions aligned with the dimensions of "Balanced Scorecard" by Kaplan and Norton (1992, 1996). Kaplan & Norton (1996) described about the balance in the name of "Balance Scorecard" that is maintained between short-term and long-term goals, financial and non-financial measures, lagging and leading indexes, and internal and external organizational performance dimensions.

In brief, Kaplan and Norton (1992, 1996) provided four dimensions in measuring performance, namely financial, customer, internal process, and learning and growth. To elaborate the point, Kaplan & Norton (2000) stated that for non-profit and governmental

organizations, the needs of their organizational performance dimensions are often the primary objectives and not the financial objectives.

They further added that financial dimension identifies how the organization wishes to be viewed by its shareholders, and customer dimension decides how the organization wishes to be viewed by its customers (Kaplan & Norton, 2000). Furthermore, internal process dimension describes how the organization operates their business process to satisfy its shareholders and customers; and the organizational learning and growth perspective involves the changes and improvement which the organization needs to achieve their intended objectives (Kaplan & Norton, 2000).

Moreover, Neely (2005) employed a citation/co-citation analysis of work in the field of organizational performance measurement. This analysis is particularly interesting as it provides a clear empirical evidence of the ongoing dominance of the balanced scorecard in the field of organizational performance management. Neely (2005) also found that in between years 1995-2005, Kaplan and Norton's (1992) original work have been the most cited organizational performance measurement article for eight out of ten years and every year for the last seven.

Thus, for purposes of measuring organizational performance concept, this study proposed to use the subjective measure instead of an objective measure. Based on the balance scorecard by Kaplan and Norton (1992, 1996), this study also proposed to use a multi-dimensional measures of organizational performance. The items that have been used in

this study reflect to the all four dimensions in balance scorecard that referred to financial, customer, internal process, and learning and growth.

The multi-dimensional of organizational performance used in the present study also undergo an intensive examination than the past investigations on QMPs and organizational performance. For example, the dimension developed by Flynn *et al*. (1994) and Das *et al*. (2000) does not include innovation and change, whilst Choi & Eboch (1998) only used plant performance and customer satisfaction in term of quality, delivery and cost. The dimensions developed by Prajogo & Sohal (2003) include quality, innovation and process, but it does not cover the financial and customer retention. Most of the dimensions that used in this study also been neglected by other previous studies that used the subjective measure (*see* Fotopoulos, Psomas, & Vouzas, 2010; Powell, 1995; Sakhtivel *et al*., 2005; Sayeda *et al.*, 2010).

2.5 EXAMINATION OF METHODOLOGIES USED AND FINDINGS IN PREVIOUS STUDIES ON THE RELATIONSHIP OF QMPs AND ORGANIZATIONAL PERFORMANCE

Besides the differences in terms of conceptualization and operationalization on QMPs and organizational performance, the previous studies also differ on the methodology applied to examine the link of QMPs and organizational performance.

In the QMPs and organizational performance studies, methodologies used include correlation analysis (Gruber *et al*., 2010; Powell, 1995), ANOVA/MANOVA

(Terziovski, Samson & Dow, 1997), regression analysis (Ahire & O'Shaughnessy, 1998; Douglas & Judge Jr, 2001; Gruber *et al*., 2010; Ho *et al.*, 2001; Karia & Asaari, 2006; Sakhtivel *et al*., 2005; Samson & Terziovski, 1999; Sayeda *et al*., 2010), path analysis (Anderson *et al*., 1995; Flynn *et al*., 1995; Rungtusanatham *et al*., 1998; Sahney *et al*., 2008), and structural equations modelling (SEM) (Agus & Abdullah, 2000; Choi & Eboch, 1998; Das *et al*., 2000; Dow *et al*., 1999; Forza & Filippini, 1998; Fotopoulos & Psomas, 2009; Fotopoulos *et al*., 2010; Jiménez-Jiménez & Martínez-Costa, 2009; Kaynak, 2003). As a consequence, these diverse methodologies, samples and hypothesized potentially lead to variations in study findings.

It may due to the above discussion on differences appeared in previous investigations (QMPs measurement issue, organizational performance measurement issue and a variety of methodologies used), there have been contradicting reports about how QMPs lead to the expected organizational performance results (Choi & Eboch, 1998).

A number of studies have revealed that there were positive outcomes on the relationship of QMPs and organizational performance (*e.g.* Heras *et al*., 2006; Li *et al*., 2003; Martínez-Costa & Martínez-Lorente, 2007; Yasin *et al*., 2004). For example, in a survey of the 1000 United States largest firms, Mohrman, Tenkasi, Lawler and Ledford (1995) examined that eighty three percent of organizations had a good or very good experience with QMPs effort, and seventy nine percent had intention to gain their QMPs initiative in the next three years.

However, not all QMPs implementation success in delivering the desired organizational performance benefits (*e.g* Beer, 2003; Dilber, Bayyurt, Zaim & Tarim, 2005; Feng *et al.,* 2008; Oakland & Tanner, 2007; Samson & Terziovski, 1999; Sanchez-Rodriguez & Martinez-Lorente, 2004; Sohal & Terziovski, 2000; Sun & Cheng, 2002; Terziovski *et al*., 1997; Van der Wiele, Boselie & Hesselink, 2002; Witcher, 1994). An Early study by Harari (1997) stated that only one-fifth or at its best only one-third of the QMPs program in the United States and Europe have reached success. The QMPs program had very promising starts and encouraging initial results, but died down after two-three years (Shih & Gurnani, 1997). Saunders, Mann and Grigg (2008) found that organizations fail to implement up to 70% of their QMPs strategic initiatives. Another study by Choi and Eboch (1998) mentioned that QMPs may add disappointedly little to organizational performance and thus little to the satisfaction of the customers.

Thus, the contradictory results provide evidence for this study to need and further investigate into the relationship of QMPs and organizational performance. The overall findings also foster that QMPs affect organizational performance, but as affirmed by a number of scholars (*e.g.* Ho *et al*., 2001; Nair, 2006; Sila and Ebrahimpour, 2005), it happens indirectly through other variables (mediator) that will be discussed in the next section.

2.6 THE RELATIONSHIPS BETWEEN QMPs, HUMAN-ORIENTED ELEMENTS AND ORGANIZATIONAL PERFORMANCE

A number of scholars have emphasized the existence of mediating variables along with the direct relationship in the linkages between the QMPs and organizational performance and more investigations are required to find further clarity. Nair (2006), and Ho *et al.* (2001) proposed that the future investigation should struggle on the function of mediating effects in understanding the effect of QMPs on organizational performance measure.

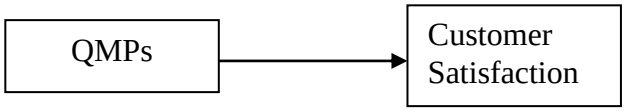
Besides, to be in-line with Kaynak (2003), Nair (2006) and Prajogo and Sohal (2004) also emphasized that the nature of these direct and indirect interactive linkage between QMPs and organizational performance measure are lack generalized agreement among researchers. Kaynak (2003) added that the comprehensive studies trying to establish the direct effect and mediator of QMPs with organizational performance at multiple levels are rather limited.

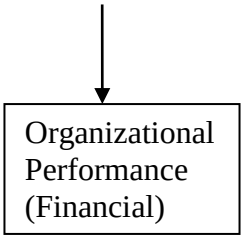
As a consequence, there are several studies examining QMPs and organizational performance and its determinants. Typically, these studies (*see* Agus & Abdullah, 2000; Dimitriades, 2006; Douglas *et al*., 2008; Dow *et al*., 1999; Helgesen & Nesset, 2007; Kanji *et al*., 1999; Navarro *et al., 2005*; Powell, 1995; Sayeda *et al*., 2010; Yaya *et al*., 2011) identify the mediating variable of human-oriented elements (*i.e*. satisfaction, commitment, loyalty) emerged on the relationship of the QMPs to organizational performance that adapted in this research.

2.6.1 Studies in a Variety Industry Setting

Agus and Abdullah (2000) examined the mediated account for customer satisfaction of Malaysian manufacturing companies (*see* Figure 2.1). Based on a linear structural model (LISREL) tested on a stratified random sample, they reported that customer satisfaction mediate the relationship of QMPs and financial organizational performance. They found that the high degree of QMPs implementation contributes to a better degree of satisfaction (structural effect = 0.59, t = 2.17). Simultaneously, the greater degree of satisfaction leads to a greater degree of financial organizational performance (structural effect = 0.44, t = 2.353). Their study also highlighted the significant contributions of training, top management commitment, supplier relations, customer focus, and employee focus towards QMPs implementation as well as the significance of product quality, product features and product delivery in promoting customer satisfaction.

However, their studies measure QMPs and organizational performance from the perspective of external customer only. Thus, this measurement does not present the internal customer (*i.e.* employees). As mentioned by Kuei (1999), the satisfaction of external customer is the result of excellent satisfaction amongst internal customer. Agus and Abdullah (2000) also not test the effect of QMPs towards financial organizational performance. As there are potential links between QMPs and financial organizational performance (Feng *et al*., 2008; Heras *et al*., 2002; Kaynak, 2003; Piskar & Dolinsek, 2006; Sun, 2000; Terziovski & Samson, 1999), ignoring this relationship omits a potentially superior explanation of QMPs and organizational performance.



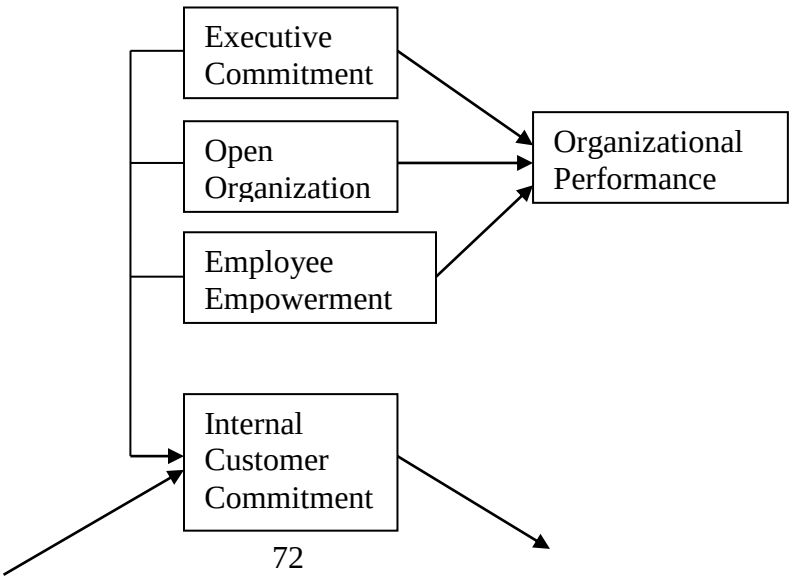


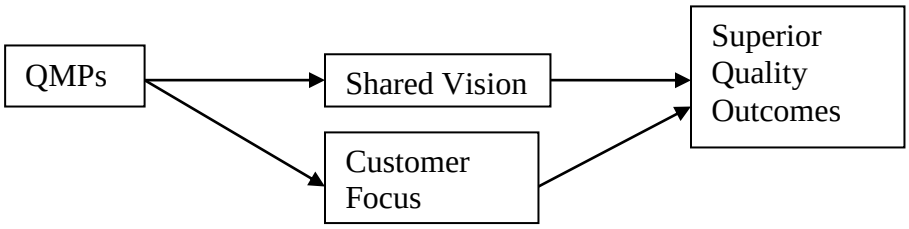
Source: Agus & Abdullah (2000)

Figure 2.2
A Model by Agus & Abdullah (2000)

In earlier work, Powell (1995) found an evidence on the interdependence assumption of technical and human-oriented elements of QMPs. In this investigation, both data sets show that a small amount of the human-oriented elements of the QMPs can affirm a positive link with quality results that is generalizable for all industries.

But, the sample size employed in Powell's study relatively small (n=54). The greatest advantage of bigger sample size is that it has permitted the employ of advance techniques, likes SEM, pertinently to search and examine the interdependence assumption.





Sources: Powell (1995) and Dow, Samson & Ford (1999)

Figure 2.3
An Interrelations Model of Powell (1995) and, Dow, Samson & Ford (1999)

Dow *et al*. (1999) replicated Powell's (1995) works by using a larger sample size and different methodologies (*see* Figure 2.3). In this replication study, the findings present that QMPs can be classified into nine dimensions and only a handful dimension have the effect on quality results. The human-oriented elements such as employee commitment, shared vision, customer focus combine to yield a positive correlation with quality outcomes rather than other technical elements. In their study, these human-oriented elements are acting as mediating variables.

This finding was for the most part in line with an earlier work by Powell (1995). Although differ in methodologies, Powell (1995) detected that only three of his twelve QMPs were have positive correlation on organizational performance. These dimensions were executive commitment, open organization, and employee empowerment parallel with Dow *et al*. (1999) study's internal customer commitment construct quite closely. Although Dow *et al*. (1999) model was fit across manufacturing contexts and done with the process of validation, they did not supply data whether the competing model of QMPs and organizational performance had been evaluated. Hence, it is potential that there is a

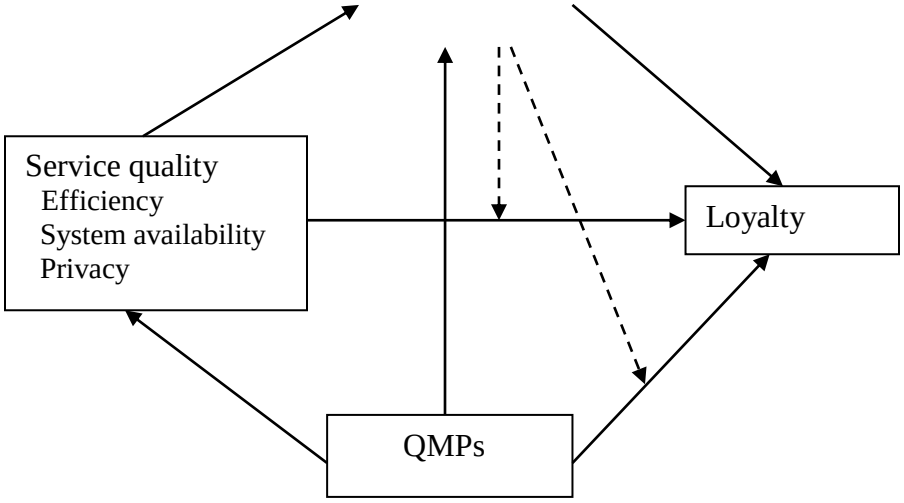
better model to elaborate the QMPs and organizational performance formation especially in the service context.

Recently, Yaya *et al*. (2011) investigated whether the implementation of QMPs in the banking services affects customers' perception of e-service quality and hence satisfaction and loyalty in Spain (*see* Figure 2.4). They found that all of the dimensions in service quality variable (efficiency, system availability and privacy) have a positive impact on satisfaction, which in turn, significantly influence e-loyalty.

Interestingly, their finding is contrary to their research hypothesis that QMPs does not seem to influence customers' perceptions of e-service quality. Although their study through a larger sample size and several validity procedures, they did not include the utmost important variable: organizational performance. This variable need be inserted to their research model for more meaningful findings to the banking industry (*i.e.* how the organization performance/profitability was affected by loyalty).

By involving the organizational performance variable also can show its value over the long term and in a relatively stable environment. Focusing on the benefits, a number of researches ascertained that there is positive relationship between loyalty and organizational performance (*e.g.* Navarro *et al*., 2005; Van der Wiele, Iwardeen, Williams & Dale, 2005). However, this study can be potentially replicated or as a base to the other industries setting.

Satisfaction



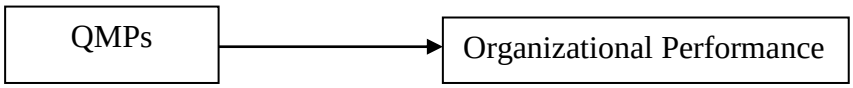
Source: Yaya, Marimon & Casadesus (2011)

Figure 2.4
A Research Model of Yaya, Marimon & Casadesus (2011)

2.6.2 Studies in the Higher Education Institutions Setting

In the realm of higher education institutions, one cannot resist surprise with respect to how little concrete empirical evidence has been generated concerning QMPs (Koch, 2003). One of the recent study on the direct relationship between the QMPs and organizational performance was conducted by Sayeda *et al.* (2010) in India higher education context (*see* Figure 2.5). The aim of their study was to explore the adoption of QMPs in engineering educational institutions from management's perspective. Their study also identified 27 dimensions of QMPs and five critical factors to measure organizational performance. Although they found that the QMPs significantly influence all the measures of organizational performance, the previous study (*e.g.* Ho *et al*., 2001) suggests that it happens indirectly through other variables. Their study also used the

multiple regressions to analyze the model. The use of regression less rigor compare to SEM analysis for the model tested.

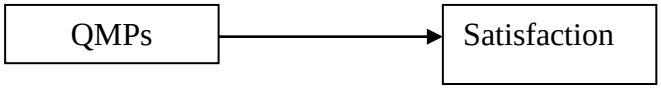


Source: Sayeda, Rajendran & Lokachai (2010)

Figure 2.5
A Research Model of Sayeda, Rajendran & Lokachai (2010)

In a study, Kanji *et al*. (1999) explore a comparison of QMPs in higher education in the United States of America and Malaysia (*see* Figure 2.5). Altogether, 60 Malaysian higher educations' participated in the study, divided into 11 public universities and 49 private institutions. Seventy-two US institutions participated in the study, divided into 51 public institutions and 49 private institutions.

However, their studies measure QMPs and organizational performance in the dimension of satisfaction only, thus this measurement does not represent the broader definition of organizational performance. They also measure the institutions' quality performance by using single question and this inadequate to represent an overall performance in organizations. As stated by Prajogo & Sohal (2006), successful of QMPs can improve a broader view of organizational performance.



Source: Kanji, Tambi & Wallace (1999)

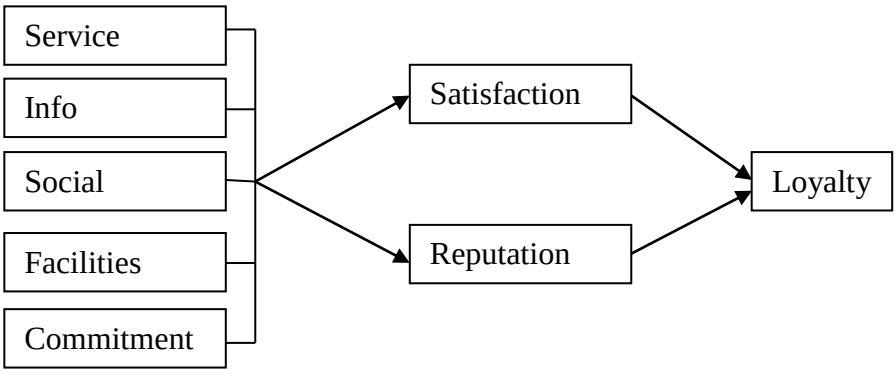
Figure 2.6
A Research Model of Kanji, Tambi & Wallace (1999)

Furthermore, most of the previous studies discussed on QMPs in the higher education institutions in term of satisfaction. The satisfaction studies divided into five main groups; academic staffs (*e.g.* Bellamy, Morley & Watty, 2003; Chen, Yang, Shiau & Wang, 2006; Comm & Mathaisel, 2003; Egbule, 2003; Tu, Plaisent, Bernard & Maguiraga, 2005), administrative staff (*e.g.* Renkema, Schaap & van Dellen, 2009; Smerek & Peterson, 2007), academic and administrative staffs (*e.g.* Küskü, 2003), students (*e.g.* Arambewela & Hall, 2009; Chen, Sok & Sok, 2007; Douglas, Douglas & Barnes, 2006; Douglas, McClelland & Davies, 2008; Helgesen & Nesset, 2007; Nasser, Khoury & Abouchedid, 2008; Petruzzellis, D'Uggento & Romanazzi, 2006; Sakhtivel *et al*., 2005), and students and academic (*e.g.* Varnavas & Soteriou, 2002).

Along with these studies, several scholars (*see* Douglas *et al*., 2008; Helgesen & Nesset, 2007; Navarro, Iglesias & Torres, 2005) emphasized the importance of loyalty emerged through satisfaction in higher education context (*see* Figure 2.7, 2.8, 2.9). Their models depict how satisfaction may lead to loyalty behavior leading to organizational performance changes. Significantly, satisfiers may lead to positive loyalty behaviors which in turn may lead to increase organizational performance (Douglas *et al*., 2008) through their intention to recommend to others (Navarro *et al*., 2005).

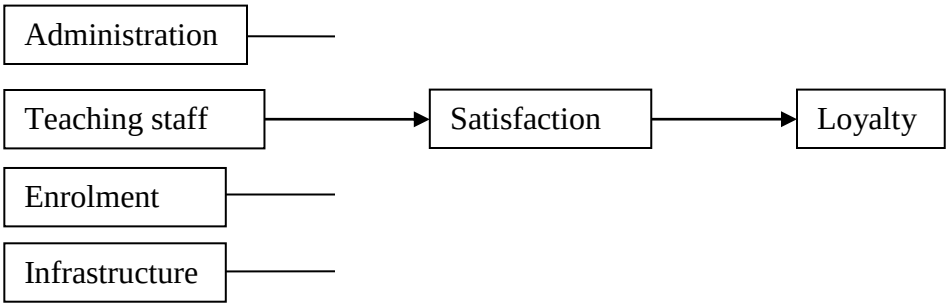
Helgesen & Nesset (2007) used satisfaction (mediating variable), reputation (mediating variable) and loyalty (dependent variable) as their main variables. The drivers for satisfaction are service quality, info, social, facilities and commitment. They found that the service quality, info, and facilities positively related to satisfaction and has an even "stronger" effect on loyalty. Similarly, Navarro *et al*. (2005) and Douglas *et al*. (2008) have likewise shown how satisfaction is an antecedent variable to loyalty.

However, these three studies are using students as their respondents. As agreed by many researchers (Küskü, 2003; Robson *et al*., 2005; Smerek & Peterson, 2007; Telford & Masson, 2005), that higher education includes several groups of customers (*i.e.* internal and external). Thus, it is very useful for more meaningful findings by using the service provider perspective like an academic and administrative employee in the higher educational system.



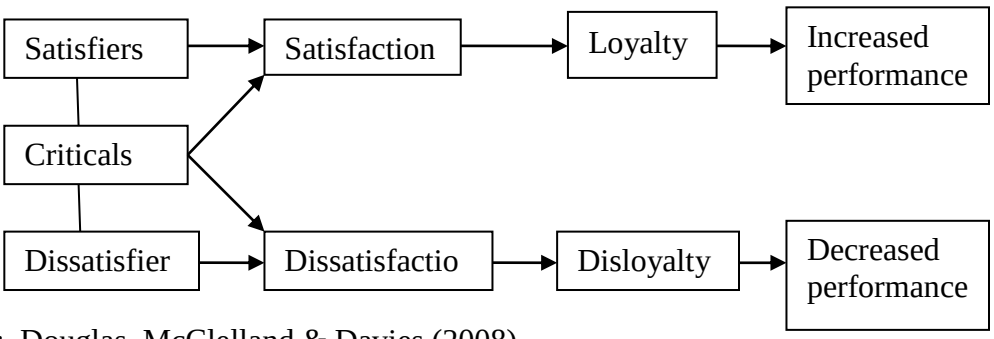
Source: Helgesen & Nesset (2007)

Figure 2.7
A Research Model of Helgesen & Nesset (2007)



Source: Navarro, Iglesias & Torres (2005)

Figure 2.8
A Research Model of Navarro, Iglesias & Torres (2005)



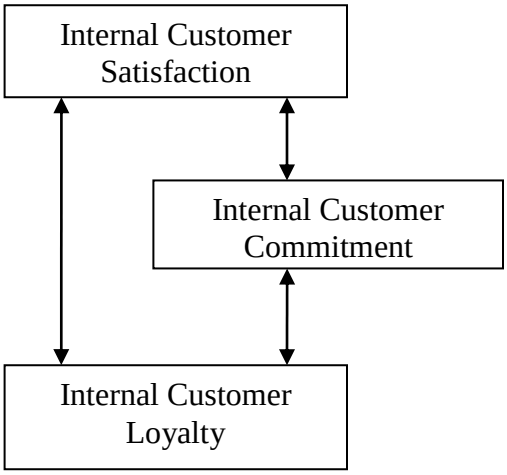
Source: Douglas, McClelland & Davies (2008)

Figure 2.9
A Research Model of Douglas, McClelland & Davies (2008)

2.6.3 Relationship between Satisfaction, Commitment and Loyalty

Moreover, one study from the other sector assesses the existence of satisfaction, commitment and, loyalty in one single research model. Dimitriades (2006) explores the nature of interrelationships among satisfaction, loyalty and commitment in Greece service organizations (*see* Figure 2.10). Dimitriades (2006) established that commitment significantly related to satisfaction and loyalty according to expectations. However, in this study, Dimitriades (2006) did not examine the discriminant validity on the

satisfaction and loyalty. The examination of discriminant validity toward these elements able to change the both elements and the type of their relationship.



Source: Dimitriades (2006)

Figure 2.10
A Research Model of Dimitriades (2006)

Consistent with the suggestion by Baron and Kenny (1986) strongly asserted that in order to establish the mediation effects, three conditions must behold as the main principles that the independent variable (IV) must affect the mediating variable (MV) in the first equation. Second, the MV must have an effect upon the dependent variable (DV) in the second equation, and the IV must be shown to affect the DV in the third equation (Baron & Kenny, 1986). Table 2.3 below summarized the establishment of mediation effect from respective scholars.

Table 2.1
Summary of the Mediation Effect Establishment

Principle	**Variables/Dimensions**	**Source(s)**
First Equation	QMPs-Satisfaction	Agus and Abdullah (2000); Anderson *et al*. (1995); Chang, Chiu & Chen (2010); Das *et al*. (2000); Kanji *et al*. (1999)
	QMPs-Commitment	Dow *et al.* (1999); Powell (1995)
	QMPs-Loyalty	Navarro *et al.* (2005); Sila & Ebrahimpour (2005); Yaya, Marimon & Casadesus (2011)
Second Equation	Satisfaction-Organizational Performance	Heskett *et al*. (1994); Reichheld *et al*. (2000)
	Commitment-Organizational Performance	Baugh & Roberts (1994); Benkhoff (1997); Cohen (1991); Mathieu & Zajaz (1990)
	Loyalty-Organizational Performance	Ali & Shastri (2010); Chen & Lai (2010); Douglas, McClelland & Davies (2008); Fredericks (2001); Reichheld (2004);
	Satisfaction-Commitment	Jun *et al*. (2006); Snipes *et al*. (2005)
	Satisfaction-Loyalty	Brown & Peterson (1993); Griffeth, Hom & Gaertner, (2000); Hom & Kinicki (2001)
	Commitment-Loyalty	Dick & Basu (1994); Lee (2003); Pritchard *et al*. (1999)
Third Equation	QMPs-Organizational Performance	Ahire *et al.* (1996); Li *et al*. (2003); Martinez-Lorente (2004); Sanchez-Rodriguez & Sayeda *et al*. (2010);

	Sureshchandar *et al*. (2001); Zu *et al*. (2008)

To conclude Section 2.6, the previous investigated show a consensus that human-oriented elements (*i.e* satisfaction, commitment, loyalty) have directly and indirectly determined the QMPs and organizational performance relationship (*see* Table 2.2). But, the relationship between these variables on QMPs and organizational performance is neither straightforward nor simple. Thus, the need to examine the comprehensive model on the relationship of QMPs and organizational performance and human-oriented elements in higher education institutions is apparent. The next section discusses the related theories aim to find the suitable theory to be as a basis for the research framework in this study.

2.7 QUALITY MANAGEMENT APPROACH IN THE PERSPECTIVE OF SYSTEMS THEORY

Basically, a theory can be defined as "…a set of systematically related statements, including some law-like generalizations that can be tested empirically" (Hair, Money, Samouel & Page, 2007, p.426). In other words, theory is a coherent set of general propositions used to explain the apparent relationships among several concepts (McShane & Von Glinow, 2000, p.619; Zikmund, 1994, p.750), or certain observed phenomena and allows generalization beyond individual facts or situations (Zikmund, 1994, p.750). Furthermore, a theory is a broad idea or set of closely related ideas that attempt to explain certain observations, try to explain why certain things have happened, and can also be used to make predictions about future observations (Santrock, 2003).

Moreover, theory was created for the purpose of predicting and explaining the world around us (Kerlinger, 1964, p.11). Miner (1980) elaborated three conditions regarding the good theory. First, it should be stated as clearly and simply as possible so that the concepts can be measured and there is no ambiguity regarding the theory's propositions. Second, the elements of the theory must be logically consistent with each other. Finally, a good theory provides value to the society; it helps people to understand their world better than without the theory (Miner, 1980).

Thus, in order to understand the nature of QMPs in higher education institutions and to develop management strategies, it should be necessary to review the different theories related closely to the study that has been undertaken.

2.7.1 Expectancy Disconfirmation Theory (EDT)

Oliver (1980) stated that the expectancy disconfirmation theory (EDT) entails a distinct cognitive state resulting from the comparison process and preceding a judgment of satisfaction. In other words, O'Neill, Palmer and Wright (2003) expressed that the EDT is the differences obtained from a cognitive comparison between expected and perceived outcomes. Based on this theory, differences between expectation and perception will influence the feeling of customers' satisfaction (Oliver, 1980) an have an effect on loyalty and reuse (repurchase) intention (Ha & Janda, 2008).

The EDT can be conceptualized as a four-stage process (Oliver, 1980; Tse & Wilson, 1988).

1. Expectations vary across consumers. In brief, expectations may also be more normative in nature, and thought of as what the consumer believes performance should to be.
2. The individual makes certain attributions regarding the performance of that product or service.
3. Comparison on customer perception of the product's or service's performance against their initial expectations. In other words, the extent to which perceptions of performance "match" expectations dictate the type of disconfirmation the consumer experiences, and has a direct effect on satisfaction.
4. Zero disconfirmation occurs when performance matches expectations (no effect on satisfaction).

Within the organizational context, EDT aims to establish a clear relationship between what individual's value in terms of rewards, what they achieve and the effort they expend. It also presents the importance of people having a clear understanding of the basis on which they will be rewarded as individuals by the organizations. In more practical terms, EDT says that an employees will be motivated to exert a high level of effort when he or she believes that effort will lead to a good performance appraisal; that a good appraisal will lead to organizational rewards such as a bonus, a salary increase, or a

promotion; and that the rewards will satisfy the internal customer's personal goals (Robbins, 2003).

The EDT not only defines satisfaction with product performance, but also service satisfaction (Oliver, 1980; Oliver & DeSarbo, 1988; Tse & Wilson, 1988). Previous investigations have confirmed the predictive capacity of EDT in service setting including retail service (Swan & Trawick, 1981), e-services (Liao, Chen & Yen, 2007), and online auctions (Yen & Lu, 2008). For example, Yen and Lu (2008) conducted a study to explore cognitive beliefs and their influence on the intention to repurchase on online auctions by using EDT. Their findings presented that the bidders' disconfirmation is related to satisfaction and further this in turn influences on their repurchase intentions.

Given the predictive capacity of EDT, it is surprisingly that little known about study have used the EDT to assess human-oriented elements (*i.e* satisfaction and other dimensions such as commitment and loyalty) during the implementation of the QMPs program within higher education institutions context. This theory that involves with human-oriented elements seems close to this study framework.

2.7.2 Theory of Reasoned Action (TRA)

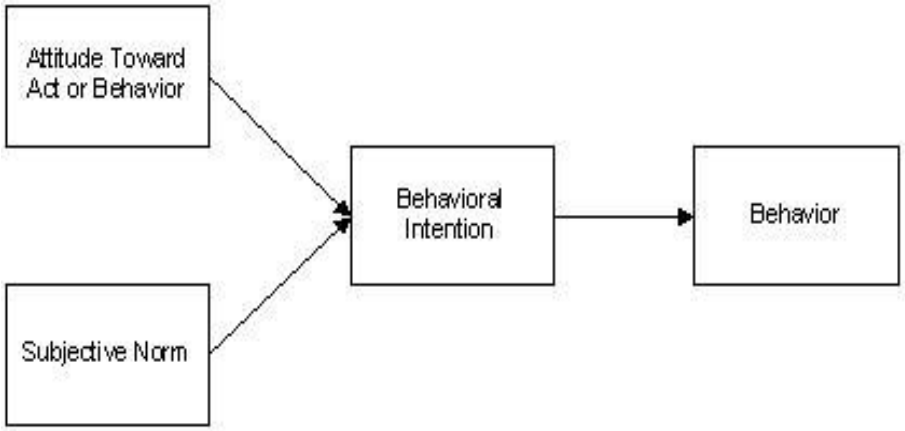
Among existing human social behavior models, the Theory of Reasoned Action (Ajzen & Fishbein, 1980) is considered the most integrated framework for social behaviors (Cooper & Croyle, 1984), and an approach to understanding the individual's complex decision-making process (Ajzen & Fishbein, 1980). According to the TRA,

decision-making starts with beliefs, attitudes toward the behavior and intention, and it ends with the behavior itself (Fishbein, 1979). In short, this theory is based on the assumption that all of individuals' social action is under volitional control and it is formulated that behavior is based on an intention.

Based on this theory, peoples' behavior is predicted at three levels (Fishbein, 1979):

1. Behavior is predicted by their intention.
2. The intention is predicted by attitudes toward the behavior and the subjective norm.
3. Attitudes toward the behavior and the subjective norm are predicted by beliefs about the effects of behavior and about the normative expectations of relevant referents.

In other words, the TRA also clearly explains that attitude and subjective norms are two fundamental factors underlying intentions to do a particular behavior (Ajzen & Fishbein, 1980).



Source: Fishbein and Ajzen (1980)

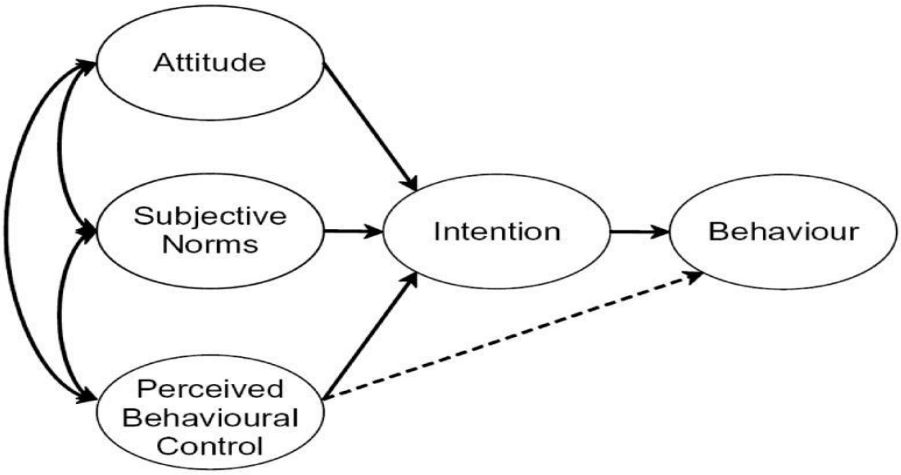
Figure 2.11
Theory of Reasoned Action

Since the 1960s, the TRA has been applied in many empirical studies of different fields. For example, Godin and Kok (1996) reviewed the application of TRA in health-related behaviors such as smoking, exercising and eating. Ajzen and Fishbein (1980), and Glassman and Fitzhenry (1976) applied TRA in marketing research to investigate consumers' behavior (*e.g.* when purchasing a brand of beer, coffee, gasoline). The theory has even been revised and extended by Ajzen and Fishbein (1980) into the theory of planned behavior.

2.7.3 Theory of Planned Behavior (TPB)

Theory of Planned Behavior is an extension of the Theory of Reasoned Action (TRA) that includes the concepts of perceived behavioral control. Ajzen and Madden (1986) explained that perceived behavior control refers to the person's belief as to how easy or difficult performance of the behavior is likely to be. According to this theory, the

perceived behavior control has an effect on behavioral intention and has a direct effect on target behavior. This situation is illustrated in Figure 2.12.



Source: Ajzen (1991)

Figure 2.12
Theory of Planned Behavior

According to Armitage and Conner (2001), the TPB has gained substantial empirical support through hundreds of applied studies, and has been proven successful in predicting and explaining human behavior across many other contexts (George, 2004). However, scantly research has dealt with QMS activities using TPB.

TPB was an extended version of TRA by adding perceived behavioral control. Through the perceived behavioral control, the TPB can explain the relationship between behavioral intention and actual behavior. The TPB model is thus a very powerful and predictive model for explaining human behavior that can be applied in predicting the effects of human-oriented elements after the implementation of any QMPs initiative. In addition, the TPB as well as the theory of TRA can

explain the individual's social behavior by considering human-oriented elements (*i.e* satisfaction, commitment, loyalty) as an important elements.

In brief, the nature of the individual level investigation that dealt with cognitive psychology makes a significant contribution to the explanation of why QMPs activities not applied EDT, TRA and TPB. In most cases, QMPs is involved with the process within the organization and seen as a system to the whole perspectives. The next sub-section explains about the System Theory.

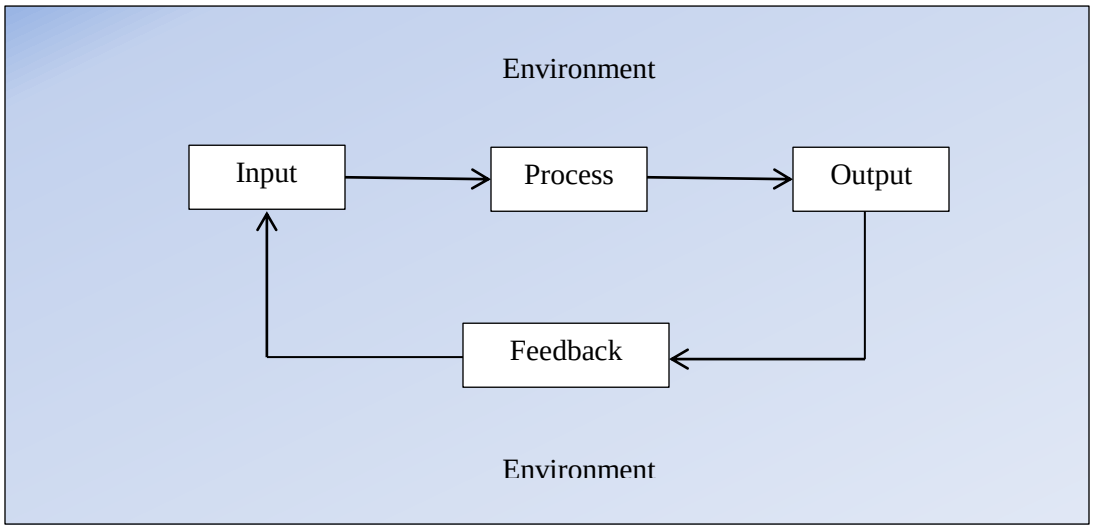
2.7.4 Systems Theory

Understanding system is a key principle of quality thinking (Deming, 1986). Houston (2008) explained that a system can be seen as a network of interdependent elements and the relationships between them working together to try to achieve the purpose of the system. Each element contributes to the system's behavior and is affected by it (Houston, 1998).

Furthermore, systems are classified into two; closed or open. Robbins and Barnwell (2002) explained that a closed system would be one that received no energy from outside sources and from which no energy was released into its environments. But, the closed system perspective has little applicability to the study of organizations (Robbins & Barnwell, 2002). On the other hand, an open system recognizes the dynamic interaction of a system with its environment (Robbins & Barnwell, 2002). All organizations interact

with their environment, but the extent to which they do so varies (Stoner, Freeman & Gilbert Jr., 1995).

Moreover, any organization can be viewed as a system (Houston, 2008; Stoner *et al*., 1995). Organizations require input such as labour and material from the external environment, translate them into products or services, and then send them back as outputs to the external environment (Houston, 2008; Stoner *et al*., 1995). This situation parallels with system theory quite closely. The systems theory consists the input from the environment, the process of input, output to the environment and it happens continuously in a cycle (Gibson, Ivancevich & Donelly, 1982; Robbins & Barnwell, 2002). This phenomenon is illustrated in Figure 2.12.



Sources: Gibson et al. (1982), and Robbins & Barnwell (2002)

Figure 2.13
Model of Systems Theory

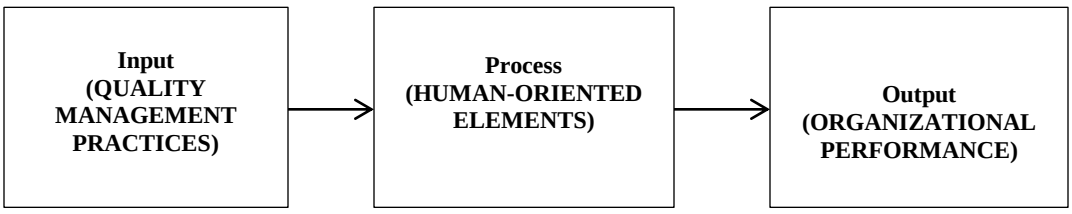
In this study, the implementation of the QMPs is viewed as one of the organizational effort to enhance the internal environmental processes in ensuring performance of the

organization. Thus, it seems to propose that systems theory is fit to become as an overarching (underpinning) theory in this study.

2.7.4.1 Systems Theory Approach in the Higher Education Institutions Context

In general, a system approach defined as evaluating an organization's effectiveness by its ability to acquire inputs, process the input, channel the outputs and maintain stability and balance (Robbins & Barnwell, 2002, p. 492). The higher education institutions can be viewed as a system whereby resources are used to convert inputs into outputs (Ali & Shastri, 2010; Sahney, Banwet & Karunes, 2004).

Defining quality in higher education institutions from all views mean including within its domain the quality of inputs, processes and outputs (Sahney *et al*., 2008). Mehralizadeh and Safaeemoghaddam (2010) also supported that a theory of quality in higher education institutions should clearly work out the relationship between input, process, output and long-term results. This situation is illustrated in Figure 2.13.



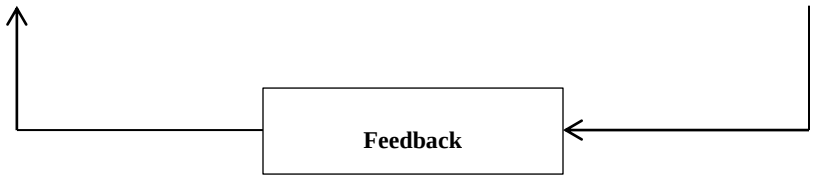


Figure 2.14
Higher Education Institutions as a System

The systems theory approach to higher education institutions comprise of inputs, processes, outputs, and all covered in an environment. Inputs from the environment into the system, through the process stage and finally released from the system back into the environment as outputs. In this study, the input stage is QMPs that involve with the dimensions of leadership, strategic planning, customer focus, information analysis, human resource focus, and process management.

The process stage in the higher education institutions involves human-oriented elements that contain the variables of satisfaction, commitment, and loyalty. Moreover, the output stage is organizational performance that consists dimensions of financial, customer, internal process, and learning and growth.

Lastly is feedback; the outputs of information about the system (*i.e*. complaint, recommendation) back into the system as inputs and able to modify the system while the process is still in progress. Feedback is making the system more responsive and flexible to the environment.

Significantly, reflecting to this study, the systems theory offers a general theoretical framework that can be readily applied to this domain: QMPs as input, human-oriented elements as process, and organizational performance as output.

In sum, the system approach and systems theory are two overarching concepts that the QMPs is grounded on. Thus, by understanding the link of system approach and system theory thinking will provide meaningful understanding the effects of human-oriented elements on the relationships between QMPs and performance in the higher education institutions context.

2.8 CHAPTER SUMMARY

This chapter determines the limits of this study by reviewed the literature associated to the five main research questions which this study is addressed in Chapter One. The empirical studies reviewed also show evidence that the human-oriented elements (*i.e*. satisfaction, commitment, loyalty) directly and indirectly have an effect on the relationship of QMPs and organizational performance. However, scantly known about studies that examine the link of QMPs, human-oriented elements of QMPs and organizational performance in one single model specifically, in the higher education institutions context. Thus, how this variable simultaneously affects the QMPs and organizational performance left unanswered. The following chapter discusses the research methodology.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

As demonstrated in Figure 3.1, the research process in the present study consist nine stages. This chapter presents the methodology employed to test the research framework and hypotheses. Section 3.2 describes the theoretical framework. This section aim to know and to identify the theoretical foundation that underpinned the research model that used in Chapter Three. Following the theoretical discussion, Section 3.3 outline hypotheses on the relationships between variables of the proposed research model. Section 3.4 performs the research design and the reason of using a quantitative approach in the present study. Section 3.5, 3.6, and 3.7 explain the unit of analysis, respondents, and population and sample that involved, whilst Section 3.8 discusses the survey procedures. Section 3.9 and Section 3.10 explain about the survey instrument design and variables measurement. The pilot study, reliability and validity, and data analysis procedures are discussed in Section 3.11 and 3.12, and data analysis procedures that involve with the statistical techniques explained in Section 3.13. Section 3.14 presents a summary of Chapter 3.

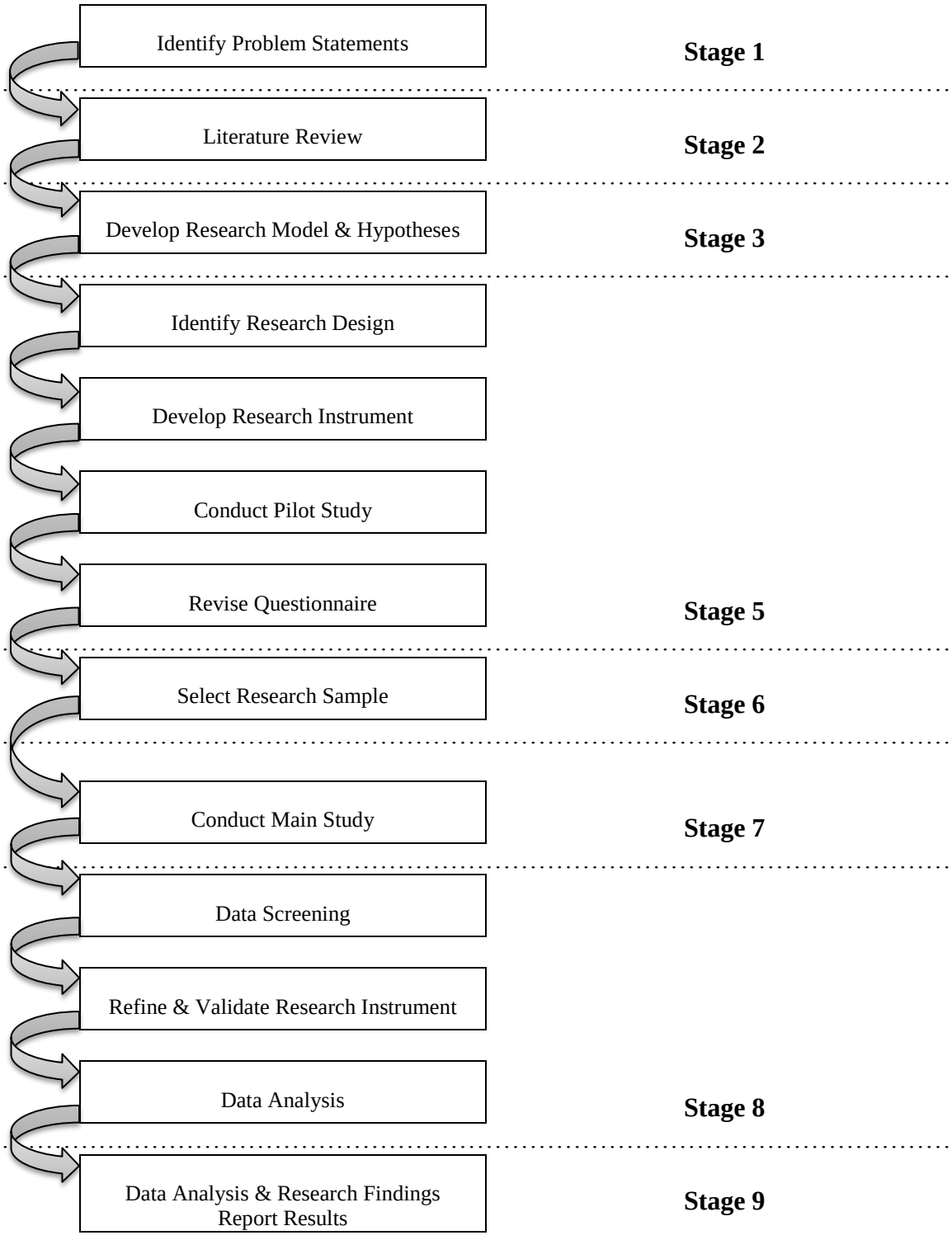


Figure 3.1
Research Process for this Study

3.2 THEORETICAL FRAMEWORK

The theoretical framework for the quality management has been difficult to determine. Most of the literature to date has been focused on the practice or the implementation of QMPs rather than on the development of the theory (Antony, 2009; Klefsjo *et al*., 2008; Tari, 2005). Because the origin QMPs is from industry and not academics, connections to management theory are just now becoming explicit (Spencer, 1994). The present study could not find any integrative framework for the direct with mediating relationship of QMPs and organizational performance is determined by investigating the mediating role of human-oriented elements (satisfaction, commitment, loyalty), particularly in the higher education institutions context (Banwet & Karunes, 2008; Flynn *et al*., 1994; Mehralizadeh & Safaeemoghaddam, 2010).

Derived from the literature review in Chapter Two, successful QMPs implementation depends on six main practices, which are leadership, strategic planning, customer focus, information analysis, human resource focus, and process management (Arumugam *et al*., 2009; Prajogo & Sohal, 2003; Teh *et al*., 2008). Meanwhile, human-oriented element (satisfaction) consists of three dimensions, namely, functional, technical and image (Gronroos, 2001). In addition, human-oriented element (commitment) and human-oriented element (loyalty) involve of one dimension (Allen & Meyer, 1990; Kong & Muthusamy, 2011). Likewise, Balance Scorecard measurement containing the perspectives of financial, customer, internal process, learning and growth are regarded the best way to measure organizational performance (Chan, 2004; Fuentes-Fuentes, 2004; Kanji, 2002; Kaplan & Norton, 1996; Weerakoon, 1996).

Furthermore, the implementation of QMPs is viewed as an important path to enhance satisfaction (Agus & Abdullah, 2000); Anderson *et al*., 1995; Chang *et al*., 2010; Das *et al*., 2000; Kanji *et al*., 1999), commitment (Dow *et al*., 1999; Powell, 1995), and loyalty (Navarro *et al*., 2005; Sila & Ebrahimpour, 2005; Yaya *et al*., 2011). In the similar vein, the enhancement of satisfaction, commitment, and loyalty are reflected on the improvement of organizational performance (Ali & Shastri, 2010; Chen & Lai, 2010; Douglas *et al*., 2008; Heskett *et al*., 1994; Mathieu & Zajaz, 1990; Reichheld *et al*., 2000). Consequently, satisfaction are interrelated with commitment (Jun *et al*., 2006; Snipes *et al*., 2005), and loyalty (Griffeth *et al*., 2000; Hom & Kinicki, 2001). On the other hand, commitment and loyalty also interrelated (Dick & Basu; 1994; Lee, 2003; Pritchard *et al*., 1999).

Moreover, the research model of this study is formulated grounded on Systems Theory (Ali & Shastri, 2010; Mehralizadeh & Safaeemoghaddam, 2010; Sahney *et al*., 2004). A system is defined as "…an organized or complex whole or combination of things of parts forming a complex or unitary whole" (Johnson, Kast & Rosenzweig, 1973, p.5). In addition, the systems approach allows theorists to consider organizations as an open problem-solving systems. As the organization responds to technological and social changes (*i.e*. higher education institutions), the systems approach provides a method for understanding the relationships to the environment and the adaptive processes (Johnson *et al*., 1973).

Based upon the literature reviewed, a theoretical framework has been developed to demonstrate the links of the independent, mediating and dependent variable. The independent variable in the present study is QMPs (leadership, strategic planning, customer focus, measurement and analysis, human resource focus, process management), whilst mediating variable is human-oriented elements (satisfaction, commitment, loyalty). Organizational performance was operationalized as the dependent variable (Figure 3.2).

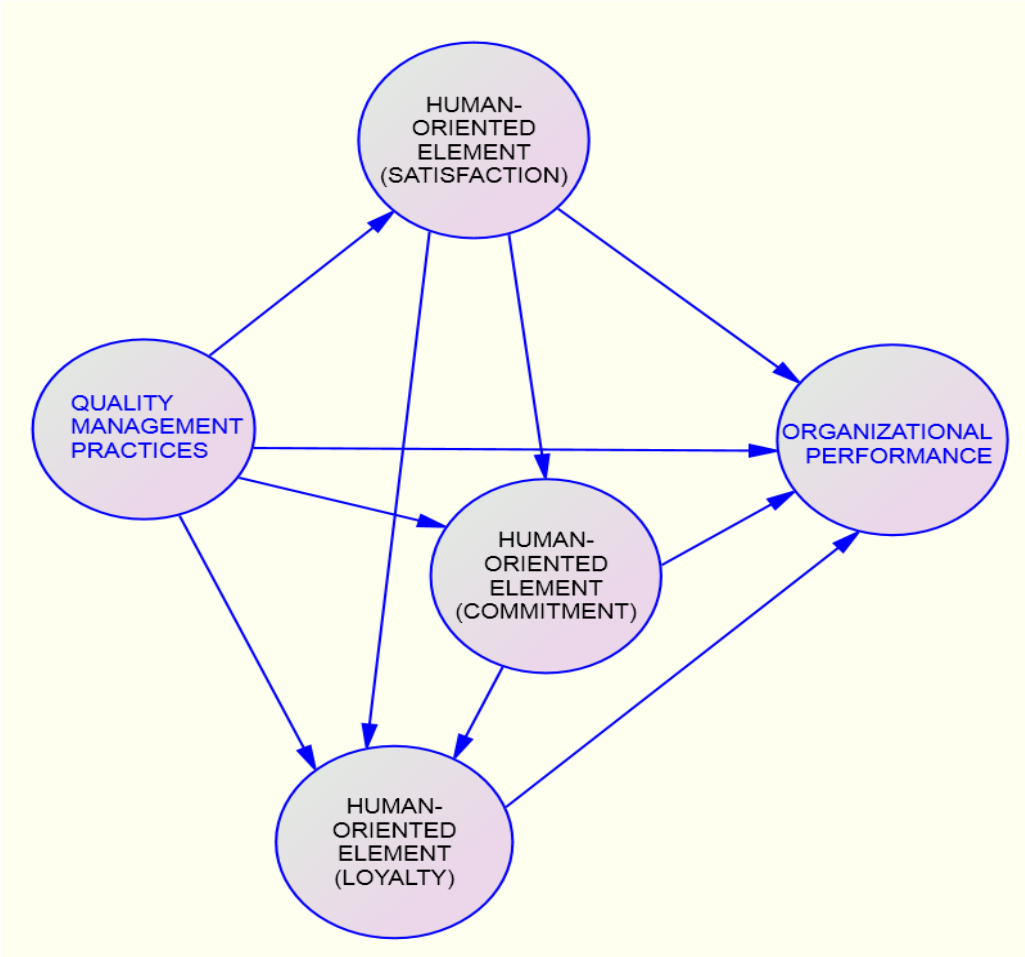


Figure 3.2
Theoretical framework of the study

3.3 HYPOTHESES/PROPOSITIONS DEVELOPMENT

A hypothesis can be defined as a statement making empirically testable declarations that certain variables and their corresponding measures are related in a specific way proposed by a particular theory (McShane & Von Glinow, 2000, p.615). Derived from the theoretical framework, the nineteen hypotheses of study are performed as illustrated in the Figure 3.3. Again, this study examines the link of QMPs and organizational performance. It is also to find out the relationship of QMPs on human-oriented elements (satisfaction, commitment, loyalty), and to examine the relationship of human-oriented elements (satisfaction, commitment, loyalty) on organizational performance. Next, this study tries to look at the interrelationships among human-oriented elements (satisfaction, commitment, loyalty). The final objective of the present study also to examine the mediating effects of human-oriented elements (satisfaction, commitment, loyalty). Thus, this section performed the literature that supports these relationships together with development of hypotheses in order to define causal relationships.

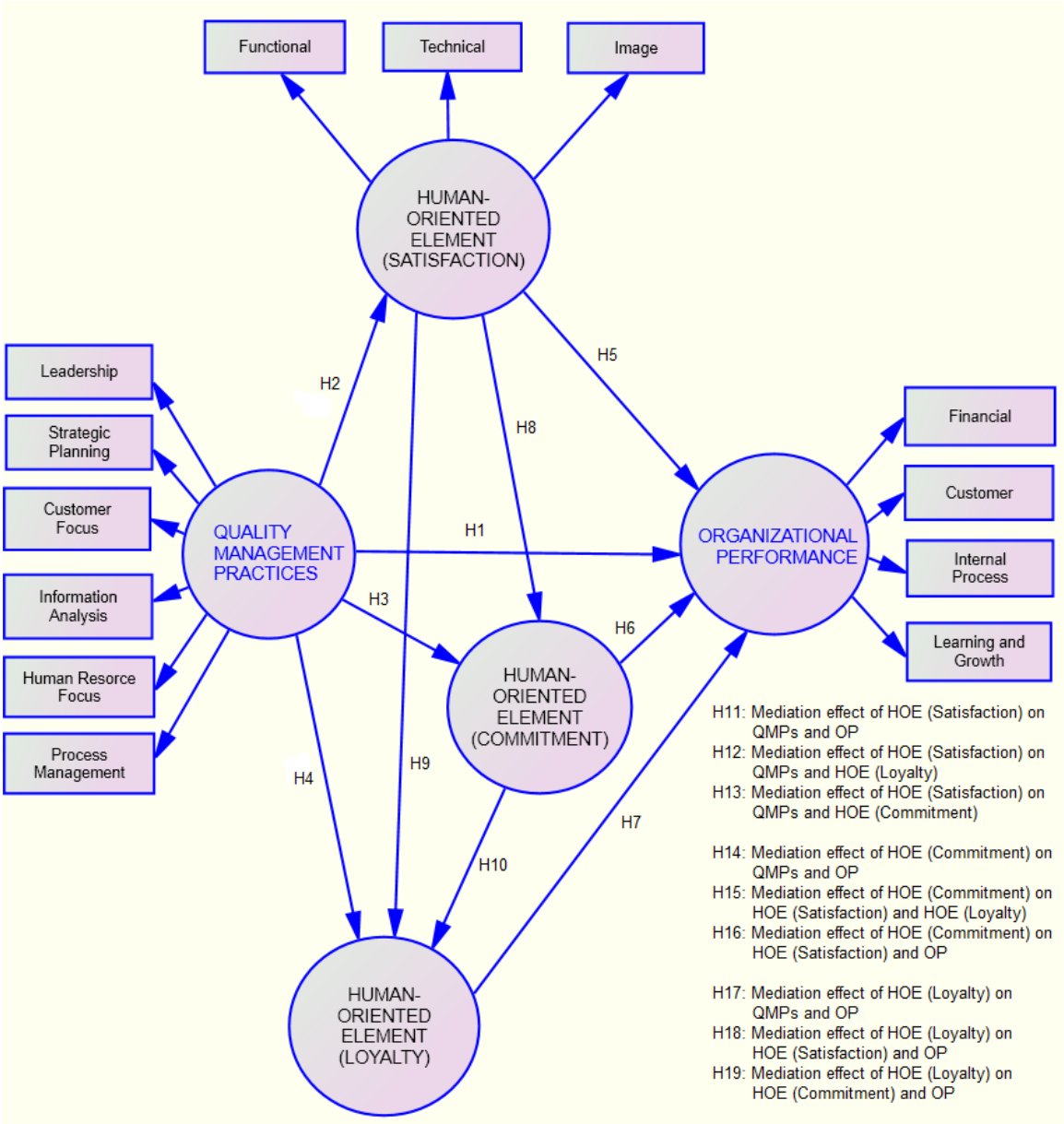


Figure 3.3
Hypothesized Structural Equation Model

3.3.1 The Relationship between QMPs and Organizational Performance

Deming (1986) dictated that the system of production and service in every organization need to constantly improve quality and turn back to enhance the performance.

Significantly, one of the important derivative benefits of QMPs is that the employees throughout the company gets deeply involved in designing an effective system and shares a sense of achievement. This shared activity not only produces effective solutions but also acts as a powerful motivator for enhanced organizational performance (Jackson & Ashton, 1995). Feng *et al*. (2008) pointed out that QMPs have a positive relationship on organizational performance. In brief, QMPs implementation is believed lead to organizational performance (Kumar, *et al*. 2009). Past literature (*e.g.* Brah & Lim, 2006; Heras *et al*., 2006; Kapuge & Smith, 2007; Li *et al.*, 2003; Martínez-Costa & Martínez-Lorente, 2007; Sila, 2007; Yasin *et al*., 2004) consistently indicated that there has relationship between QMPs and organizational performance. Thus, this study identified there is a positive relationship between the implementation of QMPs and organizational performance.

H_1: There is a positive relationship between Quality Management Practices and Organizational Performance

3.3.2 The Relationship between QMPs on Human-oriented Elements (Satisfaction, Commitment, Loyalty)

As ordinarily described in the QMPs area, one of the main focus of QMPs is to meet the employees satisfaction (internal customer) (*see* Cebeci & Beskese, 2002; Chini & Valdez, 2003; Li *et al*., 2003; Quazi & Padibjo, 1998; Ruzevicius, Adomaitiene & Sirvidaite, 2004). Significantly, QMPs help companies in a consistent manner, their

employee satisfaction (Fuentes *et al*, 2000). In agreement with QMPs which have reported significant link on satisfaction, this study hypothesizes that:

H_2: *There is a positive relationship between Quality Management Practices and Human-Oriented Element (Satisfaction)*

Furthermore, Kumar *et al*. (2009) observed that adoption of QMPs enhance commitment at all levels of the organization. London (2005) found that the levels of commitment and involvement shown by management (both senior and middle management) had an effect on the success of the process. Besides, the success of QMPs initiative is relying on several components like the size of organization, employee readiness, leadership and approach to transform (By, 2005; Higgs & Rowland, 2005). In short, the following hypothesis is suggested.

H_3: *There is a positive relationship between Quality Management Practices and Human-Oriented Element (Commitment)*

Furthermore, one of the primary prerequisite for a successful QMPs effort is maintaing a loyal employee (Jun *et al*., 2006). Several scholars (*e.g.* Chang *et al*., 2010; Sila & Ebrahimpour, 2005; Turkyilmaz, Akman, Ozkan & Pastuszak, 2011) also cite employee loyalty as a necessary prerequisite for effective implementation of any quality initiative. In the other words, QMPs refer specifically to the need for loyalty from all employees. In sum, majority of articles (*e.g.* Cebeci & Beskese, 2002; Chang, Chiu & Chen, 2010;

Oakland & Tanner, 2007; Quazi *et al*., 2002; Poksinska *et al*., 2002; Turkyilmaz, Akman, Ozkan & Pastuszak, 2011) asserted that the QMPs will improve loyalty and this be identified in this research.

H_4: There is a positive relationship between Quality Management Practices and Human-Oriented Element (Loyalty)

3.3.3 The Relationship between Human-oriented Elements (Satisfaction, Commitment, Loyalty) on Organizational Performance

The quality management literature has shown that the human-oriented elements are positively related to organizational performance (Abdullah *et al*., 2008). In examining satisfaction, many organizations adopt QMPs have experienced an improvement in satisfaction (*see* Sacchetti, 2007; Corbett *et al*., 2005; Bhuiyan & Alam, 2005; Ruzevicius *et al*., 2004; Chini & Valdez, 2003), and performance (*see* Feng *et al*., 2008; Sacchetti, 2007; Martinez-Costa & Martinez-Lorente, 2007; Heras *et al*., 2006; Terziovski *et al*., 1997). There have two types of customers in an organization; internal and external (Sangeeta *et al*., 2008). The satisfaction of the internal customer (employees) would always be a prerequisite to the satisfaction of the external customer (Besterfield *et al*., 2003; Loveman, 1998; Sangeeta *et al*., 2008), which in turn to the performance of an organization (Martinez-Costa & Martinez-Lorente, 2007; Heras *et al*., 2006). Because QMPs aim to produce a surrounding that elicits the most beneficial from internal and external customer, it can expected that satisfaction will lead to increased organizational performance. It is hypothesized that:

H_5: *There is a positive relationship between Human-Oriented Element (Satisfaction) and Organizational Performance*

Second, examining the commitment. Commitment involves a range of people within the organization such as top management, work unit internal customers and the organization itself. A number of previous studies (*e.g.* Mathieu & Zajac, 1990; Meyer & Allen, 1991; Mowday, 1998) concluded that commitment is related to valuable outcomes for employees such as increased employee morale, reduced stress and improved productivity. If these situations happen, the performance of an organization will increase (Mathieu & Zajac, 1990; Meyer & Allen, 1991; Mowday, 1998). The hypothesized is thus:

H_6: *There is a positive relationship between Human-Oriented Element (Commitment) and Organizational Performance*

Finally, loyalty has detected have a significant effect on organizational performance. Loyalty means as "…an attachment to the organization that may be considered as an emotional response, especially when an employee believed in organizational goals and values and has a strong desire to remain with the organization" (Mathieu & Zajac, 1990, p.171). Several scholars (*e.g.* Ali & Shastri, 2010; Ganesh, Arnold & Reynolds, 2000; Heskett, 2002; Rowley, 2003) strongly believed that loyalty is a key driver of organizational performance, and contributes to economic outcomes in service organizations (Hays & Hill, 2006). Therefore, the following hypothesis is suggested.

H_7: There is a positive relationship between Human-Oriented Element (Loyalty) and Organizational Performance

3.3.4 The Interrelationships among Human-Oriented Elements (Satisfaction, Commitment, Loyalty)

Prior study (*e.g.* Torka, Schyn & Looise, 2010) performs that employees can react with dissatisfaction towards commitment when expectations are offended. For instance, when middle manager do not offer timely feedback to employee complaints, suggestions, and demands, or when the time-span between expression of an idea and its implementation takes too long or does not take place at all. Consequently, employees think about their own jobs, find and solve problems related with their job (Jun *et al*., 2006). From an employee's viewpoint, feelings of commitment should have a positive impact and derived from attitudinal responses and satisfaction (Snipes, Oswald, Latour & Armenakis, 2005). In this context, it is hypothesized that:

H_8: There is a positive relationship between Human-Oriented Element (Satisfaction) and Human-Oriented Element (Commitment)

Moorehead and Griffin (1998) maintained that the employee satisfaction is enjoyable emotional state resulting from the valuation of their job, whilst employee loyalty was viewed broadly as an employee's feeling of attachment or concept deals with the behaviour of the employees to an organisation (Meyer & Allen, 1991). Silvestro (2002)

emphasizes that the employee satisfaction and loyalty are seen as critical to the capability of service organisations to react effectively to customer requirements Several studies (*e.g.* Brown & Peterson, 1993; Griffeth, Hom, & Gaertner, 2000; Hom & Kinicki, 2001) point that employee satisfaction is significantly related to employee loyalty to their organization. These empirical results also proposed that the organisation must satisfy employees to make them loyal. Thus, this study hypothesized that:

H_9: There is a positive relationship between Human-Oriented Element (Satisfaction) and Human-Oriented Element (Loyalty)

Employee commitment to the organization is a very important driver of employee loyalty in the service industries (Fullerton, 2003). Commitment could be described as a motivation to stay with a partner (Moorman, Zaltman, & Deshpande, 1992). On the other way, commitment as a psychological thought of the mind through which an attitude, concerning with the relationship with a business partner (Rauyruen & Miller, 2007). In this regards, Iverson and Kuruvilla (1995) stressed that commitment and loyalty are interchangeable terms. In contrast, other scholar (*e.g.* Pritchard *et al*., 1999) see that there are distinctions between commitment and loyalty, and thus the constructs are not the same. In the same vein, Evanschitzky *et al.* (2006) also maintain that commitment is not similar with loyalty, where commitment refers to the economic, emotional, and/or psychological attachment that the employee may have toward the organization. Hence, this study hypothesized that:

H_{10}: There is a positive relationship between Human-Oriented Element (Commitment) and Human-Oriented Element (Loyalty)

3.3.5 The Mediating Effects of Human-Oriented Elements (Satisfaction, Commitment, Loyalty)

The main objective of TQM is to achieve customer satisfaction whether the customer is internal (*e.g.* employee) or external (*e.g.* final product recipient). The first step in achieving employee satisfaction is to define the employee's needs and wants and then translate these needs and wants into standards. Furthermore, previous studies (*e.g.* Ahire *et al.*, 1996; Anderson *et al*., 1995; Flynn *et al*., 1994; Li *et al*., 2003; Martinez-Lorente, 2004; Sanchez-Rodriguez & Sayeda *et al*., 2010; Sureshchandar *et al*., 2001; Zu *et al*., 2008) established that QMPs have a positive relationship on organizational performance. Prior studies also found that satisfaction have a positive significant effect with QMPs (*e.g.* Agus & Abdullah, 2000; Anderson *et al*., 1995; Chang, Chiu & Chen, 2010; Das *et al*., 2000; Forza & Flippini, 1998; Kanji *et al*., 1999), organizational performance (*e.g.* Adam, Corbett, Flores, Harisson, Lee, Rho, Ribera, Samson and Westbrook, 1997; Dow *et al.*, 1999; Powell, 1995), loyalty (*e.g.* Brown & Peterson, 1993; Griffeth, Hom, & Gaertner, 2000; Hom & Kinicki, 2001), and commitment (*e.g.* Jun *et al*., 2006; Snipes *et al*., 2005). By followed the main priciples as suggested by Baron and Kenny (1986), the following hypotheses are described:

H_{11}: Human-Oriented Element (Satisfaction) will fully mediate the relationship between Quality Management Practices and

Organizational Performance

H_{12}: *Human-Oriented Element (Satisfaction) will fully mediate the relationship between Quality Management Practices and Human-Oriented Element (Loyalty)*

H_{13}: *Human-Oriented Element (Satisfaction) will fully mediate the relationship between Quality Management Practices and Human-Oriented Element (Commitment)*

Moreover, in QMPs literature, employee commitment are identified as an important element of a successful QMPs initiative (Bowen, Siehl, & Schneider, 1989). Previous scholars found that commitment have a positive significant with QMPs (*e.g*. Dow *et al*., 1999; Powell, 1995), organizational performance (Abdullah *et al.*, 2008; Dow *et al*., 1999; Mathieu & Zajaz, 1990), and loyalty (Dick & Basu, 1994; Lee, 2003; Pritchard *et al*., 1999). Thus, this study hypothesized that:

H_{14}: *Human-Oriented Element (Commitment) will fully mediate the relationship between Quality Management Practices and Organizational Performance*

H_{15}: *Human-Oriented Element (Commitment) will fully mediate the relationship between Human-Oriented Element (Satisfaction) and Human-Oriented Element (Loyalty)*

H_{16}: *Human-Oriented Element (Commitment) will fully mediate the relationship between Human-Oriented Element (Satisfaction) and Organizational Performance*

In other hand, Allen and Grisaffe (2001, p.212) explained that loyalty is "…a psychological state and it characterizes the relationship of an employee with the organization for which they work and that has implications for their decision to remain with the organization". Consequently, Mathieu and Zajac (1990, p.171) also described loyalty as "…an attachment to the organization that may be considered an emotional response, especially when an employee believes strongly in organizational goals and values and has a strong desire to maintain membership of the organization". Past researchers found that loyalty have a positive relationship with QMPs (*e.g.* Navarro *et al.*, 2005; Sila & Ebrahimpour, 2005; Yaya, Marimon & Casadesus, 2011), organizational performance (*e.g.* Ali & Shastri, 2010; Chen & Lai, 2010; Douglas, McClelland & Davies, 2008; Fredericks, 2001; Reichheld, 2004; Yee *et al.*, 2009). Therefore, this study hypothesised that:

H_{17}: *Human-Oriented Element (Loyalty) will fully mediate the relationship between Quality Management Practices and Organizational Performance*

H_{18}: *Human-Oriented Element (Loyalty) will fully mediate the relationship between Human-Oriented Element (Satisfaction) and Organizational Performance*

H_{19}: *Human-Oriented Element (Loyalty) will fully mediate the relationship between Human-Oriented Element (Commitment) and Organizational Performance*

To sum up this section, Table 3.1 below indicates the overall hypotheses that have been developed to examine the interrelationships among QMPs, human-oriented elements, and organizational performance. The examination also takes into account to achieve the five research objectives (RO) that have been developed in Chapter One.

Table 3.1
Summary of Hypotheses and Research Objectives

	Hypotheses	**Research Objectives**
H_1:	There is a positive relationship between Quality Management Practices and Organizational Performance	RO1
H_2:	There is a positive relationship between Quality Management Practices and Human-Oriented Element (Satisfaction)	RO2
H_3:	There is a positive relationship between Quality Management Practices and Human-Oriented Element (Commitment)	RO2
H_4:	There is a positive relationship between Quality Management Practices and Human-Oriented Element (Loyalty)	RO2
H_5:	There is a positive relationship between Human-Oriented Element (Satisfaction) and Organizational Performance	RO3

H_6:	There is a positive relationship between Human-Oriented Element (Commitment) and Organizational Performance	RO3
H_7:	There is a positive relationship between Human-Oriented Element (Loyalty) and Organizational Performance	RO3
H_8:	There is a positive relationship between Human-Oriented Element (Satisfaction) and Human-Oriented Element (Commitment)	RO4
H_9:	There is a positive relationship between Human-Oriented Element (Satisfaction) and Human-Oriented Element (Loyalty)	RO4

Table 3.1
Summary of Hypotheses and Research Objectives (…continued)

	Hypotheses	**Research Objectives**
H_{10}:	There is a positive relationship between Human-Oriented Element (Commitment) and Human-Oriented Element (Loyalty)	RO4
H_{11}:	Human-Oriented Element (Satisfaction) will fully mediate the relationship between Quality Management Practices and Organizational Performance	RO5
H_{12}:	Human-Oriented Element (Satisfaction) will fully mediate the relationship between Quality Management Practices and Human-Oriented Element (Loyalty)	RO5
H_{13}:	Human-Oriented Element (Satisfaction) will fully mediate the relationship between Quality Management Practices and Human-Oriented Element (Commitment)	RO5
H_{14}:	Human-Oriented Element (Commitment) will fully mediate the relationship between Quality Management	RO5

	Practices and Organizational Performance	
H_{15}:	Human-Oriented Element (Commitment) will fully mediate the relationship between Human-Oriented Element (Satisfaction) and Human-Oriented Element (Loyalty)	RO5
H_{16}:	Human-Oriented Element (Commitment) will fully mediate the relationship between Human-Oriented Element (Satisfaction) and Organizational Performance	RO5

Table 3.1
Summary of Hypotheses and Research Objectives (…continued)

	Hypotheses	**Research Objectives**
H_{17}:	Human-Oriented Element (Loyalty) will fully mediate the relationship between Quality Management Practices and Organizational Performance	RO5
H_{18}:	Human-Oriented Element (Loyalty) will fully mediate the relationship between Human-Oriented Element (Satisfaction) and Organizational Performance	RO5
H_{19}:	Human-Oriented Element (Loyalty) will fully mediate the relationship between Human-Oriented Element (Commitment) and Organizational Performance	RO5

3.4 RESEARCH DESIGN

Research design is the framework for a study that utilized as a guide for data collection and analysis. Referring to Sekaran and Bougie (2010), a research design can be classified in terms of the purpose of study whether exploratory, descriptive or hypothesis testing. Viewing the research purpose, framework and hypotheses, a quantitative approach used in this research. Quantitative research is used to answer about the relationships among the measured variables with the purpose of explaining, predicting and controlling the phenomena (Leedy & Ormrod, 2005). The purpose of quantitative research is very specific and used when the researcher has agreed that precise information is needed (Burns & Bush, 2003). Although quantitative approaches are unable to provide in-depth explanations available through qualitative approaches, quantitative approaches can be used to test hypotheses and determine the reliability and validity of the variables measured (Zikmund & Babin, 2007).

This study employed a cross-sectional survey design for the purpose of collecting data. Sekaran and Bougie (2010) mentioned that in a cross-sectional study, data are collected at a single point in time. This study was chosen the cross-sectional design due to cost and time constraints. Moreover, there are two main advantages employing a cross-sectional design in this study. First, this design is much less expensive to conduct than the longitudinal design because testing takes place over a limited time period. Because the time period for testing is short, dropout can be minimized. Second, on testing the hypotheses formulated for this study required a large of sample size (less dropout/mortality) and not influenced by changes over time. With these justifications, the use of a cross-sectional design appears to be suit research method in this study.

This study utilized a personal-administered questionnaire. Sekaran (2003) described that a personal-administered questionnaire is a survey in which the researcher or a member of the research team or personal contact can collect all the completed responses within a short period of time. Utilizing a personal-administered questionnaire enables the researcher to distribute the questionnaires to a large number of targeted respondents in different places at one time. This method has seemed appropriate for data collection from various public universities at different departments.

However, having many advantages the survey method has drawbacks, mainly in terms of measurement error. Measurement error is often a serious threat to survey accuracy (McDaniel & Gates, 2005). It occurs when there is variation between the information being sought (true value) and the information actually obtained by the measurement process. Various types of error may be caused by numerous deficiencies in the measurement process such as measurement instrument bias, processing error and non-response bias.

Therefore, the following steps were involved to overcome the error that results from the design of the questionnaire or measurement instrument. First, the relevant literature in quality management and organizational performance in higher education institutions context was thoroughly reviewed and examined. Second, this study adapted items that represent definition and dimensions of the variables. In other words, this study adopted

the scale of QMPs, Human-oriented Elements (Satisfaction, Commitment, Loyalty), and Organizational Performance based on the extensive review on the literature.

Moreover, processing errors are primarily due to mistakes that occur when information from questionnaires is entered into the computer. Error of this type are avoided by self-entered the data and strictly adhering to quality control procedures when processing survey results (*i.e.* all negative items were recode into positive items before data analysis).

The non-response bias is an error that results from a systematic difference between those who do and those who do not respond to a questionnaire. This study utilized the independent sample *t*-test analysis in order to examine whether it is a non-response bias emerges between the early and late response (*further discussion in Section 4.3*).

3.5 UNIT OF ANALYSIS

The unit of analysis for this study is the department (*i.e.* faculty, center of study, library, registrar) of 20 public higher education institutions in Malaysia. Zikmund (1997) maintained that the unit of analysis refers to the level of investigation the study focused on. The researcher must specify whether the level of investigation will focus on the collection of data about organizations, departments, work groups, individuals, or objects (Zikmund, 1994). Commonly, the unit of analysis is divided into three groups: individual, dyads and group (Sekaran & Bougie, 2010). In this study, the measurement

of QMPs, human-oriented elements, and organizational performance are typically applied to the level of the department and each any administrative authorized personnel that can represent the department response as a departmental data source.

3.6 RESPONDENTS

This study also obtained the data from administrative authorized personnel that can represent the department (academic and non-academic). The selection of administrative authorized personnel from each department is based on their working experience with quality initiatives and also their service to the departments was present when they evaluated the services. Consequently, when top management (*i.e.* Premier Grade) gives QMPs the highest priority, it conveys to employees in the organization that quality is critical. This mandate from top management calling administrative authorized personnel (*i.e.* Dean, Deputy Dean, Director, Head of Department) helps to build the organization-wide awareness of the importance of QMPs and increase the employees' commitment to achieving superior performance (high quality). In short, they are most familiar with their department in term of practices and organizational performance results.

McDaniel and Gates (2005) asserted that addressing survey to appropriate respondents is vital due to the fact that the inappropriate respondents had been a source of inaccurate response in using the survey method. Although students do participate in the service delivery process such as in classroom, they do not involve during the quality procedure, process, training and development regarding QMPs. Based on these justifications,

perhaps, the administrative authorized personnel were the most representative respondents for this study.

3.7 POPULATION AND SAMPLE

Population is defined as the total of all the elements that share some common set of characteristics (Hair *et al*., 2007). This study focused on all administrative authorized personnel of academic and non-academic serving in all departments of Malaysian public universities. Specifically, the target population in this study was defined as all administrative authorized personnel (middle management) in various service grades ranging from 41-54 (Malaysian Remuneration Scheme) and classified as Management and Professional grade.

Furthermore, based on the given information from the official website for every university in February 2012, there were 813 existing departments in Malaysian public universities. The population for all departments in each university is tabulated in Table 3.2.

Table 3.2
Population Frame

Institution	Existing Departments
Universiti Malaya (UM)	52
Universiti Sains Malaysia (USM)	83
Universiti Kebangsaan Malaysia (UKM)	48
Universiti Putra Malaysia (UPM)	61

Universiti Teknologi Malaysia (UTM)	58
Universiti Islam Antarabangsa Malaysia (UIAM)	56
Universiti Malaysia Sarawak (UNIMAS)	35
Universiti Malaysia Sabah (UMS)	46
Universiti Teknologi MARA (UiTM*main campus)	49
Universiti Utara Malaysia (UUM)	46
Universiti Pendidikan Sultan Idris (UPSI)	36
Universiti Sains Islam Malaysia (USIM)	36
Universiti Malaysia Terengganu (UMT)	26

Table 3.2
Population Frame (continued)

Institution	**Existing Departments**
Universiti Tun Hussein Onn Malaysia (UTHM)	31
Universiti Teknikal Malaysia Melaka (UTeM)	21
Universiti Malaysia Pahang (UMP)	33
Universiti Malaysia Perlis (UniMAP)	24
Universiti Sultan Zainal Abidin (UniSZA)	34
Universiti Malaysia Kelantan (UMK)	15
Universiti Pertahanan Nasional Malaysia (UPNM)	23
Total population	813

Source: Developed by researcher based on information of every public university

3.7.1 Sample Size

A sample is a subset of the population that should represent that entire group Burns & Bush, 2003). By studying the sample, the researcher should be able to draw conclusions that would be generalizable to the population of interest (Sekaran, 2003). Determining sample size is critical due to costs as well as linear in the number of subjects (Cohen, 1988). Specifically, Davis (2000) elaborated that the determination of sample size depends on a number of factors including homogeneity of sampling unit, confidence, precision, statistical power, analytical procedure, cost, time and personnel. However, there has been considerable debate over what constitutes an acceptable sample size with no simple and definitive rule to define an appropriate sample size (Flynn & Pearcy, 2001). There are various suggestions for determining sample size.

For example, following Krejcie and Morgan (1970), no matter how large the population to be represented is, a sample size of 384 could be sufficient. A sample size larger than 30 and less than 500 are suitable for most studies following to the rules of thumb by Roscoe (1975).Other scholars like Gay and Airasian (2003) contend that when the population size is 5,000 and above, the sample size of 400 should be considered as sufficient.

Furthermore, a few scholars propose on the minimum sample size needed for SEM analysis. Hair *et al*. (2010) asserted that when testing a research model using SEM requires a large sample as small samples are less stable for estimation purposes. But,

there have been no agreement among scholars on the adequate number of sample size for SEM. For instance, Schumacker and Lomax (2004) proposed that a minimum sample size of 50 to 5000 is sufficient, whilst Medssker, Williams and Holahan (1994) suggested 100, and Hoelter (1983) considered 200.

On the other hand, Hair *et al*. (2006b) postulated that a researcher should consider about the data distribution, estimation technique, model complexity, missing data, and the amount of average error variance in deciding the sample size for SEM analysis. They further proposed that a sample between 150 and 400 is needed when the estimation is based on maximum likelihood. In short, the more complex models that involve with more variables and items require a larger sample size.

As derived from the discussion in this section, as suggested by Krejie and Morgan (1970) the sample size of at least 265 was considered as sufficient cases for this study. In addition, Sekaran and Bougie (2010) also proposed that in multivariate research, the parameter for sample size should be several times (preferably 10 times or more) as large as the number of variables in the study.

3.7.2 Sampling Procedure

Generally, calculation of sample size does not also necessarily result in representation of the population and it depends on the process used in the selection of the elements (Hair *et al*., 2007). A sample is drawn using either probability or nonprobability procedures.

Whether a probability or nonprobability approach is used, careful consideration of sampling technique issues is necessary in selecting the sample. Hair *et al.* (2007) maintained that probability sampling is typically used in quantitative research and this involves a selection of a representative sample from the population using a random procedure to ensure objectivity in selecting the sample. They added that the findings from the sample data can then be generalized to the population with a specific degree of accuracy. On the other hand, nonprobability is typically used in qualitative research and the findings from the sample can be used to describe, discover and develop theory, and may be used to generalize to the population this cannot be done with a specific degree of accuracy (Hair *et al*., 2007).

Therefore, a *proportionate random sampling* procedure was chosen in this study. The utilization of sampling method is the most appropriate because random sampling method figures heterogeneity among respondents to reduce the common survey bias (Jun *et al*., 2006). This sampling method also improves the representativeness of the sample by reducing sampling error (Chang *et al*., 2010).

In the sampling process, if the number of sampling units drawn from each university is in proportion to the relative population size of the university, the sample is proportionate sample (Zikmund, 2004). In this study, the percentage extracted from each university was 32.6 percent, based on the value of the desired sample in all universities divided by the total number of population (*i.e.* 265 divided by 813).

Furthermore, the target respondents were then selected based on a random sampling technique applied to choose the sample from each university. A single number was jotted down on each piece of paper measuring approximately 3cm X 3cm and randomly selected. The chosen number was matched to the name list provided by the particular university and the same process repeated to each university. This technique was utilized because each individual (*i.e.* department) in the population has an equal probability of being selected (Sekaran & Bougie, 2010). Leedy and Ormrod (2005) also emphasized that when a random sample is selected, the researcher can assume that the characteristics of the sample approximate the characteristics of the total population. The desired sample size for each university as shown in Table 3.3.

Table 3.3
Desired Sample Size of Each University

University	Population	Sample Size
Universiti Malaya (UM)	52	17
Universiti Sains Malaysia (USM)	83	27
Universiti Kebangsaan Malaysia (UKM)	48	17
Universiti Putra Malaysia (UPM)	61	20
Universiti Teknologi Malaysia (UTM)	58	18
Universiti Teknologi MARA (UiTM*main campus)	49	16
Universiti Islam Antarabangsa Malaysia (UIAM)	56	18
Universiti Malaysia Sabah (UMS)	46	15
Universiti Malaysia Sarawak (UNIMAS)	35	12
Universiti Utara Malaysia (UUM)	46	15
Universiti Pendidikan Sultan Idris (UPSI)	36	12
Universiti Tun Hussein Onn Malaysia (UTHM)	31	10
Universiti Teknikal Malaysia Melaka (UTeM)	21	6
Universiti Malaysia Perlis (UniMAP)	24	7
Universiti Malaysia Terengganu (UMT)	26	8
Universiti Malaysia Pahang (UMP)	33	10
Universiti Sains Islam Malaysia (USIM)	36	11
Universiti Sultan Zainal Abidin (UniSZA)	34	12
Universiti Malaysia Kelantan (UMK)	15	7
Universiti PertahananNasional Malaysia (UPNM)	23	7

Total	813	265

3.8 SURVEY PROCEDURES

The stage of data collection was started after the population size derived from the Ministry of Higher Education and every public university's website. Next, an application letters requesting permission to collect the data have been sent to Ministry of Higher Education, and all Malaysian public universities registrars' office. In order to gain the support, the respondents were given the assurance and guarantee of anonymity through two ways. First, the cover letter stated that the data is strictly for academic matters and the privacy of institutions and selected samples are protected. Second, in order to ensure the utmost privacy, the set of questionnaire were numbered for identification. This number has been used only for follow-up procedures (if applicable). Furthermore, the personal contact (coordinator) was limited to the appointed research assistants for each university. A timeframe of two weeks have been given to respondents to complete the questionnaire and follow up calls will be made to the coordinator.

Moreover, a major weakness of questionnaire survey is non-response bias, which may lead to a poor sample and affect both the reliability of the research and the types of data analysis (Emery & Cooper, 1991; Neuman, 1994). To overcome the challenges of a low response rate, two strategies have been implemented. First, in the cover letter clearly mentioned that for every returned questionnaire, RM 3.00 of donation will be given to the Maahad Tahfiz in Jitra, Kedah. Second, the coordinator has been paid RM 25.00 for each questionnaire in distribution and collection process.

3.9 SURVEY INSTRUMENT DESIGN

Beins (2004) maintained that the developing and designing a survey instrument is probably the most difficult stage of survey design. This study employed a questionnaire consisting of seven sections. Section A contains six dimensions of the measurement of QMPs. Section B constitutes of four dimensions measuring organizational performance. Section C measures human-oriented elements of satisfaction, whilst human-oriented elements of commitment and loyalty were covered in Section D and Section E.

However, most people like to describe their impression (Malhotra, 2004). To encourage employees in university to express their impression (comments, complaint, recommendations), Section F was placed after Section E. Zikmund and Babin (2007) proposed that the sensitive questions like personal information could potentially embarrass (cause to feel self-conscious) respondents. Placing these questions in an early part of the questionnaire may result in a lower response choice. Hence, the personal information questions were located in the last sections of the questionnaire.

Furthermore, Synodinos (2003) stated that in developing a good questionnaire format requires a good understanding on the issues of wording of the questions, the response choices, the instructions as well as the sequence of the questions. Malhotra (2004) also supported that the sequencing of questions is important and can affect the nature of the respondents' answer.

Therefore, the questionnaire has been arranged from one issue to another in a logical manner with questions focusing on completing the section before moving to the next section. As some respondents might have had little formal education, the questions and the instructions of the questionnaire used simple, clear, and unbiased wording.

3.9.1 Scale Design

A scale is a tool or mechanism by which individuals are distinguished as to how they differ from one another on the variables of interest to the study (Sekaran & Bougie, 2010). One important aspect that must be emphasized when designing a questionnaire is constructing a rating scale (Krosnick, 1999). Consequently, Krosnick (1999) also highly proposed that the optimal length of a rating scale was five to seven-point. Although the seven-point Likert scale allows greater discrimination and finer differences between people (De Vaus, 2002), this study applied the five-point Likert scale based on these three main reasons.

First, given that the questionnaires were in the form of statements on Likert-type scale, the optimal number of response categories in a rating scale should be used to reduce the error in scores obtained from self-reports survey. Cox (1980) reviewed 80 years of literature on the optimal number of response rating scale, and concluded that an odd rather than an even number of response point in a rating scale is preferable under circumstances in which the respondent can legitimately choose a neutral position (*i.e.* neither agree nor disagree, no opinion, or neutral). Five-point scale is found to be adequate for measuring the items in the case of subject-centred scales (Cox, 1980).

According to Cox (1980), subject-centered scales are composites of several items which have been chosen to position respondents along a scale representing a single attribute. Because the questionnaire of this study was made up of subject-centered scales, five-point response rating (interval scale) was appropriately used for all scales (excluding additional information and personal data sections).

Second, a recent empirical study by Dawes (2008) found that a 5-point scale may produce slightly higher mean scores relative to the highest possible attainable score, compared to those produced from a 7-point scale, and this difference was statistically significant.

Third, originally, Likert (1932) developed the Likert scale in 1932 with 5-point. He used it to identify the extent of a person's beliefs, attitudes, or feelings towards some object. The traditional Likert scale asks people the extent to which they agree or disagree with a statement on a 5-point scale. The scale ranges from "strongly agree" to "strongly disagree (Frey, Botan, Carl & Kreps, 2000). Based on these three main reasons, the 5-point Likert scale is selected.

3.10 VARIABLE MEASUREMENT

Generally, variable can be best defined as a symbol to which numerals or values are assigned (Kerlinger, 1986, p.27). In other words, a variable also is defined as anything that varies or changes in value (Zikmund, 1994, p.74). In addition, Sekaran (2003, p.87) also stated that a variable is anything that can take on differing or varying value.

Interestingly, variable that might go by the same name can take on different values (Salkind, 2006). Thus, the more precise that a variable is measure, the more useful the measurement is (Salkind, 2006). A measurement was made to facilitate adequacy, uniformity, comparison, consistency, accuracy and precision during the process of description and assessment of the concepts (Sarantakos, 2005). Thus, the measurement process involves specifying the variables that serve as proxies for the concepts (constructs) (Hair *et al*., 2007). Specifically, five variables were measured in this study: QMPs, human-oriented element (satisfaction), human-oriented element (commitment), human-oriented element (loyalty), and organizational performance. The details of the measurement items for these variables have been explained in the following subsections.

3.10.1 Quality Management Practices

Quality management practices (QMPs) was operationalized with six dimensions which reflects to leadership, strategic planning, customer focus, information analysis, human resource focus, and process management. The instrument of QMPs that used in this study was an adapted and modified items developed by a number of scholars such as Lau, Zhao and Xiao (2004), Sohail and Teo (2003), Terziovski (2006), and Zhang,Waszink and Wijngaard (2000).

These items were chosen based on two main justifications. First, these items reflect to the MBNQA criteria that have been decided as the basis of this study. Basically, the MBNQA criteria represent a comprehensive framework of seven dimensions that are used to evaluate an organizational performance namely leadership, strategic planning,

customer focus, information analysis, human resource focus, and process management, and business results Lau *et al*. 2004). However, this study used only six dimensions as proposed by Arumugam *et al.* (2009), Prajogo and Sohal (2003), and The *et al.* (2008) that MBNQA includes one dimension of organizational performance (business results) and six dimensions of QMPs. Second, these items also represent that the MBNQA criteria can be applied to service organization which was the focus of this study. Consequently, Knotts *et al*. (1993) and Summers (2003) maintained that MBNQA covers a variety of industries including education and present best framework for QMPs.

The dimension was measured by using 37 items (*see* Table 3.4). Specifically, the six QMPs dimensions was measured as a whole, likes of many prior scholars (*e.g.* Demirbag *et al*., 2006; Lam *et al*., 2012; Lee *et al*., 2010, Prajogo & Cooper, 2010). These items were anchored on a five-point Likert scale range from 1=strongly disagree to 5=strongly agree.

Table 3.4
Operationalization of Quality Management Practices Variable

Dimension	Items	Source(s)
Leadership	1. Top management actively participates in quality management and improvement process. 2. Top management strongly encourages department involvement in quality management and improvement activities. 3. Top management arranges adequate resources for employee education and training. 4. Top management empowers employees to solve quality problems. 5. Top management always emphasizes the importance of customer orientation. 6. Top management taken our service quality seriously. 7. Top management taken employees' feedback and surveys seriously.	Adapted from Lau *et al.* (2004), and Zhang *et al*. (2000)
Strategic Planning	1. Our department has a comprehensive and structured planning process which regularly sets and reviews short and long-term goals.	Adapted from Lau *et al.* (2004)

	2.	In defining quality planning, the university carefully considered our department capability.	
	3.	In defining quality planning, the university is not carefully considered the stakeholders (reverse).	
	4.	Every employee in our department shared the same mission about quality.	
	5.	Every employee in our department agrees with and supports our strategic objective and action plan.	
	6.	Our department has a clear strategic objective for our department.	
Customer Focus	1.	Our department collects extensive complaint information from customers in order to know their needs.	Adapted from Sohail and Teo (2003), Terziovski (2006), and Zhang *et al.* (2000)
	2.	Our department conducts a customer satisfaction survey every year.	
	3.	Our department has precise knowledge of customer needs.	
	4.	Our department is not taken any action on the satisfaction survey result (reverse).	
	5.	Our department considers customer requirements in designing new product and services.	
	6.	Customer complaints are used as a method to initiate improvements.	

Table 3.3
Operationalization of Quality Management Practices Variable (…continued)

Dimension		**Items**	**Source(s)**
Information Analysis	1.	Our department has access and information of data on quality.	Adapted from Terziovski (2006), and Zhang *et al.* (2000)
	2.	Quality related data is not displayed at our department (reverse).	
	3.	Quality related data is not used in our department's decision making (reverse).	
	4.	We have undertaken benchmarking of technology.	
	5.	We have undertaken benchmarking of customer service.	
	6.	We have undertaken benchmarking of other departments' service quality and procedures.	
Human Resource Focus	1.	Our department empowers our employees.	Adapted from Lau *et al.* (2004)
	2.	Our department has an transparent and effective appraisal system for recognizing and rewarding employees for their efforts.	
	3.	Our department stresses teamwork and team spirit.	
	4.	Our department motivates employees and fully develops their potential.	
	5.	Our department trains our employees in quality concepts, taking	

	care of their needs and developing their competencies. 6. Our department provides a safe and healthy work environment.	
Process Management	1. Our department's employees are encouraged to develop new and innovative ways for better performance. 2. Our department's employees understand respective role. 3. Our department has knowledge of lost customers and investigates reason. 4. Our department's has methods to measure the quality of our products and services. 5. Before applying a new delivery process, our department conducts comprehensive tests to assure its quality. 6. Our department shares our experiences in process improvement with other departments in this university.	Adapted from Lau *et al.* (2004), and Sohail and Teo (2003)

3.10.2 Human-Oriented Elements

As was discussed in Section 2.3 Chapter Two, the human-oriented elements construct has been conceptualized the three variables of satisfaction, commitment, and loyalty. The items used to measure these variables are discussed below.

3.10.2.1 Satisfaction

Satisfaction was operationalized in one variable of human-oriented elements. This dimension is computed items on dimensions as proposed by Gronroos (2001) namely, technical quality, functional quality, and image. The scale items for these dimensions were adapted from previous studies by Kong and Muthusamy (2011) with reference made to Joseph and Joseph (1998), Reeve (1994), Reilly and Oermann (1992), and Smith and Ennew (2001) that will be involved with 9 items.

A review of relevant literatures (*e.g.* Joseph & Joseph, 1998; Reeve, 1994; Reilly & Oermann, 1992; Smith & Ennew, 2001) clearly reflects and consistent with the items used by Kong and Muthusamy (2011) that is the most appropriate to measure satisfaction in this study. Their items show a high reliability score for all dimensions (technical quality=0.702; functional quality=0.900; image=0.763) in the Malaysian higher education institutions context. As such it may assume that Kong and Muthusamy's items could also provide high validity in the same context.

These items also anchored on a five-point Likert scale range from 1=strongly disagree to 5=strongly agree. Kong and Muthusamy (2011) also used a 5-point scale ranging from strongly disagree to strongly agree to measure satisfaction in their study.

Table 3.5
Operationalization of Satisfaction Variable

Dimension	**Items**	**Source**
Technical Quality	1. Our department give excellent education to the employees in term of skill acquired. 2. Our department give excellent social and cultural experience to our employees. 3. Our department make excellent personal contacts with employees for social and career purpose.	Adapted from Kong & Muthusamy (2011) with reference made to Joseph & Joseph (1998); Reeve (1994); Reilly & Oermann (1992); and Smith & Ennew (2001)
Functional Quality	1. Our department's staff have an excellent relationship with each other. 2. Our department has excellence facilities. 3. Organization between employee's works is not good in our department (reverse).	Adapted from Kong & Muthusamy (2011) with reference made to Joseph & Joseph (1998); Reeve (1994); Reilly & Oermann (1992); and Smith & Ennew (2001)
Image	1. Our department saw that our university is well-known	Adapted from Kong &

	in our country. 2. Our department saw that our university has a reputation for being an excellence academic institution. 3. Our department saw that our university has a reputation for being an excellence place to live and study.	Muthusamy (2011) with reference made to Joseph & Joseph (1998); Reeve (1994); Reilly & Oermann (1992); and Smith & Ennew(2001)

3.10.2.2 Commitment

Originally, Allen and Meyer (1990) developed three-component model namely; Affective Commitment Scale (ACS), Continuance Commitment Scale (CCS), and Normative Commitment Scale (NCS).

In this study, commitment has been treated as affective commitment and measured using 8 items scale from Affective Commitment Scale (ACS) that developed by Allen and Meyer (1990) based on two main reasons. First, the CCS measured as other variables such as loyalty and performance in this study. Second, the NCS not adapted as there have no consensus on the validity issue (Ko *et al*., 1997). In brief, the affective (behavioral) commitment stems from the effects of past behavior and action that over time bind employees to greater or lesser extent to an organization of action (Salancik, 1982). The items used in this study are based on five-point Likert scale range from 1=strongly disagree to 5=strongly agree. These items also scored on a five-point rating scale: (1) strongly disagree; (2) disagree; (3) neutral; (4) agree; and (5) strongly agree.

Table 3.6
Operationalization of Commitment Variable

Type	Items	Source(s)
Affective Commitment Scale	1. Every staffs in our department would be very happy to spend the rest of our career with this university. 2. Our department enjoys discussing about this university	Adapted from Allen & Meyer (1990)

with people outside it.
3. Our department really feels as if this university's problems are not our own (department) (reverse).
4. I think that university could easily move or close our department (reverse).
5. Our department feels like "part of the family" at this university.
6. Our department feels "emotionally attached" to this university.
7. This university has a great deal of personal meaning for our department.
8. Our department does not feel a strong sense of belonging to this university (reverse).

3.10.2.3 Loyalty

Consistent with previous scholars in loyalty literature such as Dick and Basu (1994), Oliver (1999), and Lee and Back (2009) that were classified the loyalty into three main approaches: behavioral, attitudinal and composite. This study employed the composite approach of loyalty in order to measure the loyalty variable. As asserted by (Oliver 1999) that by combining the approaches of attitude and behavior, the composite approach presents a more reliable and valid method of measuring loyalty. This approach is not only focused on the outcome of repeat "purchase" behavior amongst the employees, but also the consequences of an attitudinal process in their daily works.

The variable of loyalty in this study was operationalized as one variable of human-oriented elements variable. The items of this variable were adapted from previous works of scholars like Back and Parks (2003), Chitty *et al*. (2007), Han, Kwortnik and Wang (2008), Li and Petrick (2008), and Yu and Dean (2001). The 11 items that will be involved in this study also scored on a five-point rating scale: (1) strongly disagree; (2) disagree; (3) neutral; (4) agree; and (5) strongly agree.

Table 3.7
Operationalization of Loyalty Variable

Items	Source(s)
1. Our department always says positive things about the university. 2. Our department tends to recommend the university to someone else. 3. Our department always encourages friends to work/ study for the same university. 4. Our department will consider the same university as the first choice if pursues further study. 5. Our departments will complaint to other departments if experience problems (reverse). 6. Our departments will complaint to external agencies if experience problems (reverse). 7. Our department's staff tries to switch to another university if experience problems (reverse). 8. Our department's staff tries to switch to another department of the same university if experience problems (reverse). 9. Our department's staff will work in another university if it offers a better salary (reverse). 10. Our department's staff will continue the same work if not get promotion. 11. Our department's staff will pay the higher price for the benefits currently received.	Adapted from Back & Parks (2003); Chitty *et al*. (2007); Han *et al*. (2008); Li & Petrick (2008); Yu & Dean (2001)

3.10.3 Organizational Performance

The items for measuring organizational performance were adapted from previous scholars such as Chan (2004), Fuentes-Fuentes (2004), Kanji (2002), Kaplan and Norton (1992), Kaplan and Norton (1996), and Van de Ven and Ferry (1980). As determined in subsection 2.2.2.2 Chapter Two, the subjective (perceptual) measures have been employed rather than objective measure. The main reason of this selection is that the data of objective measure are unavailable or not formally published. The organizational performance was measured using 16 items and based on four dimensions that contemplate to financial, customer, internal process, and learning and growth. As proposed by Kaplan and Norton (1992), the four dimensions cover:

(a) *Financial*: encourages the identification of a few relevant high-level financial measures. In particular, it encourages choosing measures that helped inform the answer to the question "How do we look to shareholders?"

(b) *Customer*: encourages the identification of measures that answer the question "How do customers see us?"

(c) *Internal Processes*: encourages the identification of measures that answer the question "What must we excel at?"

(d) *Learning and Growth*: encourages the identification of measures that answer the question "How can we continue to improve and create value?" (Kaplan & Norton, 1992)

These items also scored on a five-point rating scale: (1) strongly disagree; (2) disagree; (3) neutral; (4) agree; and (5) strongly agree.

Table 3.8
Operationalization of Organizational Performance Variable

Dimension	Items	Source(s)
Financial	1. Our department having good budget management. 2. Operation in our department is not cost saving (reverse). 3. Our department decreasing in productivity (reverse). 4. Our department reduced unit cost of service delivered.	Adapted from Chan (2004); Kaplan & Norton (1992)
Customer	1. Our department having high community demand. 2. Our department emphasized on customer satisfaction. 3. Our department emphasized on timeliness of service delivered. 4. Our department maintains good reputation among our customers.	Adapted from Chan (2004); Fuentes-Fuentes (2004); Kanji (2002); Kaplan & Norton (1996)

Internal Process	1. Our department maintains the high level of motivation amongst employee. 2. Our department successful in implementing employee development programs (training). 3. Our department maintains high level of employee health and safety. 4. Our department having work climate support of obtaining department's objectives.	Adapted from Chan (2004); Fuentes-Fuentes (2004); Kanji (2002); Kaplan & Norton (1996); Weerakoon (1996)
Learning and Growth	1. Our department has successfully identified the emerging needs of customers/community. 2. Our department has taken a long time in introducing new service/product (reverse). 3. Our department utilizes latest technology for increasing effectiveness. 4. Our department has successfully developed procedure to improve quality of service/product offered.	Fuentes-Fuentes (2004); Kanji (2002); Kaplan & Norton (1996); Kaplan & Norton (1992)

3.11 PILOT STUDY

In brief, pilot study can best explained as the process of collecting data from the ultimate subject of the research project to serve as a guide for the larger study (Zikmund, 1994). A pilot study involves conducting a dry run of the survey on a small, representative set of respondents in order to reveal questionnaire errors before the survey is launched (Burns & Bush, 2003). Specifically, pilot study is necessary to make sure that the scales of questionnaire are good and the respondents understand the questions asked. It is very important that pilot study participants are in fact representative, that is, selected from the target population under study.

In order to determine if the questionnaire has to be improved or refined, there is little agreement in the literature pertaining to the pilot study sampling size. For example, Zatalman and Burger (1975) did not define clearly size, simply suggesting a small sample. Other scholars such as Long (1991) indicated that a sample range between 5-10

respondents is adequate, while Boyed, Westfall and Stasch (1977) proposed 20 respondents. In purpose to allow the running of proper statistical testing procedures, Lukas, Hair, Bush and Ortinau (2004) strongly emphasized on a size of 50 respondents. Moreover, Zikmund (1997) suggested that the data should be collected from about 100 respondents. Hence, based on the above-mentioned suggestions, this study aimed for a completion of at least 30 respondents. The pilot study process involved two phase:

First, three senior academicians at Universiti Utara Malaysia, those with immense experienced on research were approach in order to gain their opinions for the purpose to improve the content validity. The questionnaire was revised accordingly after this phase. Second, by using a convenience sampling technique, a total of 30 head of departments of Universiti Utara Malaysia, Sintok Kedah were participated as respondents. The questionnaires personally distributed and collected, that is ensuring a 100 percent response rate.

Furthermore, Table 3.9 performed that the internal reliability value ranging from 0.700 0.938. The reliability proposes that the indicator is enough for use in this study as cut-off value of 0.7 suggested by Nunally and Barstein (1994), and Sekaran and Bougie (2010).

Table 3.9
Reliability of Constructs for Pilot Study (n=30)

Variables	Cronbach's Alpha
Quality Management Practices	0.714
Human-Oriented Element (Satisfaction)	0.867
Human-Oriented Element (Commitment)	0.805
Human-Oriented Element (Loyalty)	0.700
Organizational Performance	0.873
All Variables	0.938

3.12 RELIABILITY AND VALIDITY

Reliability and validity are closely related concepts (Bollen, 1989). In short, a measure may be reliable but not accurate, and alternatively, a measure may be valid but not reliable (Holmes-Smith, Coote & Cunningham, 2006). Hair *et al*. (2010) insisted that the reliability differs from validity because reliability relates not to what should be measured, but instead to how it is measured. Sekaran (2010) asserted that an instrument is valid if the instrument measures what it supposed to measure, and reliable if the instrument is consistent and stable. Thus, in order to achieve for robust research, having a reliable and valid instrument is mandatory.

3.12.1 Reliability

Zikmund (1994, p. 288) defines reliability as the degree to which measures are free from random error and therefore yield consistent results. That means reliability refers to the extent to which a scale produces consistent results if repeated measurements are made on the variables of concern (Malhotra, 2003). Reliability and error are related, and thus the larger the reliability, the smaller the error (Punch, 1998). Therefore, the main objective of reliability is to minimize the errors and biases in a research (Yin, 1994).

Furthermore, the methods to assess reliability are divides into two groups (Hair *et al*., 2010, p.125). First is test-retest reliability where is an assessment of the degree of consistency between the responses for an individual at two different points in time. This method tries to ensure that responses are not too varied across time periods so that a measurement taken at any point in time is reliable. Second is known as internal consistency. In this method, a measurement scale is applied to the subjects at one point in time and individual items of the scale should all be inter-correlated (Peter, 1979). Internal consistency describes an estimation of reliability based on the average correlation among items within a test (*see more discussion in sub-section 3.12.1.2*).

3.12.1.1 Unidimensionality Analysis

As stated by Venkatraman (1989) that the unidimensionality ensures all items measure the underlying theoretical construct of interest, while reliability is an indication of the relationship between observed and true scores. It is a matter of empirical and logical necessity that the multiple items intended to measure an underlying construct be unidimensional because a set of items that is multidimensional cannot be treated in terms of a single value (Venkatraman, 1989).

Items within a measure are useful only to the extent they share a common criteria to be measured (Nunnally& Bernstein, 1994).It is highly difficult to represent the value of a scale by a solitary number without the concept of unidimensionality (Venkatraman, 1989). For unidimensionality checking, the use of structural equation modeling (SEM) allows using the indicator of comparative fit index (CFI). In brief, a measurement model

is specified for each construct and confirmatory factor analysis (CFA) is run for all the constructs. A comparative fit index (CFI) of 0.90 or above for the model implies that there is no proof of lack of unidimensionality (Byrne, 2010; Sureshchandar *et al*., 2001).

3.12.1.2 Reliability Analysis

This study applied the Cronbach's Alphas to test the reliability of the variables as this method is the most widely applied reliability in social science research. Peterson (1994) claimed that based on the Social Science Citation Index, the article of Cronbach (1951) has been referenced in over 2,200 articles in the last two decades.

Furthermore, this study involved an examination of coefficient alpha. Cortina (1993) maintained that the coefficient alpha is a function of internal consistency which is of interrelatedness of items. To assess reliability using coefficient alpha, previous scholars present several recommendations regarding the minimal value of acceptance reliability. For example, Nunally and Bernstein (1994) suggested that in the early stages of predictive or construct validation research, time and energy can be saved using instruments that have only modest reliability (*e.g.* 0.70). In other hand, Van de Ven and Ferry (1980) stated that the broad constructs were expected to obtain coefficient alpha ranging from 0.35 to 0.55.

Specifically, Murphy and Davidshofer (2005) proposed that the reliability estimates of 0.80 or greater are typically good regarded as moderate to high, and a reliability coefficient of 0.80 indicates that 20 percent of the variability in test scores is due to

measurement errors. Based on these suggestions, this research used alpha coefficient with a reliability threshold of 0.60 and greater. Hair *et al*. (2010) and Sekaran (2003) asserted that this value deemed the lower limit of acceptability.

3.12.1.3 Composite/Index Reliability

Basically, a multi-item instruments used to measure a single concept with several attributes are call composite or index measure (Zikmund, 1994, p. 288). Zikmund (1994, p. 288) also stressed that asking different questions in order to measure the same thing provides a more accurate cumulative measure than does a single-item estimate. For this justification, composite/index measure is important to show the internal consistency of the items analyzed using SEM.

To measure composite/index reliability using CFA, the approach proposed by Fornell and Larcker (1981) was adopted. They emphasized the importance of examining construct reliability (CR) and average variance extracted (AVE). In line with this suggestion, Holmes-Smith *et al.* (2006) also insists that CR measures the internal consistency of a set of measures rather than the reliability of a single variable to capture the degree to which a set of measures indicates the common latent construct. Consequently, a main advantage is that CR is based on estimates of model parameters and has wide applicability. Bagozzi and Yi (1988) proposed that the CR should be equal to or greater than 0.60, and AVE should be equal to or greater than 0.50 for composite/index reliability. Similarly, this study used the recommended desirable of 0.60 for the composite/index reliability test of above mentioned items.

3.12.2 Validity

Reliability alone is not sufficient to consider that an instrument is adequate (Churchill, 1979; Anderson and Gerbing, 1988; Dunn *et al*., 1994; Hair *et al*., 1995). Therefore, validity is required to validate the variables of this thesis. According to Zikmund (2003, p.331), validity means "the ability of a scale to measure what intended to be measured". Peter (1979) claimed that the validity can be best explained as the degree to which instrument measure the variables which they are intended to measure. Thus, this study employed the content, convergent and discriminant validity.

3.12.2.1 Content Validity

According to Sekaran and Bougie (2010), content validity is the extent to which a measure appears to measure what it is supposed to measure. Generally, it is a judgmental evaluation. A construct is considered to have content validity if the constructs had measurement items that cover all important aspects of the constructs being measured. In this regard, the exhaustive and comprehensive literature review was completed. Additionally, a thorough discussion with three senior academicians was done to construct questions for this study. Moreover, each question was also reviewed, evaluated, critiqued by head of departments during the pilot study. After having these, the items that used in this study were considered to have an acceptable content validity.

3.12.2.2 Convergent Validity

Hair *et al.* (2010) explained that the convergent validity is the degree to which multiple measures of a variable are correlated. On the other words, it is the ability of a scale to correlate with other scales that claim to measure the same construct (Schmidt & Hollensen, 2006). Convergent validity can be demonstrated through the magnitude of the relationship between the items and latent construct should be statistically different from zero (Byrne, 2010). Anderson and Gerbing (1988) proposed that a factor loading of 0.50 and above shows a strong convergent validity. Similarly, Sureshchander *et al*. (2001) also proposed that convergent validity can be examined using Bentler-Bonett coefficient and a value of 0.90 and greater indicates a strong convergent validity. Hence, this study proposed to examine the factor loading of the observable items of the measurement and Bentler-Bonett coefficient to confirm the convergent validity in this study.

3.12.2.3 Discriminant Validity

Hulland (1999) maintained that the discriminant analysis implies the measures of a given variable differ from those of another. In other words, Hayes (2008) postulated that discriminant validity assesses the degree to which two measurements can differentiate two constructs that are conceptually different, but related. Hair *et al.* (2010) suggested that the discriminant validity can be assessed through the analysis of correlations among measures. Consequently, when each correlation is less than 1.0 by an amount greater than twice its respective standard error, the discriminant validity is satisfied (Bagozzi & Warshaw, 1990).

Furthermore, the discriminant validity in this study will be assessed using the guideline proposed by Fornell and Larcker (1981). Their approach to assess discriminant validity by comparing the average variance extracted (AVE) for pair of constructs and the square of the correlation between those constructs. If AVE value is greater than the square correlation, the discriminant validity is acceptable.

In other words, the square root of the AVE from the variable should be greater than the correlation shared between that construct and others in the model. The justification of applying this approach is that it is considered as a better test compared to other approach (Hair *et al*., 2006b).

3.13 DATA ANALYSIS PROCEDURES

This section discusses the statistical procedures used to analyze the data for addressing the research objectives of this study. These steps involve from simple descriptive statistics to advanced structural equation modeling (SEM). The steps begin with the data analysis preparations, followed by examining the measurements and hypotheses testing.

3.13.1 Data Analysis Preparation

Aaker, Kumar, Day and Lawley (2005) emphasized that the statistical analysis is affected by how well the data was prepared and converted into an appropriate form for analysis. During this phase, the process of editing, coding, cleaning, and treating missing data were conducted by using Statistical Package for the Social Sciences (SPSS) Version 17 for

Windows. In this process, testing for normality (normal distribution), outliers, and multicollinierity (SEM assumptions) have been presented.

3.13.2 Factor Analysis

Factor analysis helps to reduce a vast number of variables (*i.e.* all the questions tapping several variables of interest in a questionnaire) to a meaningful, interpretable, and manageable set of factors (Sekaran, 2003). Hair *et al*. (1998) maintained that such method able to produce good separation of factors. Generally, there have two types of factor analysis: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (EFA). This study employed both types of these analyses.

3.13.2.1 Exploratory Factor Analysis (EFA)

Hair *et al*. (2010) explained that the EFA is used to explore the data and provide information about the number of factors needed to best represent the data. Initially, as was discussed in Chapter Two and Chapter Three, the items defining each study variables for this study were developed through the theoretical rationale from the previous scholars. An EFA conducted on the first half of the data after Kaiser-Meyer-Olkin (KMO) and Bartlett's test were satisfied. The KMO test measures sampling adequacy, an index of 50 percent or more indicates that the analysis is reliable (Coakes, Steed & Dzidic, 2006). The Bartlett's test of sphericity is the statistical test for overall significance of every correlation within a correlation matrix (Hair *et al*., 2010).

3.13.2.2 Confirmatory Factor Analysis (CFA)

The items identified from the EFA were confirmed with items identified by testing CFA using SEM (Hair *et al*., 2010). The CFA is most suitable applied to model that has been fully developed and their factors structure validated (Byrne, 2001). In other words, CFA is appropriately used when the researcher has some knowledge of the underlying latent variable structure (Byrne, 2010). Based on knowledge of the theory, empirical research, or both, he or she postulates relations between the observed measures and the underlying factors a priori and then tests this hypothesized structure statistically (Byrne, 2010). Although EFA provides some evidence of validity, CFA presents a range of fit indices to evaluate the fit of data set to theoretical model (Terblanche & Boshoff, 2008). For this reason, CFA applied in this study to test the significance of the hypotheses with the data collected.

3.13.3 Structural Equation Modeling (SEM)

Structural Equation Modeling (SEM) is a collection of statistical techniques that allow a set of relationships between one or more independent variables, either continuous or discrete, and one or more dependent variables, either continuous or discrete to be examined (Tabachnick & Fidell, 2001). There are several characteristics of SEM which support the utilization of SEM specifically to attain the research objectives in this study.

First, SEM integrates the strengths of multiple regression analysis, factor analysis and multivariate ANOVA (MANOVA) in one model that can be assessed statistically and simultaneously (Hair *et al*., 2010). Second, Hair *et al*. (2006a) maintained that the SEM has an ability to represent both observed and unobserved (latent) variables in the

relationships and able to correct for measurement error in the estimation process. Third, the hypothesized model can then be tested statistically in a simultaneous analysis of the entire system of variables to determine the extent to which it is consistent with the data (Byrne, 2010). Fourth, SEM allows directional predictions among a set of independent or a set of dependent variables as well as evaluates modeling of mediating effects (Hoyle & Smith, 1994). Fifth, Peyrot (1996) added that SEM can present an overall test of model fit and individual parameter estimate tests simultaneously.

Furthermore, SEM also offers the ability to examine assumptions for multivariate analysis such as the unidimensionality, reliability, and validity of a variable (Anderson & Gerbing 1988; Kline, 2005). Anderson and Gerbing (1988) consider SEM a comprehensive technique to assess and alter a theoretical model. SEM also can analyze all the paths in one analysis (Gefen, Straub & Boudreau, 2000; Peyrot, 1996). For these reasons, SEM utilized in this study to conduct CFA on the variables and also to test the hypotheses of interrelationships between these variables as proposed in the research objectives.

Consistent with Anderson and Gerbing (1988), this study employed the two-stage approach to test the hypotheses. Commonly, here are two widely used approaches in performing SEM: one-stage and two-stage. Kline (2005) explained that the one-stage approach purposes to process the analysis of both the measurement and structural models simultaneously. In the two-stage approach, the measurement model and structural model estimation are separated (Hair *et al.*, 2010). In this study, the two-stage approach

performed as compared to the one-stage approach, the two-stage approach avoids interaction that is unnecessary between constructs during testing of the structural model (Anderson & Gerbing, 1988).

Moreover, once reliability and validity test were satisfied, the second step was conducted by testing the structural model to test hypothesis 1 to 19. There are several packages of statistic that can run SEM (*e.g.* LISREL, PLS, AMOS). In this study, the application of SEM used SPSS 17.0 for Windows, and Analysis of Moment Structures (AMOS) 18.0.

3.13.4 SEM Assumptions

SEM involves testing the assumptions that require statistical procedures before testing the model. The first procedure involves with skewness, kurtosis and normal probability plot for assessing normality. In general, normality is the degree to which the data is normally distributed (Anderson & Gerbing, 1988). The data is considered as normal if it has a critical ratio of skewness and kurtosis between the range of + 2.58 (significant level at p=0.01) and between + 1.96 (significant level at p=0.05) (Hair *et al*., 2010).

The second procedure is Mahalanobis distance for checking outliers. Outlier is an observation with an extreme value (Hair *et al*., 2010).The outlier might have very high or very low scores and could result in non-normality of the data and distorted statistics (Hair *et al*., 2006b; Tabachnick & Fidell, 1989). The cut-off value of p1 and p2 less than 0.05 of Mahalanobis distance test applied as suggested by Kline (2005) to check the existence of outliers in this study.

The last procedure is Variance Inflation Factor (VIF) for checking multicollienerity. Following to Aaker *et al*. (2005), multicollinerity represent the correlations among predictor variables. In other hand, multicollinerity is a problem related to a correlation matrix when variables are highly correlated (Tabacnick & Fidel, 2001). Hair *et al.* (2010) maintained that a small determinant indicates the existence of multicollinierity. In brief, it is important to examine the score of correlation matrix in this study. If the *r*-value between each pair of variables in correlation matrix exceed certain value (*i.e.* 0.90) that may result in multicollinerity.

Moreover, these three statistical procedures should be involved to test the assumptions before the estimation using the maximum likelihood (ML) technique can be conducted (Ferdinand, 2006). Breckler (1990) reported that the most studies over the past 15 years that using Likert scale data were analyzed with ML technique. As agreed by a number of scholars (*e.g*. *Hair et al*., 2010; Kline, 2005; Savelei, 2008) that ML is the most widely employed estimation technique in SEM programs. Thus, this study used ML technique for the purpose of estimation technique in SEM assumptions.

3.13.5 Measures of Goodness-of-Fit

The goodness-of-fit testing involves evaluating how well the data fit the model. As proposed by Hair *et al.* (2006) and Ferdinand (2006), this study used absolute fit indices, incremental fit indices, and parsimony goodness-of-fit index.

3.13.5.1 Absolute Fit Indices

Hu and Bentler (1998) maintained that an absolute fit index is a direct measure used to assess the fitness of model. This index also provides the most basic evaluation of how well the model specified by the scholar reproduces the sample data (Hair *et al*., 2010). This study applied the Normed Chi-square (NC), the Goodness-of-Fit Index (GFI) and the Root Mean Square Error of Approximation (RMSEA).

The NC (χ^2/df) is the most popular index to evaluate the appropriateness of the model (Hair *et al*., 2006b). The range of acceptable values for the normed chi-square is less than 3.0 (Ferdinand, 2006), whilst other scholars (*e.g.* Mak & Sockel, 2001; Schumacker & Lomax, 2004) suggest that a value of five or less considered a reasonable fit.

Byrne (2010) stated that the GFI measures the relative amount of variance and covariance explained by the model. The possible GFI value index more than 0.90 is an indication that the model is fit (Ferdinand, 2006), whilst Forza & Filippini (1998) asserted that a model is consider good with a higher value of 0.80.

The RMSEA index has increasingly been recognized as one of the most informative criteria in covariance structural modeling (Byrne, 2010). The RMSEA is a "badness-of-fit" index, in which a zero value indicates the best fit and greater values represent to worse fit. Brown and Cudeck (1993) suggested a value of 0.05 or less a close approximate fit, a value of 0.08 or less indicates a reasonable error of approximation and a value more than 0.10 is a poor fit. Other scholars (*e.g.* Byrne, 2010; Hair *et al*. 2010)

have proposed a value of less than 0.05, while Schumacker and Lomax (2004) suggested that a value of up to 0.08 is a still acceptable fit.

3.13.5.2 Incremental Fit Indices

Hair *et al.* (2006) and Hu and Bentler (1998) explained that the incremental fit index evaluates how well a specified model fits relative to alternative baseline models or between the proposed model and the null model. This study applied the Normed Fit Index (NFI), Comparative Fit Index (CFI), and Tucker Lewis Index (TLI) used in the assessment of research models.

The NFI refers a ratio of the difference in the χ^2 value for the fitted model and a null model divided by the χ^2 (Bentler & Bonett, 1980). As suggested by Forza and Filippini (1998), a value greater than 0.80 for NSI presents a good fit.

The CFI is a comparison between the covariance matrix predicted by the model and the observed covariance matrix (Bentler, 1990). Hair *et al.* (2010) and Byrne (2010) suggested that the CFI value less than 0.90 is not consider an acceptable level of fit.

The TLI was found as the only popular used index that was relatively independent of sample size on over 30 indices in a simulation research by March, Balla and McDonald (1988). Practically, as proposed by Vandenberg and Scarpello (1994), a value of 0.90 and above for TLI is an acceptable value of well-fitting model.

3.13.5.3 Parsimonious Fit Index

The Parsimony Goodness-of-Fit Index (PGFI) was introduced by James, Mulaik and Brett (1982) to cover the issue of parsimony in SEM (Byrne, 2010). Hair *et al*. (2010) maintained that PGFI is designed to test which model among a set of competing models is the best. This index proposes that values larger than 0.60 are generally considered as a satisfying fit (Blunch, 2008), while others (*e.g.* Ferdinand, 2006; Byrne, 2010) conceive that a value greater than 0.50 is still considered as acceptable fit.

The summary Goodness-of-Fit testing that involved in this study as shown in Table 3.10 below:

Table 3.10
Goodness-of-Fit Testing

Goodness-of-Fit Indices	Criteria	Reference
Absolute Fit Indices		
Normed Chi-square (NC)	Value of five or less proposes an acceptable fit	Mak&Sockel (2001), Schumacker& Lomax (2004)
Goodness-of-Fit Index (GFI)	Value 0.80 and greater proposes a good fit	Forza&Filippini (1998)
Root Mean Square Error of Approximation (RMSEA)	Value between 0.80 and 0.10 proposes a fair fit Value 0.05 or less proposes a close approximate fit Value of up to 0.08 is a still an acceptable fit	Brown &Cudeck (1993) Byrne (2010), Hair *et al*. 2010) Schumacker& Lomax (2004)

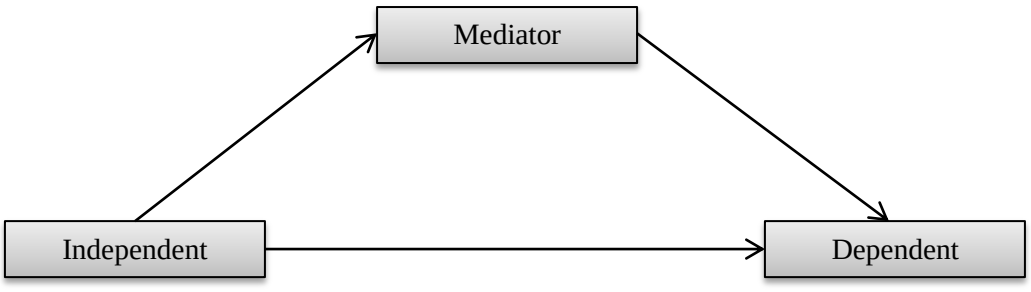
Table 3.10
Goodness-of-Fit Testing (continued)

Goodness-of-Fit Indices	Criteria	Reference
Incremental Fit Indices		
Normed Fit Index (NFI)	Value greater than 0.80 proposes a good fit	Forza&Filippini (1998)
Comparative Fit Index (CFI)	Value greater than 0.90 considers an acceptable fit	Hair *et al.* (2010), Byrne (2010)
Tucker Lewis Index (TLI)	Value of 0.90 and greater is an acceptable fit	Vandenberg and Scarpello (1994)
Parsimonious Fit Index		

Parsimony Goodness-of-Fit Index (PGFI)	Values greater than 0.60 are generally considered as a satisfying fit	(Blunch, 2008)
	Value greater than 0.50 is still considered as acceptable fit	Ferdinand (2006), Byrne (2010)

3.13.6 The Possible Mediation Effects Test

A number of hypothesis such as 11 to 19 propose the possible mediation effect of a particular variable on the relationship between two variables. This study adapted the Three-Variable Non-recursive Causal Model developed by Baron and Kenny (1986) and Preacher and Hayes (2004). These scholars emphasized that in order to establish the mediation effects, three conditions must be hold as the main principles (Figure 3.4). First, the independent variable must affect the mediating variable in the first equation. Second, the mediating variable must affect the dependent variable in the second equation. Lastly, the independent variable must be shown to affect the dependent variable in the third equation (Baron & Kenny, 1986; Preacher & Hayes, 2004).



Source: Baron & Kenny (1986); Preacher & Hayes (2004)

Figure 3.4

Three-Variable Non-recursive Causal Model

To conclude Section 3.11, Figure 3.5 illustrates the stages in data analysis that applied in this study.

Stage 1: Data Analysis Preparations	To cover practical issues of missing data, assessing SEM assumptions, and analyzing descriptive statistics.
Stage 2: Factor Analysis Tests (EFA & CFA)	To purify QMPs, organizational performance, satisfaction, commitment, and loyalty measurements.
Stage 3: SEM Tests	
a. QMPs and organizational performance.	Testing Hypothesis 1.
b. QMPs and human-oriented elements	Testing Hypothesis 2,3,4
c. Human-oriented elements and organizational performance	Testing Hypothesis 5,6,7
d. Interrelationship among human-oriented elements	Testing Hypothesis 8,9,10
e. Possible Mediation Effects	Testing Hypothesis 11,12,13,14,15,16,17,18,19

Figure 3.5
Data Analysis Stages

3.14 CHAPTER SUMMARY

This chapter discussed the main issues regarding the research methodology that applied in this study. The hypotheses/propositions development, theoretical framework and research design were reviewed, specifically relating to the justification of using personal-administered questionnaire for the data collection. Next, the discussions on unit of analysis, respondents, population and sample, survey procedures and the questionnaire

design as a tool for collecting data. Following this discussion was a review of the variables measurement and pilot study. The analysis procedures and statistical data analyses used to test the hypotheses were also explained and justified.

CHAPTER FOUR

DATA ANALYSIS AND RESULTS

4.1 INTRODUCTION

This chapter focuses on the analysis output based on research objectives in Chapter One and presents the empirical results to test the research hypotheses developed in Chapter Three. This chapter consists of sixteen main sections. Following the introduction, the response rate and non-response bias assessment were explained in section two and section three. The fourth section examined the data screening. Here, procedures used to purify the data such as missing data treatment. The next section provides how the respondents were distributed according to the demographic variables. The study describes the main dimensions of this study using the descriptive statistics in section six. Section seven focused on the multivariate assumption and justification of choosing the Partial Least Squares (PLS-SEM) approach. The multivariate assumption and justification applying Partial Least Squares-SEM was presented in section eight. Section nine described the two-step process in reporting the PLS-SEM, whilst section ten explained examination of outer measurement model as a prerequisite for the inner structural model assessment and hypotheses testing. Following section ten is the assessment of first order and second order constructs. Having done this, the process was to examine the quality of the structural model once the construct validity was established. The goodness of fit on the overall model assessment was performed in section thirteen. Then, the structural model (inner model) and testing procedures assessment were described in section fourteen. The results of mediating effect of the Human-oriented

Elements were performed in section fifteen. Finally, a short chapter summary concludes this chapter and results of hypotheses testing are summarized in section sixteen.

4.2 RESPONSE RATE

As was discussed in the Chapter Three (Section 3.5), the data used in this study was gathered from an authorized administrative officer at twenty public universities in Malaysia. Data collection started in August 2012 and finished in November 2012. A total of twenty public universities participated in this study. Having respondents from all public universities was significant to assure that the sample was representative of the population. The study carried was distributed to four hundreds and seven (407) an authorized administrative officers in participant universities. Of the 407 questionnaires distributed, 257 (63.1%) were returned.

However, from the 257 questionnaires, six cases were rejected as a result of incomplete data and therefore giving the final valid response is 251 (61. 7%). The response rate for this study is believed appropriate based on three main reasons. First, it is nearly similar to the study by Abdul Shukor (2013) which has reported a response rate of 65%. Although this response rate is lower than a study by Teong (2003) which as reported 86%, the percentage is relatively better than a study by Rozhan, Rohayu and Rasidah (2001) that reported 25%. Second, the total number of usable questionnaires was considered sufficient to represent the population and to conduct SEM analysis (Hair *et al*., 2010; Kline, 2011), which is used in this study. Third, Sekaran and Bougie (2010) asserted that 30% response rate is considered acceptable for mail questionnaires. Thus,

251 usable respondents were taken for further analysis in this study. Table 4.1 shows the distribution and response rate of respondent by each university.

Table 4.1
Distribution and Response Rate of Respondent by Each University

University	Distributed	Return and usable	Response Rate
1. Universiti Malaya (UM)	24	16	66.7
2. UniversitiSains Malaysia (USM)	34	25	73.5
3. UniversitiKebangsaan Malaysia (UKM)	24	17	70.8
4. Universiti Putra Malaysia (UPM)	27	18	66.7
5. UniversitiTeknologi Malaysia (UTM)	25	18	72.0
6. UniversitiTeknologi MARA (UiTM*main campus)	23	15	65.2
7. Universiti Islam Antarabangsa Malaysia (UIAM)	25	18	72.0
8. Universiti Malaysia Sabah (UMS)	21	14	66.7
9. Universiti Malaysia Sarawak (UNIMAS)	19	12	63.2
10. Universiti Utara Malaysia (UUM)	20	16	80.0
11. UniversitiPendidikan Sultan Idris (UPSI)	19	11	57.9
12. UniversitiTun Hussein Onn Malaysia (UTHM)	17	8	47.1
13. UniversitiTeknikal Malaysia Melaka (UTeM)	15	5	33.3
14. Universiti Malaysia Perlis (UniMAP)	10	7	70.0
15. Universiti Malaysia Terengganu (UMT)	15	7	46.7
16. Universiti Malaysia Pahang (UMP)	17	9	52.9
17. UniversitiSains Islam Malaysia (USIM)	18	10	55.6
18. Universiti Sultan ZainalAbidin (UniSZA)	20	11	55.0
19. Universiti Malaysia Kelantan (UMK)	14	7	50.0
20. UniversitiPertahananNasional Malaysia (UPNM)	20	7	35.0
Total	407	251	61.7

4.3 NON-RESPONSE BIAS ASSESSMENT

The non-response bias pertains to the prejudice that occurs when respondents' responses to the survey are different from those who did not respond due to diverse demographic factors such as gender, age, educational level (Sax, Gilmartin & Bryant, 2003). Chang

and Lee (2007) maintained that the non-response bias conducted to ensure the similarity on some of the main criteria among the participants and total population. The respondents who respond late had similar criteria to non-respondents (Armstrong & Overton, 1977). As proposed by Armstrong and Overton (1977), the responding basic data were separated into two period of time; early response (returns received within two weeks after distribution), and late response (those returns received after two weeks of distribution).
In this study, fifty seven respondents were classified as late responds. The late respondents' response were compared to the responses of the early response (193) on all dimensions of quality management practices (leadership, strategic planning, customer focus, information analysis, human resource focus, process management), human-oriented element of satisfaction dimensions (technical, functional, image), human-oriented element of commitment, human-oriented element of loyalty, and organizational performance (financial, customer, internal process, learning and growth).

As suggested by Chang and Lee (2007) and Pallant (2007), this study employed the independent sample *t*-test analysis to test whether it is a non-response bias exists between the early and late response. Table 4.2 and Table 4.3 provide the results of the independent sample *t*-test.

Table 4.2 shows that there were only small differences of the mean score between the two groups (early and late response) of each dimension. Therefore, it can be indicated that the respondents from this two groups were free from data bias, as also supported by Levene's test for equality of variance in Table 4.3.

Table 4.2

Group Statistics of Independent Sample t-test (n=251)

Dimension	Response Bias	N	Mean	Std. Deviation	Std. Error Mean
Leadership	Early Response	193	4.07	0.47	0.03
	Late Response	57	4.17	0.49	0.06
Strategic Planning	Early Response	193	3.94	0.56	0.40
	Late Response	57	3.90	0.60	0.08
Customer Focus	Early Response	193	3.89	0.51	0.04
	Late Response	57	3.72	0.63	0.08
Information Analysis	Early Response	193	3.76	0.57	0.04
	Late Response	57	3.69	0.63	0.08
Human Resource Focus	Early Response	193	3.79	0.68	0.05
	Late Response	57	3.79	0.65	0.09
Process Management	Early Response	193	3.80	0.55	0.04
	Late Response	57	3.65	0.68	0.09
Technical Quality	Early Response	193	3.90	0.64	0.05
	Late Response	57	3.82	0.69	0.09
Functional Quality	Early Response	193	3.80	0.60	0.04
	Late Response	57	3.82	0.73	0.10
Image	Early Response	193	4.00	0.67	0.05
	Late Response	57	3.83	0.68	0.09
Commitment	Early Response	193	4.08	0.52	0.04
	Late Response	57	4.04	0.56	0.07
Loyalty	Early Response	193	3.91	0.55	0.04
	Late Response	57	3.90	0.66	0.09
Financial	Early Response	193	3.54	0.64	0.05
	Late Response	57	3.70	0.81	0.11
Customer	Early Response	193	4.03	0.51	0.04
	Late Response	57	4.03	0.70	0.09
Internal Process	Early Response	193	3.97	0.65	0.05
	Late Response	57	3.94	0.62	0.08
Learning and Growth	Early Response	193	3.89	0.62	0.04
	Late Response	57	3.92	0.62	0.08

The result in Table 4.3 suggested that there were no significant differences between early and late response across all the dimensions (*p*-value at the 0.05 significance level). Pallant (2007) maintained that the significance level of the Levene's test is greater than 0.05 ($p \geq 0.05$), the equal variances assumption between the early and late response has not been treated irrelevantly. Hence, it can be concluded that the samples obtained are able to represent the total population of the study (Armstrong & Overton, 1977).

Table 4.3
Independent Sample t-test Results for Non-Response Bias (n=251)

	Levene's Test for Equality of Variances	
Dimension	**F Value**	**Significance**
Leadership	2.136	0.145
Strategic Planning	0.892	0.346
Customer Focus	3.318	0.070
Information Analysis	1.178	0.279
Human Resource Focus	1.066	0.303
Process Management	1.968	0.162
Technical Quality	0.636	0.426
Functional Quality	1.545	0.215
Image	0.335	0.563
Commitment	0.960	0.328
Loyalty	3.027	0.083
Financial	3.989	0.057
Customer	6.947	0.090
Internal Process	0.181	0.671
Learning and Growth	0.054	0.817

4.4 DATA SCREENING- MISSING DATA TREATMENT

Coakes (2006) advocates that the screening of data is useful to ensure that data have been correctly entered and that the distribution of variables are normal. The quality of analysis is influenced by how well the data is organized and converted into a form suitable for analysis (Aaker *et al*., 2005). At this stage, data screening was carried to assess missing data.

Missing data is a common situation during the survey process (Hair *et al*., 2010; Coakes, 2006). It occurs to the fact that a respondent not answered all question in the questionnaire survey. Sekaran and Bougie (2010) stated that the missing data occurred when the respondents did not understand the question, did not know the right answer for the question, or were not willing to answer the question.

On the other hand, it is very crucial in SEM analysis because the statistical analysis techniques of the data cannot be operated if there is any missing data (Schumacker & Lomax, 2004). In line with this, Lee and Lomax (2005) added that the estimations process using maximum likelihood cannot be carried-out with missing data. Thus, this study needed to identify and manage the missing data in the right way.

Four ways have been recommended by Hair *et al*. (2010) to evaluate the degree to which there are missing data. The first can be classified as *ignored* when a respondent fail to answer equal or less than ten percent of the all questions in the survey conducted. Second, missing data status is classified as *candidates for deletion* if achieved fifteen

percent. Third, the researcher can be *replacing missing values with mean or median by SPSS* if the respondent unable to answer 20-30%. Lastly, Hair *et al*., (2010) suggested a simple remedy, that is, to *exclude* the cases with missing data from the analysis if they are not answered equal to or more than 50% of the total questions.

In this case, as recommended by Hair *et al.* (2010), 6 cases of respondents' answers (6, 32, 35, 112, 156, and 179) were excluded because the respondents did not answer more than 50% of the 86 questions (*see* Table 4.4). In this regard, this study examined a total of 251 questionnaire were used for further analysis.

Table 4.4
Missing Data by Cases (Total Questions=86)

Case ID	Count	Percentage
6	52	60
32	57	66
35	46	53
112	46	53
156	56	64
179	49	56

4.5 PROFILE OF RESPONDENTS

Profile of respondents is important information to provide explanations of the research findings. This section consist the respondent's profile of university, department sector, working experience, number of years in the present university, number of years in the present position, and estimate number of employees in the present department.

The number of respondents were 16 (6.4%) from UM and UUM, USM 25 (10.0%), UKM 17 (6.8%), UPM, UTM and UIAM 18 (7.2%), UiTM main campus 15 (6.0%), UMS 14 (5.6), UNIMAS 12 (4.8%), UPSI and UniSZA 11 (4.4%), UTHM 8 (3.2%), UTeM 5 (2.0%), UniMAP, UMT, UMK and UPNM 7 (2.8%), UMP 9 (3.6%), and USIM 10 (4%). The respondents nearly equal in term of department sector which as 135 (55%) from academic and 113 (45%) from non-academic.

It was recorded the respondents' working experience served for 1 to 5 years is 7 (2.8%), served for 6 to 10 years 29 (11.6%), served for 11 to 15 years 70 (27.9%), served for 16 to 20 years 46 (18.3%), served for 21 to 25 years 60 (23.9%), served for 26 to 30 years 25 (10.0%), and 14 (5.6%) were served for more than 30 years. In term of number of years in the present university, most of the respondents served the same university within 6 to 10 years 78 (31.1%), followed by less than 5 years 57 (22.7%), 11 to 15 years 47 (18.7%), 21 to 25 years 35 is 9 (13.9%), 16 to 20 years 22 (8.8%), 26 to 30 years 8 (3.2%), and 31 years and above is 4 (1.6%).

Interestingly, in term of number of years in the present position shows that the 29 respondents (11.6%) hold the administrative position less than one year, 182 (72.5%) one to five years, 33 (13.1%) six to ten years, 6 (2.4%) eleven to fifteen years, and 1 (0.4%) sixteen to twenty years. A majority of respondents reported that their department has 1 to 25 employees 93 (37.1%), 26 to 50 employees 50 (19.9%), 51 to 100 employees 36 (14.3%), and 101 employees and above 72 (28.7%). The details profile of respondents is demonstrated in Table 4.5.

Table 4.5
Profile of Respondents

Respondent's Profile		**Frequency**	**Percent (100%)**
University	Universiti Malaya (UM)	16	6.4
	UniversitiSains Malaysia (USM)	25	10.0
	UniversitiKebangsaan Malaysia (UKM)	17	6.8
	Universiti Putra Malaysia (UPM)	18	7.2
	UniversitiTeknologi Malaysia (UTM)	18	7.2
	UniversitiTeknologi MARA (UiTM*main campus)	15	6.0
	Universiti Islam Antarabangsa Malaysia (UIAM)	18	7.2
	Universiti Malaysia Sabah (UMS)	14	5.6
	Universiti Malaysia Sarawak (UNIMAS)	12	4.8
	Universiti Utara Malaysia (UUM)	16	6.4
	UniversitiPendidikan Sultan Idris (UPSI)	11	4.4
	UniversitiTun Hussein Onn Malaysia (UTHM)	8	3.2
	UniversitiTeknikal Malaysia Melaka (UTeM)	5	2.0
	Universiti Malaysia Perlis (UniMAP)	7	2.8
	Universiti Malaysia Terengganu (UMT)	7	2.8
	Universiti Malaysia Pahang (UMP)	9	3.6
	UniversitiSains Islam Malaysia (USIM)	10	4.0
	Universiti Sultan ZainalAbidin (UniSZA)	11	4.4
	Universiti Malaysia Kelantan (UMK)	7	2.8
	UniversitiPertahananNasional Malaysia (UPNM)	7	2.8
Department Sector	Academic	138	55.0
	Non-academic	113	45.0
Working Experience	1-5 years	7	2.8
	6-10 years	29	11.6
	11-15 years	70	27.9
	16-20 years	46	18.3
	21-25 years	60	23.9
	26-30 years	25	10.0
	31 years and above	14	5.6
Number of Years in the Present University	0-5 years	57	22.7
	6-10 years	78	31.1
	11-15 years	47	18.7
	16-20 years	22	8.8
	21-25 years	35	13.9

	26-30 years	8	3.2
	31 years and above	4	1.6
Number of Years in the Present Position	Less than 1 year	29	11.6
	1-5 years	182	72.5
	6-10 years	33	13.1
	11-15 years	6	2.4
	16-20 years	1	0.4
Estimate Number of Employees in the Present Department	1-25 employees	93	37.1
	26-50 employees	50	19.9
	51-100 employees	36	14.3
	101 employees and above	72	28.7

4.6 DESCRIPTIVE ANALYSIS

Sekaran and Bougie (2010) maintained that the descriptive statistics of the dimensions through mean, standard deviation, and variance can give the researcher a detailed idea of how the respondents in the study have responded to the questions in the questionnaire. Consequently, a descriptive analysis was conducted to describe and summarize the main characteristics of a data set from the respondents' perspective on every dimension of Quality Management Practices, Human-oriented Elements, and Organizational Performance.

Table 4.6 presents the results of descriptive statistics of the dimensions. All dimensions have the mean above the average ranged from 3.579 to 4.095 and the standard deviation ranged from 0.474 to 0.685. The minimum and maximum responses on the dimensions are also presented in Table 4.6. As a result, it found that on the basis of respondents' opinions the Quality Management Practices, Human-oriented Elements, and Organizational Performance are above the acceptance level of implementation. In other words, all dimensions are above satisfactory level.

Table 4.6
Descriptive Statistics of the Dimensions

Dimension	Mean	Std. Deviation	Minimum	Maximum
Leadership	4.095	0.474	2.3	5.0
Strategic Planning	3.938	0.566	2.0	5.0
Customer Focus	3.852	0.544	2.4	5.0
Information Analysis	3.749	0.589	2.0	5.0
Human Resource Focus	3.789	0.676	1.9	5.0
Process Management	3.764	0.585	1.7	5.0
Technical Quality	3.876	0.652	1.0	5.0
Functional Quality	3.810	0.633	1.0	5.0
Image	3.963	0.673	1.0	5.0
Commitment	4.068	0.524	2.0	5.0
Loyalty	3.908	0.574	2.0	5.0
Financial	3.579	0.685	1.0	5.0
Customer	4.033	0.557	2.1	5.0
Internal Process	3.965	0.641	1.0	5.0
Learning and Growth	3.898	0.614	1.7	5.0

**Five-points scale: 1=strongly disagree; 5=strongly agree*

4.7 MULTIVARIATE ASSUMPTION AND JUSTIFICATION APPLYING PARTIAL LEAST SQUARE- SEM

As discussed in Chapter Three Section 3.11, structural equation modeling (SEM) is used to test the hypotheses emerging from the theoretical framework. SEM provides the ability to perform path described as a second generation multivariate technique (Fornell & Bookstein, 1982). Chin (1998) maintained that SEM provides more flexibility for the interplay of theory and data. Furthermore, the two best known approaches are the covariance-based (*e.g.* LISREL and AMOS), and variance-based (Partial Least Squares). One approach is not superior to the other. Alternatively, the most appropriate approach should be selected based on the researcher objectives and also the nature of the data.

Analysis of the data in this study was started with AMOS as a covariance-based SEM approach. This approach attempts to estimate population parameters by attempting to find a covariance matrix that closely matches the actual covariance matrix represented by the data (Hair *et al*., 2010). It requires a sample size is large enough (Hair *et al*., 2010), and multivariate normally data distributed as maximum likelihood estimation method on which the AMOS analysis is built (Byrne, 2010). The maximum likelihood estimator is

considered relatively robust to violations of normality (Bollen, 1989; Diamantopolous & Siguaw, 2006).

At the first step of multivariate analysis, AMOS software version 18.0 was used to operate the data in order to examine the univariate and multivariate normality. Table 4.7 presents that the absolute value of critical ratio for the skewness and kurtosis statistics for many items were less than the cutoff values of within 3.0 (skewness) and within 10.0 (kurtosis) as suggested by Kline (2011). Tabachnick and Fidell (2001) also proposed that the skewness values are within 2.0 and the kurtosis values are within 7.0. These test indicated that the data in this study were not normally distributed.

In addition, this study detected a significant multivariate non-normality by Mardia's test. The normalized Mardia's coefficient (*see* Table 4.7) indicated a value of 606.655 (the critical ratio of which is 41.443), clearly above the cutoff point of 5.00 as suggested by Bentler (2005). Consequently, data associated with a value of Mardia's normalized multivariate kurtosis greater than 5.0 could produce inaccurate results when used with Maximum Likelihood Estimation (MLE) (Bentler, 2005). In short, the normalized estimate of Mardia's coefficient of multivariate kurtosis indicated significant non-normality in the data.

Although the use of SEM has become increasingly popular, several scholars on SEM methods (*e.g.* Curran, West & Finch, 1996; Lei & Lomax, 2005) have accounted that the studies documented in the literature are usually performed without the acknowledgement of the normality assumption, neither is information on the extent of the non-normality provided. Interestingly, one major source of inappropriate usage of SEM has been the failure of scholars to satisfy the normality assumption upon which estimation and testing are based (West, Finch & Curran, 1995). Moreover, several scholars (*e.g.* Bentler & Chou, 1987; Barnes, Cudeck, Cote & Malthouse, 2001) have explained that it is common situation the data in social sciences is non-normal distribution. Thus, this study applied the PLS approach for its distribution free statistical modeling technique (Chin & Newsted, 1999), over the covariance approach that able to handle the non-normal data and test for the hypothesized relationships.

Table 4.7
Univariate and Multivariate Normality Test

Items	Max	Min	Skewness	Critical Ratio	Kurtosis	Critical Ratio
QL1	2	5	-0.558	-3.609	1.703	5.506
QL2	1	5	-0.884	-5.718	3.061	9.899
QL3	1	5	0.292	1.892	-0.953	-3.083
QL4	2	5	-0.529	-3.420	0.511	1.651
QL5	2	5	-0.663	-4.290	1.050	3.396
QL6	2	5	-0.802	-5.188	1.215	3.929
QL7	2	5	-0.784	-5.072	0.799	2.584
QSP1	2	5	-0.704	-4.552	1.081	3.494
QSP2	1	5	-0.744	-4.809	1.222	3.951
QSP3	1	5	-0.149	-0.964	-1.012	-3.271
QSP4	1	5	-0.619	-4.004	0.460	1.489
QSP5	2	5	-0.562	-3.635	0.250	0.808
QSP6	2	5	-0.899	-5.812	1.972	6.377
QCF1	1	5	-0.702	-4.540	0.574	1.857
QCF2	1	5	0.313	2.026	-0.950	-3.073
QCF3	1	5	-0.249	-1.612	-0.290	-0.936

QCF4	1	5	0.383	2.477	-0.592	-1.914
QCF5	2	5	-0.821	-5.309	2.864	9.263
QCF6	2	5	-0.587	-3.800	-0.100	-0.324
QIA1	1	5	-0.849	-5.491	1.527	4.937
QIA2	1	5	0.011	0.072	-0.976	-3.156
QIA3	1	5	-0.451	-2.919	-0.478	-1.546
QIA4	2	5	-0.024	-0.158	-0.672	-2.172
QIA5	2	5	-0.306	-1.980	-0.303	-0.981
QIA6	1	5	-0.788	-5.099	1.437	4.646
QHRF1	1	5	-0.353	-2.285	-0.303	-0.979
QHRF2	1	5	-0.721	-4.664	0.672	2.173

Table 4.7

Univariate and Multivariate Normality Test (*continued*)

QHRF3	1	5	-0.804	-5.203	0.849	2.746
QHRF4	1	5	-0.450	-2.908	0.106	0.342
QHRF5	2	5	-0.325	-2.100	-0.211	-0.681
QHRF6	2	5	-0.354	-2.287	-0.760	-2.458
QPM1	2	5	-0.648	-4.193	0.896	2.897
QPM2	2	5	-0.598	-3.870	1.391	4.500
QPM3	1	5	-0.242	-1.562	0.092	0.298
QPM4	1	5	0.242	1.568	-0.637	-2.060
QPM5	1	5	-0.092	-0.597	-0.320	-1.035
QPM6	1	5	-0.681	-4.405	1.146	3.707
HOS1	1	5	-0.966	-6.245	1.606	5.193
HOS2	1	5	-0.666	-4.309	0.325	1.051
HOS3	1	5	-0.970	-6.273	1.545	4.997
HOS4	1	5	-1.141	-7.377	2.543	8.225
HOS5	1	5	-0.872	-5.638	0.623	2.016
HOS6	1	5	-0.479	-3.100	-0.648	-2.097
HOS7	1	5	-0.645	-4.170	0.229	0.739
HOS8	1	5	-0.915	-5.918	1.830	5.917
HOS9	1	5	-0.888	-5.743	1.548	5.007
HOC1	1	5	-0.092	-0.593	-0.290	-0.938
HOC2	1	5	-0.303	-1.960	0.161	0.519
HOC3	1	5	0.568	3.674	-0.337	-1.091
HOC4	1	5	0.401	2.592	-0.779	-2.518
HOC5	2	5	-0.696	-4.500	0.845	2.734
HOC6	2	5	-0.598	-3.865	0.635	2.053
HOC7	2	5	-0.577	-3.732	0.483	1.563
HOC8	1	5	0.570	3.687	-0.681	-2.202
HOL1	1	5	-0.803	-5.195	1.883	6.089
HOL2	2	5	-0.623	-4.031	0.915	2.958
HOL3	1	5	-0.910	-5.887	1.235	3.993

HOL4	1	5	-0.582	-3.763	-0.269	-0.869
HOL5	1	5	0.060	0.388	-0.730	-2.361
HOL6	1	5	0.496	3.207	-0.250	-0.807
HOL7	1	5	0.192	1.241	-0.553	-1.787
HOL8	1	5	0.015	0.095	-0.838	-2.710
HOL9	1	5	-0.379	-2.454	-0.111	-0.358
HOL10	1	5	-0.294	-1.899	-0.250	-0.808
HOL11	1	5	-0.449	-2.906	0.503	1.626
OPF1	1	5	-0.838	-5.418	1.018	3.291

Table 4.7
Univariate and Multivariate Normality Test (continued)

OPF2	1	5	-0.313	-2.024	-0.300	-0.971
OPF3	1	5	0.802	5.187	0.444	1.437
OPF4	1	5	-0.173	-1.121	-0.090	-0.290
OPC1	1	5	-0.562	-3.633	0.706	2.282
OPC2	2	5	-0.511	-3.302	0.512	1.654
OPC3	1	5	-0.854	-5.524	1.527	4.938
OPC4	1	5	-0.598	-3.865	1.221	3.948
OPIP1	1	5	-0.966	-6.249	1.601	5.177
OPIP2	1	5	-1.000	-6.466	1.801	5.824
OPIP3	1	5	-0.874	-5.651	2.077	6.717
OPIP4	1	5	-1.098	-7.100	1.940	6.272
OPLG1	1	5	-0.611	-3.949	1.116	3.610
OPLG2	1	5	-0.141	-0.915	-0.686	-2.219
OPLG3	1	5	-0.923	-5.973	1.345	4.351
OPLG4	1	5	-1.031	-6.666	2.120	6.857
Multivariate Mardia's Statistic					606.655	41.443

4.8 PLS STRUCTURAL EQUATION MODELING APPROACH

The Partial Least Squares (PLS) approach to Structural Equation Modeling, also known as PLS Path Modeling was developed by seminal paper of Herman Wold (1975) as cited by Vinzi, Trinchera and Amato (2010). Extensive reviews on the PLS approach with

further developments are given by Chin (1998, 2010), and Chin and Newsted (1999) for the new graphical interface (PLS-Graph) and for enhanced validation methods.

4.8.1 PLS Path Modeling (PLS-PM)

The PLS approach to SEM, also recognized as PLS Path Modeling (PLS-PM) has been proposed as a component-based estimation procedure different from the classical covariance-based LISREL-type approach (Vinzi Trinchera & Amato, 2010). The PLS-PM approach is a commonly used approach in the estimation of causal relationships in the field of path models taking latent constructs that are measured indirectly by many indicators. Several scholars (*e.g.* Chin, 2010; Lohmoller, 1989; Tenenhaus, Vinzi, Chatelin & Lauro, 2005; Wold, 1982) were well described the methodological issues and methods for outcome evaluation and provided further development of this methodology.

The fundamental idea of PLS-PM is that complexity inside a system can be studied taking into account a causality relationship among latent concepts, called Latent Variables (LV), each measured by several observed indicators usually defined as Manifest Variables (MV) (Vinzi *et al*., 2010). Furthermore, as examined in this study, the PLS-PM classified into measurement model and structural model. Generally, in PLS-PM the measurement model is denoted to as the outer model, and the structural model is mentioned to as the inner model. The inner model explains the relationship between unobserved or latent variables while the outer one describes the relation between a latent variable and its manifest variable.

4.8.2 PLS Path Modeling Algorithm

In the beginning, PLS algorithm introduced by Wold (1985) seeks to find the best weight estimates for each component of indicators representing to every theoretical construct.

In the similar vein, the PLS algorithm generates loadings between reflective constructs and their indicators and weights between formative constructs and their indicators (Chin, 2010). Like to regression, PLS develops a component or composite variable that demonstrate of the theoretical construct and emphasizes on maximizing the variance of the dependent variables that is described by the independent variables (Chin, 1998).

In this regards, the present study applied the basic PLS algorithm as proposed by Lohmoller (1989) and Tenenhaus *et al.* (2005) that contains of three stages. In first stage, the purpose is to determine the estimates (scores) for the latent variables (LV) in the model. This stage involves a four-step iterative process that is repetitive until the achievement of convergence. The steps involve are the external approximation of the latent variable scores; inner weights estimation; latent variable scores internal approximation, and outer weights estimation. In second stage, these latent variable scores are used to estimate the paths between the latent variables (structural model), as well as the estimates relating the latent variable to its indicators (measurement model). Finally in third stage, the means and location parameters (*e.g.* regression constants) for the indicators and the latent variables are estimated.

4.8.3 Methodological Features

The widespread use of PLS path modeling in the literature concerning causal modeling often focus the methodological features (*e.g.* Fornell & Bookstein, 1982; Hair, Sarstedt, Pieper & Ringle, 2012; Joreskog & Wold, 1982; Lohmoller, 1989). Given that PLS-SEM has attracted increased interest in the literature in the last two decades (Kaplan, 2000; Schumacker & Lomax, 2004), it needs a more detailed explanation of the rationale leading to the selection of this method. Specifically, the four methodological features most frequently used reasons for using PLS-SEM are non-normal data, small sample size, reflective and formative measures, and model complexity (Hair *et al*., 2012).

4.8.3.1 Non-normal Data

The most commonly used estimation method in SEM is maximum likelihood method (ML). Greene (1997) advocated that the ML estimators are attracting because of their properties of consistency, normality, efficiency and invariance.

However, an examination by Breckler (1990) of seventy two journal articles that used SEM determined that only nineteen percent acknowledged the normal assumptions. Interestingly, fewer than ten percent explicitly considered whether these assumptions had been violated. To summarize the robustness of ML, Chou and Bentler (1995) highly asserted that when the data are multivariate normally distributed and when the sample size is large enough, the ML method is certainly preferred because of computational simplicity, accuracy and correctness of statistical results. But, when data are non-normal, the situation changes completely (Chou & Bentler, 1995).

Furthermore, with regression and covariance-based SEM, multivariate normality is required, but this is not applied for PLS-PM (Hair *et al*., 2012). Fornell and Bookstein (1982) suggested that for those with strong familiarity with regression as a statistical technique, it can be easier to interpret the statistics and findings when using PLS-PM. Bagozzi and Yi (1988) also proposed that the PLS-PM can be employed in highly skewed distributions. For these circumstances, PLS-PM was employed in this study.

4.8.3.2 Sample Size

A main benefit of PLS-SEM over covariance-based SEM is that it works well specifically in smaller sample sizes (Chin & Newsted, 1999; Reinartz, Haenlain & Henseler, 2009). In other hand, covariance-based SEM is a large-sample technique, where any sample size less than 100 may lead to untenable results (Kline, 2005). Because the PLS-PM algorithm is based on linear regression, the sample size requirements are not as large as those of covariance-based SEM (Lee, Petter, Fayard & Robinson, 2011).

However, the aspect of PLS-SEM to handle the small sample size is the widespread application of the "ten times rule of thumb" as asserted by Barclay, Higgins & Thompson (1995) and Hair *et al*. (2013). This rule recommends a minimum sample size of ten times the scale's number of indicator with the highest number of formative indicators or ten times the highest number of structural paths concentrated on a specific construct located in the inner path model (Barclay, Higgins & Thompson, 1995; Hair *et al*., 2013).

While this rule of thumb may allow for a broad estimate of minimum sample size requirements for the use of PLS-SEM, it needs to be pointed out that it does not consider

effect size, reliability, the total number of indicators, and other issues likely affecting the statistical power of the PLS-SEM method (Hair *et al*., 2011). In other words, it is important for the researcher to keep the distributional characteristics of the data, potential missing data, the psychometric properties of the variables examined, and the relationships magnitude prior to deciding on a suitable sample size to utilize or to guarantee that an appropriate sample size concerning the phenomenon of interest is available (Marcoulides, Chin & Saunders, 2009).

4.8.3.3 Reflective and Formative Measures

Depending on the observed construct, a measurement model can either include reflective or formative indicators exclusively, or involve of both indicators (Fornell & Bookstein, 1982). Formative indicators are also known as cause or induced indicators, while reflective indicators are also known as effect indicators (Hair *et al*., 2013). Bollen and Lennox (1991), and Diamantopoulos, Riefler & Roth (2008) maintained that whereas reflective constructs have indicators that are assumed to reflect the variation in the underlying construct, formative constructs are modeled with indicators that form or determine the construct, typically as a linear combination of the indicators.

Furthermore, Chin and Newsted (1999) mentioned that the advantage of utilize of PLS compared to the covariance based methods is the relationship between a construct and its indicators can be modeled as either formative or reflective. In the similar vein, Diamantopoulos and Winklhofer (2001) also supported that as opposed to singularly stressing on the common reflective mode, the PLS path modeling algorithm enables the

unconfined calculation of cause-and-effect relationship models employing both reflective and formative measurement models. This study measured the six QMPs dimensions as a whole and being treated as reflective in nature, likes of many previous QMPs studies (Demirbag *et al*., 2006; Lam *et al*., 2012; Lee *et al*., 2010, Prajogo & Cooper, 2010). Figure 4.1 illustrated the comparison of reflective and formative measurement models.

4.8.3.4 Model Complexity

Anderson and Gerbing (1988) stated that certain covariance-based SEM discrepancy functions (*e.g.* GFI and AGFI), decline and they may become unsuitable for more complex models. Additionally, Boomsma & Hoogland (2001) conducted an experimental variation of model complexity by modifying the estimated parameters and the number of freedom levels and they revealed that the more parameters to be estimated, the more will be the occurrence of non-convergence and ineffective solutions. In short, the larger the number of estimation requirements, the more will be the information required.

In other hands, PLS has the capacity to deal with very complex models with a high number of constructs, indicators, and relationships (Barclay *et al*. 1995; Fornell, Lorange & Roos, 1990). Wold (1985) emphasized that the PLS path models can turn very complex as they comprise of varying latent and manifest variables, but they never lead to issues of estimation. The PLS algorithm enables a significant increase in model complexity and a significant reduction between the distance of subject matter analysis and statistical methods within domains that are characterized by continuous access to data that is reliable (Hair *et al*., 2011). Thus, PLS is prominent among larger models when the

importance moves from individual variables and parameters to groups of variables and total parameters (Wold, 1985).

As a small conclusion in this section, PLS-SEM preferred as alternative method over CB-SEM in these situations (non-normal data, sample size, reflective and formative measures, model complexity), since it allows researchers to create and estimate such models without imposing additional limiting constraints.

4.8.4 Comparison Between PLS-SEM and CBSEM

Chin (1998) asserted that SEM has been reported as a second generation of multivariate analysis, with substantial advantages over first-generation techniques such as principal components analysis, factor analysis, discriminant analysis, or multiple regression because of the greater flexibility that a researcher has for the interplay between theory and data. The two types of SEM differ in term of their objectives, approach, assumption, implication, parameter estimation, complexity, and sample size on which they are based, and the nature of the fit statistics they produce.

The PLS-SEM and CBSEM have been designed to achieve different objectives. The CBSEM was proposed as a confirmatory model and it is distinct from the PLS path modeling as the latter is prediction oriented. SEM also differ in term of variance and covariance based approach. However, CBSEM along with PLS-SEM should be considered as methods that complement each other (Lohmoller, 1989). The aim of the

covariance-based SEM is to decrease the fit-function between the sample covariance matrix and the implied covariance one. As for the PLS path modeling, the estimates of parameters are acquired to reduce the residual variance of dependent variables, both manifest and latent. Nonetheless, conditions may exist when PLS path modeling may outperform the covariance-based SEM in its assessment of hierarchical construct models.

Furthermore, Cassell, Hackl & Westlund (1999) managed to present the robust deviation from normality of PLS-SEM with the exception of highly skewed distributions with the help of a Monte Carol simulation. CBSEM attempts to estimate the parameters of the model (*e.g.* loadings and path values) in order to minimize the difference between the sample CBSEM and those predicted by the theoretical model. Hence, the parameter estimation process tries to reproduce the covariance matrix of the observed measures' (Chin & Newsted 1999) overall goodness-of-fit measures to see how well the hypothesized model fits the data (Barclay *et al*., 1995).

Moreover, PLS-SEM is able to estimate highly complex models having various latent and manifest variables. The PLS-SEM is more suited to complex models such as those with hierarchical constructs (with a complete disaggregation method), mediating and moderating impacts (Chin *et al*., 2003). In the similar vein, CBSEM emphasizes the overall model fit; that is, this approach is oriented towards testing a strong theory. Therefore, CBSEM is best suited for confirmatory research (Gefen *et al*. 2000). Lastly, PLS-SEM bypass issues of small sample size and it can hence be employed in certain situations where other methods are ineffective (as discussed in Sub-Section 4.8.3.2).

Again, as asserted by Lohmoller (1998), PLS-SEM should be considered as more than a less strict replacement of CBSEM but as an approach that complements CBSEM .

4.9 PLS PATH MODELING EXAMINATION

While a number of papers have been written covering with suitable reporting of CBSEM analyses (Hoyle & Panter 1995; McDonald and Moon-Ho 2002; Steiger, 2001), this is little so for PLS-SEM (Chin, 2010). Furthermore, it would seem that scholars can simply follow the same process employed by CBSEM scholars. However, unreflectively following the similar ways may also overemphasize or possibly incorporate aspects that are individual to that particular methodology (Chin, 2010). One of the main criteria is the PLS-CBSEM does not employ the condition of global goodness-of-fit (GOF). With that respect, Chin (1998) suggested criteria for the examination of PLS-SEM structures. The criteria consist of a two-step process, that are, the outer model examination, and the inner model examination.

The process is started with model assessment that focuses on the measurement models. A systematic examination of PLS estimates reveals the measurement reliability and validity according to certain characteristic that are associated with formative and reflective outer model. Having do that, next is to evaluate the inner path model estimates when the calculated latent variable scores present prove of adequate reliability and validity.

For instance, Lee *et al*. (2011) advocated that SEM is a merger of two powerful approaches, that are factor analysis and path analysis, allowing researchers to simultaneously examine the measurement model (traditionally accomplished with factor analysis) and the structural model (traditionally accomplished with path analysis).

4.10 MEASUREMENT MODEL (OUTER MODEL) EXAMINATION

The first pace in Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis is to analyze the measurement model (or outer model) to determine how well the indicators (specific questions) load on the theoretically defined constructs. By examining the outer model ensures that the survey items are measuring the constructs they were designed to measure, thus ensuring that the survey instrument is reliable.

The measurement or outer model specifies the relationship between observable constructs and the underlying construct. In this context, the search for an investigation of suitable indicators are an important step with regard to the operationalization of such a construct (Churchill 1979). In other words, it needs for the construct validity examination. In short, the construct validity creates certain degrees of measurement instruments represent the theoretical variables that they are designed to measure (Hair *et al*., 2010). The construct validity can be established through the content validity, convergent validity and discriminant validity (Hair *et al*., 2010).

4.10.1 Content Validity

According to Bohrnstedt (1970), the content validity exposes to what extent a measurement model's variables belong to the domain of the construct. In similar vein, Hair *et al*. (2010) also maintained that the content validity of the measure refer to the degree to which the items generated to measure a construct can appropriately measure the concept they were designed to measure.

Furthermore, the principal component analysis is an appropriate method for examining the indicators' underlying factor structure (Bohrnstedt, 1970; Vinzi *et al*., 2010). Specifically, all the items (questions) designed to measure a construct should load higher on their respective construct than their loadings on other constructs. This was insured by the comprehensive review of the literature to generate the items that already have been established and tested in previous studies.

Derived on the analysis conducted in factor analysis, items were correctly assigned to their constructs. The results in Table 4.8 indicated the content validity of the measures used as performed in two modes as proposed by Chow and Chan (2008). First, the items show high loading on thier respective constructs when compared to other constructs. Second, the items loadings were significantly loading on their respective constructs confirming the content validity of the measures used in the study as depicted in Table 4.8. Several items were deleted because of low loading in their respective construct. Figure 4.1 and Figure 4.2 illustrated that the all items and their loading before and after the deletion process.

The result also lends support to the formulation of the research model for examining the relationship between Quality Management Practices, Human-oriented Elements (Satisfaction, Commitment, Loyalty), and Organizational Performance of public institutions of higher learning education in Malaysia (*see* Figure 2.15 in Chapter Two).

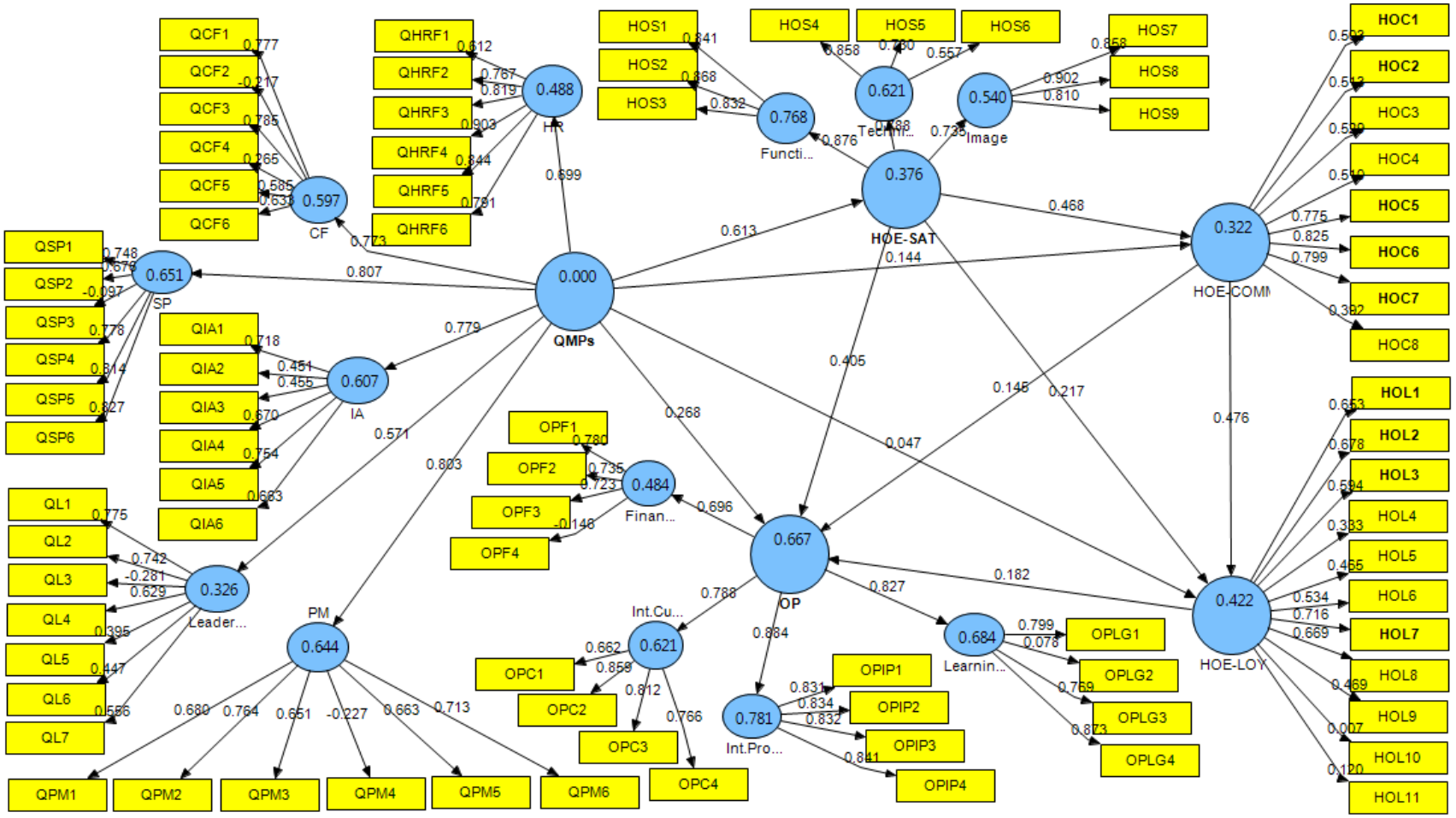


Figure 4.1
Items Loading Before Deletion

Table 4.8
Cross Loadings of the Items

Item/Dimension	QL	QSP	QCF	QIA	QHRF	QPM	HOST	HOSF	HOSI	HOC	HOL	OPF	OPC	OPIP	OPLG
QL1	**0.832**	0.346	0.318	0.252	0.225	0.207	0.256	0.227	0.180	0.320	0.204	0.284	0.205	0.251	0.285
QL2	**0.793**	0.310	0.254	0.211	0.187	0.196	0.208	0.164	0.211	0.295	0.173	0.293	0.172	0.208	0.218
QL4	**0.673**	0.299	0.333	0.244	0.241	0.216	0.264	0.298	0.175	0.183	0.160	0.185	0.222	0.186	0.194
QL7	**0.489**	0.160	0.191	0.161	0.142	0.162	0.135	0.084	0.145	0.080	0.087	0.169	0.145	0.070	0.107
QSP1	0.379	**0.747**	0.482	0.467	0.329	0.473	0.326	0.339	0.165	0.279	0.177	0.310	0.342	0.334	0.322
QSP2	0.332	**0.676**	0.509	0.398	0.271	0.370	0.386	0.298	0.192	0.315	0.215	0.219	0.352	0.342	0.303
QSP4	0.331	**0.778**	0.462	0.424	0.324	0.532	0.394	0.456	0.208	0.376	0.248	0.374	0.283	0.393	0.373
QSP5	0.235	**0.815**	0.427	0.294	0.258	0.456	0.328	0.400	0.117	0.245	0.185	0.313	0.274	0.319	0.304
QSP6	0.276	**0.827**	0.426	0.332	0.277	0.456	0.343	0.389	0.160	0.269	0.242	0.350	0.230	0.356	0.311
QCF1	0.365	0.529	**0.773**	0.424	0.372	0.464	0.374	0.307	0.283	0.313	0.187	0.244	0.421	0.351	0.336
QCF3	0.306	0.456	**0.797**	0.391	0.352	0.490	0.393	0.324	0.274	0.257	0.199	0.196	0.314	0.353	0.235
QCF5	0.220	0.353	**0.616**	0.281	0.223	0.340	0.3196	0.143	0.132	0.232	0.187	0.155	0.205	0.295	0.265
QCF6	0.202	0.339	**0.650**	0.317	0.214	0.277	0.265	0.109	0.199	0.206	0.128	0.206	0.300	0.288	0.230
QIA1	0.307	0.442	0.435	**0.695**	0.293	0.413	0.377	0.371	0.177	0.338	0.325	0.370	0.367	0.369	0.424
QIA4	0.158	0.345	0.382	**0.751**	0.406	0.397	0.221	0.192	0.130	0.140	0.164	0.159	0.246	0.233	0.247
QIA5	0.203	0.371	0.386	**0.808**	0.484	0.462	0.280	0.278	0.143	0.182	0.207	0.224	0.286	0.262	0.282
QIA6	0.241	0.306	0.260	**0.674**	0.465	0.285	0.261	0.244	0.120	0.166	0.181	0.236	0.219	0.231	0.294
QHRF1	0.191	0.201	0.268	0.420	**0.611**	0.178	0.189	0.136	0.112	0.082	0.089	0.078	0.241	0.154	0.157
QHRF2	0.173	0.278	0.300	0.445	**0.767**	0.230	0.223	0.245	0.091	0.195	0.146	0.241	0.179	0.231	0.246
QHRF3	0.258	0.293	0.285	0.447	**0.818**	0.259	0.185	0.339	0.151	0.173	0.167	0.251	0.233	0.219	0.194
QHRF4	0.273	0.323	0.383	0.455	**0.903**	0.295	0.191	0.235	0.222	0.143	0.091	0.140	0.217	0.236	0.197
QHRF5	0.221	0.347	0.403	0.450	**0.845**	0.343	0.209	0.135	0.216	0.139	0.030	0.142	0.158	0.241	0.213
QHRF6	0.235	0.352	0.345	0.456	**0.791**	0.378	0.176	0.217	0.236	0.179	0.045	0.194	0.210	0.252	0.209

Table 4.8
Cross Loadings of the Items (*continued*)

Item/Dimension	QL	QSP	QCF	QIA	QHRF	QPM	HOST	HOSF	HOSI	HOC	HOL	OPF	OPC	OPIP	OPLG
QPM2	0.220	0.458	0.498	0.438	0.298	**0.739**	0.425	0.395	0.240	0.330	0.328	0.391	0.386	0.458	0.354
QPM3	0.140	0.415	0.484	0.423	0.324	**0.690**	0.436	0.328	0.239	0.188	0.157	0.213	0.242	0.383	0.313
QPM5	0.166	0.381	0.285	0.364	0.158	**0.755**	0.401	0.316	0.194	0.229	0.258	0.192	0.279	0.313	0.296
QPM6	0.282	0.471	0.372	0.349	0.263	**0.771**	0.527	0.341	0.347	0.308	0.316	0.265	0.356	0.408	0.361
HOS1	0.274	0.148	0.458	0.362	0.203	0.562	**0.842**	0.467	0.385	0.368	0.331	0.312	0.409	0.584	0.540
HOS2	0.239	0.368	0.387	0.288	0.193	0.486	**0.868**	0.501	0.330	0.369	0.325	0.348	0.362	0.577	0.483
HOS3	0.282	0.388	0.373	0.343	0.224	0.498	**0.832**	0.564	0.390	0.426	0.378	0.452	0.383	0.553	0.493
HOS4	0.284	0.430	0.315	0.339	0.271	0.415	0.522	**0.858**	0.317	0.428	0.372	0.458	0.376	0.548	0.370
HOS5	0.198	0.373	0.226	0.290	0.154	0.364	0.470	**0.735**	0.271	0.319	0.296	0.236	0.308	0.394	0.394
HOS6	0.109	0.237	0.150	0.149	0.161	0.213	0.285	**0.550**	0.152	0.191	0.254	0.530	0.340	0.343	0.257
HOS7	0.207	0.131	0.256	0.135	0.184	0.256	0.345	0.274	**0.858**	0.305	0.244	0.090	0.314	0.296	0.237
HOS8	0.204	0.185	0.284	0.177	0.196	0.307	0.384	0.366	**0.902**	0.383	0.386	0.198	0.419	0.351	0.321
HOS9	0.237	0.250	0.288	0.190	0.189	0.332	0.390	0.262	**0.810**	0.462	0.329	0.254	0.330	0.368	0.308
HOC1	0.243	0.321	0.283	0.310	0.116	0.318	0.369	0.299	0.263	**0.585**	0.301	0.314	0.392	0.403	0.403
HOC2	0.129	0.288	0.322	0.232	0.136	0.283	0.366	0.378	0.384	**0.604**	0.337	0.265	0.324	0.338	0.351
HOC5	0.315	0.277	0.256	0.207	0.175	0.268	0.321	0.321	0.344	**0.795**	0.474	0.290	0.370	0.338	0.362
HOC6	0.270	0.284	0.222	0.200	0.179	0.253	0.325	0.314	0.342	**0.845**	0.478	0.249	0.401	0.336	0.340
HOC7	0.215	0.236	0.219	0.078	0.083	0.190	0.284	0.324	0.283	**0.791**	0.420	0.218	0.302	0.269	0.273
HOL1	0.174	0.154	0.222	0.204	0.073	0.281	0.325	0.272	0.264	0.445	**0.788**	0.265	0.344	0.351	0.305
HOL2	0.238	0.203	0.215	0.251	0.089	0.273	0.279	0.322	0.380	0.410	**0.831**	0.358	0.458	0.339	0.347
HOL3	0.153	0.283	0.226	0.301	0.133	0.323	0.332	0.317	0.278	0.404	**0.744**	0.232	0.373	0.310	0.362
HOL7	0.086	0.172	0.038	0.114	0.040	0.171	0.256	0.350	0.155	0.370	**0.537**	0.410	0.250	0.224	0.293

Table 4.8
Cross Loadings of the Items (*continued*)

Item/Dimension	QL	QSP	QCF	QIA	QHRF	QPM	HOST	HOSF	HOSI	HOC	HOL	OPF	OPC	OPIP	OPLG
OPF1	0.314	0.408	0.342	0.378	0.247	0.392	0.444	0.525	0.167	0.305	0.337	**0.780**	0.388	0.556	0.465
OPF2	0.250	0.234	0.106	0.177	0.126	0.151	0.242	0.283	0.153	0.247	0.274	**0.737**	0.200	0.288	0.256
OPF3	0.153	0.227	0.118	0.144	0.081	0.222	0.241	0.332	0.152	0.263	0.344	**0.723**	0.246	0.309	0.231
OPC1	0.111	0.277	0.318	0.179	0.117	0.280	0.236	0.269	0.268	0.339	0.346	0.232	**0.662**	0.277	0.281
OPC2	0.231	0.351	0.368	0.285	0.172	0.353	0.362	0.326	0.330	0.420	0.425	0.345	**0.859**	0.479	0.454
OPC3	0.253	0.321	0.369	0.381	0.233	0.368	0.411	0.486	0.310	0.397	0.436	0.378	**0.812**	0.474	0.476
OPC4	0.208	0.247	0.330	0.327	0.264	0.339	0.382	0.342	0.385	0.381	0.322	0.248	**0.766**	0.410	0.467
OPIP1	0.160	0.366	0.391	0.270	0.191	0.441	0.589	0.559	0.361	0.372	0.345	0.454	0.461	**0.831**	0.527
OPIP2	0.190	0.355	0.383	0.284	0.199	0.430	0.586	0.440	0.342	0.371	0.304	0.419	0.408	**0.834**	0.537
OPIP3	0.326	0.415	0.434	0.345	0.328	0.484	0.542	0.464	0.361	0.399	0.352	0.462	0.462	**0.832**	0.501
OPIP4	0.210	0.381	0.307	0.354	0.226	0.434	0.537	0.537	0.257	0.407	0.405	0.490	0.462	**0.841**	0.569
OPLG1	0.229	0.383	0.392	0.350	0.245	0.400	0.495	0.373	0.347	0.426	0.384	0.445	0.554	0.573	**0.800**
OPLG3	0.203	0.247	0.230	0.378	0.167	0.328	0.439	0.414	0.211	0.296	0.326	0.273	0.287	0.447	**0.772**
OPLG4	0.286	0.383	0.280	0.328	0.205	0.371	0.521	0.383	0.256	0.428	0.380	0.370	0.465	0.532	**0.877**

QL	Quality Management Practices- Leadership	HOSF	Human Oriented Element- Satisfaction- Functional
QSP	Quality Management Practices- Strategic Planning	HOSI	Human Oriented Element- Satisfaction- Image
QCF	Quality Management Practices- Customer Focus	HOC	Human Oriented Element- Commitment
QIA	Quality Management Practices- Information Analysis	HOL	Human Oriented Element- Loyalty
QHRF	Quality Management Practices- Human Resource Focus	OPF	Organizational Performance- Financial
QPM	Quality Management Practices- Process Management	OPC	Organizational Performance- Customer
HOS	Human Oriented Element- Satisfaction	OPIP	Organizational Performance- Internal Process
HOST	Human Oriented Element- Satisfaction- Technical	OPLG	Organizational Performance- Learning and Growth

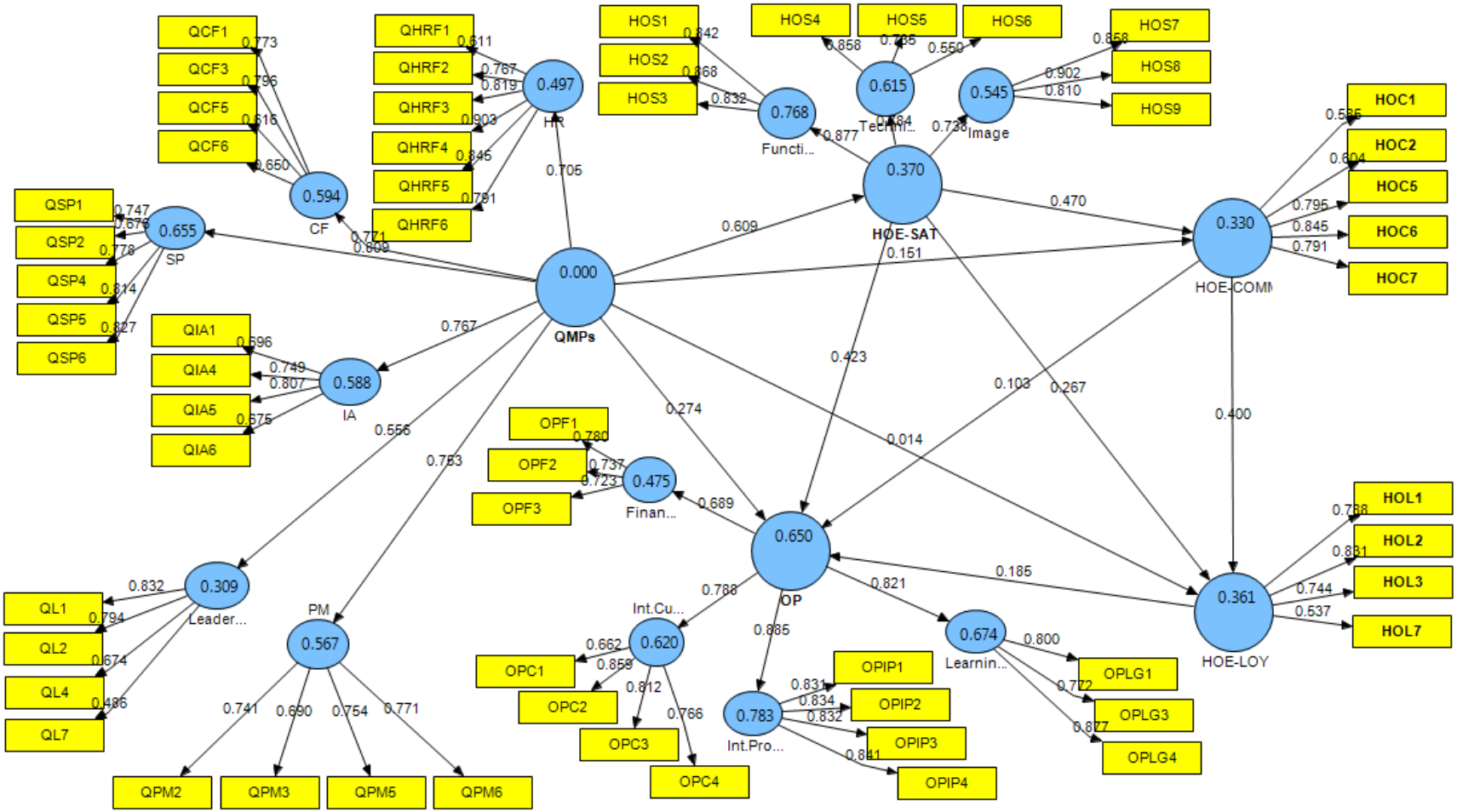


Figure 4.2
Items Loading After Deletion

Table 4.9 shows all the item loadings (question correlations) for each of the constructs in the Quality Management Practices (leadership, strategic planning, customer focus, information analysis, human resource focus, process management), Human-Oriented Elements (Satisfaction, Commitment, Loyalty), and Organizational Performance (financial, customer, internal process, learning and growth).

As a general rule of thumb, the item loading is interpreted as poor when it is less than 0.30, fair between 0.31-0.50, moderate between 0.51-0.60, moderately strong between 0.61-0.80, and very strong between 0.81-1.0 (Chow and Chan, 2008). Based on this suggestion, as the recommended minimum value here is 0.30, the item loading of the mutual relationship between items should be over 0.30 (Robinson, Shaver & Wrightsman, 1991; Streiner & Norman, 1998). Hence, all the loadings produced by PLS are greater than 0.30 as recommended by the abovementioned scholars (*see* Table 4.9).

Furthermore, each indicator estmated coefficient on it posited construct dimensions is significant at 0.01 level, indicating that the validity through that factor analysis is assumed. This study believed that these results are relevant to preserving both the content validity and the model's overall measurement.

Table 4.9
Factor Loadings Significance

Dimension/ Variable	Items	Loadings	Std. error	T value	P value
Quality Management Practices- Leadership	QL1	0.832	0.039	10.66	0.000
	QL2	0.793	0.038	9.40	0.000
	QL4	0.673	0.053	7.18	0.000
	QL7	0.489	0.065	3.70	0.000
Quality Management Practices- Strategic Planning	QSP1	0.747	0.017	16.39	0.000
	QSP2	0.676	0.018	13.73	0.000
	QSP4	0.778	0.015	18.59	0.000
	QSP5	0.815	0.016	15.23	0.000
	QSP6	0.827	0.012	21.87	0.000
Quality Management Practices- Customer Focus	QCF1	0.773	0.028	15.16	0.000
	QCF3	0.797	0.029	13.75	0.000
	QCF5	0.616	0.028	10.09	0.000
	QCF6	0.650	0.025	11.16	0.000
Quality Management Practices- Information Analysis	QIA1	0.695	0.032	11.26	0.000
	QIA4	0.751	0.026	12.75	0.000
	QIA5	0.808	0.027	13.89	0.000
	QIA6	0.674	0.031	10.05	0.000
Quality Management Practices- Human Resource Focus	QHRF1	0.611	0.018	8.84	0.000
	QHRF2	0.767	0.013	14.63	0.000
	QHRF3	0.818	0.012	17.52	0.000
	QHRF4	0.903	0.010	22.20	0.000
	QHRF5	0.845	0.014	16.03	0.000
	QHRF6	0.791	0.015	14.65	0.000
Quality Management Practices- Process Management	QPM2	0.739	0.030	12.50	0.000
	QPM3	0.690	0.030	11.09	0.000
	QPM5	0.755	0.025	11.62	0.000
	QPM6	0.771	0.025	13.72	0.000
Human Oriented Element- Satisfaction	HOS1	0.842	0.016	24.42	0.000
	HOS2	0.868	0.014	27.62	0.000
	HOS3	0.832	0.016	25.40	0.000
	HOS4	0.858	0.040	13.96	0.000
	HOS5	0.735	0.036	13.12	0.000
	HOS6	0.550	0.048	6.70	0.000
	HOS7	0.858	0.019	19.22	0.000
	HOS8	0.902	0.020	21.01	0.000
	HOS9	0.810	0.025	14.89	0.000

t-values > 1.96 (p,0.05); t-values > 2.58** (p<0.01)*

Table 4.9
Factor Loadings Significance (*continued*)

Dimension/ Variable	Items	Loadings	Std. error	T value	P value
Human Oriented Element- Commitment	HOC1	0.585	0.036	7.38	0.000
	HOC2	0.604	0.037	7.16	0.000
	HOC5	0.795	0.020	14.74	0.000
	HOC6	0.845	0.021	13.87	0.000
	HOC7	0.791	0.025	9.79	0.000
Human Oriented Element- Loyalty	HOL1	0.788	0.038	9.06	0.000
	HOL2	0.831	0.030	12.36	0.000
	HOL3	0.744	0.033	10.25	0.000
	HOL7	0.537	0.041	7.22	0.000
Organizational Performance- Financial	OPF1	0.780	0.056	11.37	0.000
	OPF2	0.737	0.032	11.41	0.000
	OPF3	0.723	0.036	10.62	0.000
Organizational Performance- Internal Customer	OPC1	0.662	0.030	8.08	0.000
	OPC2	0.859	0.020	17.18	0.000
	OPC3	0.812	0.025	14.18	0.000
	OPC4	0.766	0.028	11.23	0.000
Organizational Performance- Internal Process	OPIP1	0.831	0.012	23.97	0.000
	OPIP2	0.834	0.013	22.49	0.000
	OPIP3	0.832	0.014	21.22	0.000
	OPIP4	0.841	0.014	21.86	0.000
Organizational Performance- Learning and Growth	OPLG1	0.800	0.025	18.08	0.000
	OPLG3	0.772	0.025	13.69	0.000
	OPLG4	0.877	0.017	24.98	0.000

t-values > 1.96 (p<0.05); t-values > 2.58** (p<0.01)*

4.10.2 Convergent Validity

Hair *et al.* (2010) proposed that in order to establish the convergent validity, it involves the main three aspects namely, factor loadings, composite reliability (CR) and average variance extracted (AVE).

The first aspect to achieve the convergent validity is if the items' loadings were examined and all the items have loadings more than 0.50 which is the acceptable level suggested in the multivariate analysis literature (Anderson & Gerbing, 1988; Fornell & Larcker, 1981; Hair *et al*., 2010). Table 4.10 presents that all the factors' loading were significant at the 0.01 level of significance.

The second aspect is the composite reliability (CR). It indicates the degree to which a set of items consistently indicate the latent construct (Hair *et al*., 2010). As shown in Table 4.10, the composite reliability values ranged from 0.764 to 0.910 which exceeds the recommended value of 0.70 (Fornell & Larcker, 1981; Hair *et al*., 2010).

The last aspect to establish the convergent validity is examination of the values of the average variance extracted (AVE). Several scholars (*e.g.* Barclay *et al*., 1995; Fornell & Larcker, 1981; Hair *et al.*, 2010) suggested that the AVE value more than 0.50. In this study, all the constructs achieved the values more than 0.50 that performing a good level of construct validity of the measures used (Barclay *et al*., 1995; Fornell & Larcker, 1981; Hair *et al*., 2010).

Table 4.10
Convergent Validity Analysis

Dimension/ Variable	Items	Loadings	CR	AVE
Quality Management Practices- Leadership	QL1	0.832	0.823	0.503
	QL2	0.793		
	QL4	0.673		
	QL7	0.489		
Quality Management Practices- Strategic Planning	QSP1	0.747	0.879	0.594
	QSP2	0.676		
	QSP4	0.778		
	QSP5	0.815		
	QSP6	0.827		
Quality Management Practices- Customer Focus	QCF1	0.773	0.804	0.509
	QCF3	0.797		
	QCF5	0.616		
	QCF6	0.650		
Quality Management Practices- Information Analysis	QIA1	0.695	0.796	0.539
	QIA4	0.751		
	QIA5	0.808		
	QIA6	0.674		
Quality Management Practices- Human Resource Focus	QHRF1	0.611	0.910	0.631
	QHRF2	0.767		
	QHRF3	0.818		
	QHRF4	0.903		
	QHRF5	0.845		
	QHRF6	0.791		
Quality Management Practices- Process Management	QPM2	0.739	0.828	0.547
	QPM3	0.690		
	QPM5	0.755		
	QPM6	0.771		
Human Oriented Element- Satisfaction-Technical	HOS1	0.842	0.884	0.718
	HOS2	0.868		
	HOS3	0.832		
Human Oriented Element- Satisfaction-Functional	HOS4	0.858	0.764	0.526
	HOS5	0.735		
	HOS6	0.550		
Human Oriented Element- Satisfaction-Image	HOS7	0.858	0.893	0.736
	HOS8	0.902		
	HOS9	0.810		

Table 4.10
Convergent Validity Analysis (*continued*)

Human Oriented Element- Commitment	HOC1	0.585	0.849	0.536
	HOC2	0.604		
	HOC5	0.795		
	HOC6	0.845		
	HOC7	0.791		
Human Oriented Element- Loyalty	HOL1	0.788	0.820	0.538
	HOL2	0.831		
	HOL3	0.744		
	HOL7	0.537		
Organizational Performance- Financial	OPF1	0.780	0.791	0.558
	OPF2	0.737		
	OPF3	0.723		
Organizational Performance- Customer	OPC1	0.662	0.859	0.606
	OPC2	0.859		
	OPC3	0.812		
	OPC4	0.766		
Organizational Performance- Internal Process	OPIP1	0.831	0.902	0.697
	OPIP2	0.834		
	OPIP3	0.832		
	OPIP4	0.841		
Organizational Performance- Learning and Growth	OPLG1	0.800	0.858	0.668
	OPLG3	0.772		
	OPLG4	0.877		

4.10.3 Discriminant Validity

It was necessary to establish the discriminant validity in order to confirm the construct validity of the outer model. As proposed by Fornell and Larcker (1981), this study examined the square root of the average variance extracted with the correlations among constructs. Ideally, the square root of the average variance extracted should be greater than 0.50 meaning that 50% or more variance of the indicators should be accounted for.

This step also provides a basis to see whether each construct is more highly related to its own measures than with other constructs. Chin (2010) maintained that presenting average variance extracted with squared correlations have two advantages. That is, it provides a more intuitive interpretation since it represents the percentage overlap among constructs and construct to indicators, and it is tends to be easier to distinguish the differences.

Table 4.11 presents that the diagonal elements were higher than the other element of the row and column in which they are located, this confirms the discriminant validity of the outer model. As a result, there is a significant evidence for discriminant validity among the study constructs (dimensions). Thus, having established the construct validity of the outer model, it is assumed that the obtained results pertaining to the hypotheses testing should be valid and reliable.

Table 4.11
Discriminant Validity Analysis

Dimension	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. QMP-Customer Focus	**0.713**														
2. HOE-Commitment	0.358	**0.732**													
3. OP-Customer	0.445	0.495	**0.778**												
4. OP-Financial	0.282	0.368	0.393	**0.747**											
5. HOE-Satisfaction-Functional	0.329	0.450	0.463	0.536	**0.725**										
6. QMP-Human Resource Focus	0.420	0.193	0.257	0.221	0.275	**0.794**									
7. QMP-Information Analysis	0.503	0.285	0.385	0.340	0.373	0.559	**0.734**								
8. HOE-Satisfaction-Image	0.322	0.447	0.416	0.211	0.353	0.221	0.195	**0.858**							
9. QMP-Internal Process	0.453	0.464	0.537	0.547	0.600	0.282	0.376	0.395	**0.835**						
10.QMP-Leadership	0.394	0.326	0.265	0.333	0.286	0.285	0.311	0.251	0.265	**0.709**					
11.OP-Learning and Growth	0.375	0.477	0.548	0.453	0.474	0.255	0.427	0.338	0.639	0.295	**0.817**				
12.HOE-Loyalty	0.247	0.557	0.493	0.428	0.428	0.116	0.302	0.375	0.422	0.227	0.447	**0.734**			
13.QMP-Process Management	0.565	0.362	0.432	0.368	0.471	0.360	0.536	0.348	0.536	0.277	0.451	0.362	**0.740**		
14.QMP-Strategic Planning	0.600	0.388	0.385	0.410	0.491	0.382	0.502	0.220	0.455	0.406	0.421	0.278	0.598	**0.771**	
15.HOE-Satisfaction-Technical	0.479	0.458	0.454	0.439	0.604	0.244	0.391	0.435	0.675	0.313	0.597	0.407	0.608	0.462	**0.847**

Note: *Correlation significant at p<0.01 level; diagonal elements are the square root of the AVE and the off-diagonal elements represent the correlations.

In summary, the construct validity was established prior to testing the underlying hypotheses. For this purpose, three types of validity, including content, convergent and discriminant validity were adopted. Having test these three analyses of validity, the results showed that the measures used exhibited content, convergent and discriminant validity. The results also confirmed that the survey items are measuring the constructs they were designed to measure, thus ensuring that the survey instrument is valid. This is important because having valid constructs provides conclusions that help generalize the results of this thesis.

4.11 FIRST-ORDER AND SECOND-ORDER CONSTRUCTS

Having established the appropriateness of the measure, the next step is to present evidence supporting the theoretical model as represented by the structural portion of the model (Chin, 2010). Furthermore, more explanation has been needed on the differences between the first and the second order measurement models before moving to examine the theoretical and conceptual aspect of the second order constructs in the model. The explanation on this matter as discussed in the following paragraphs.

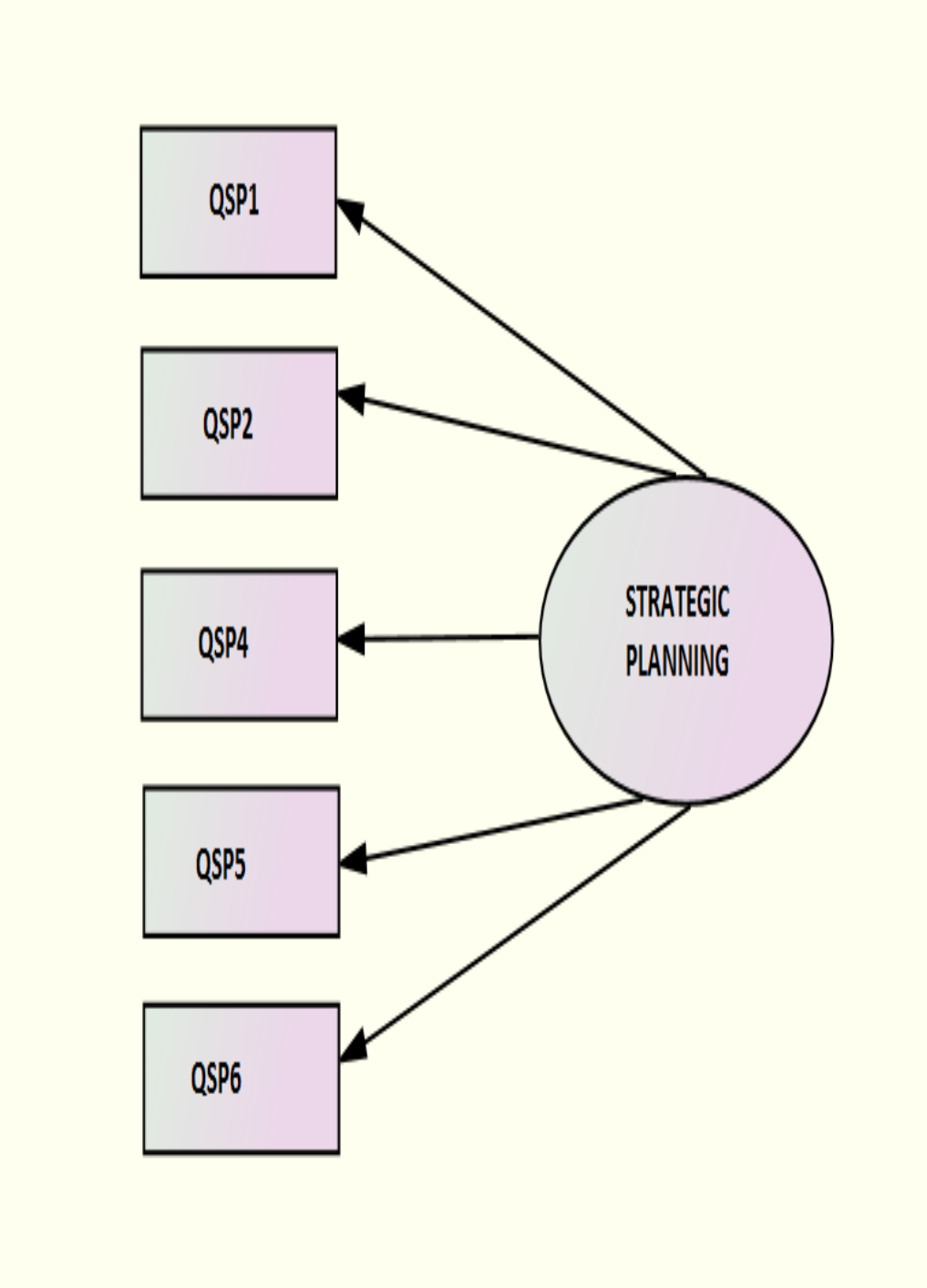


Figure 4.4
First order measurement model of Strategic Planning

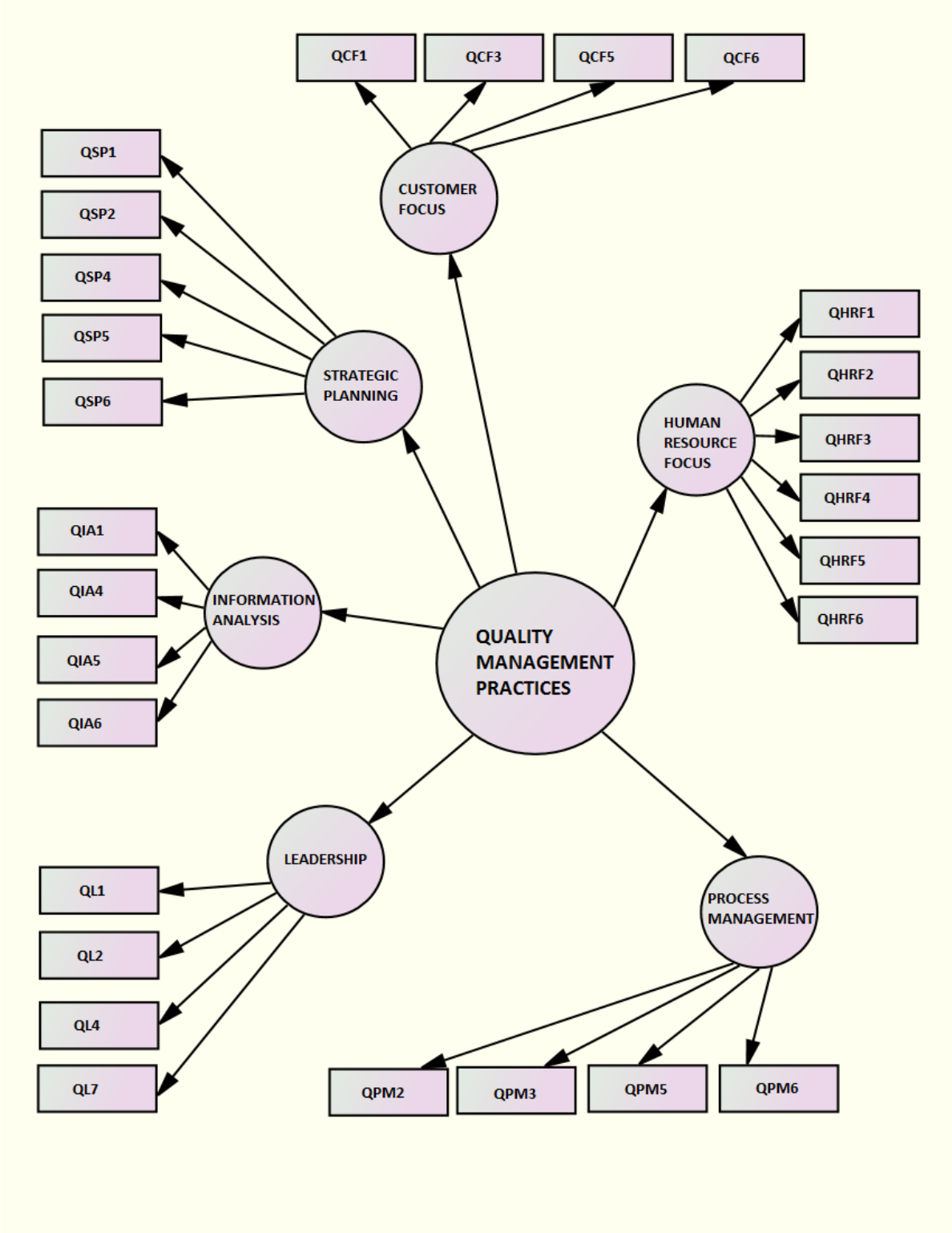


Figure 4.5
Second order measurement model of Quality Management Practices

As exemplified in Figure 4.4, Strategic Planning as a latent construct was measured by a set of measured items namely QSP1, QSP2, QSP4, QSP5, and QSP6. As illustrated in Figure 4.5, Quality Management Practices (QMPs) construct was measured indirectly by 27 items through other layer of latent constructs. Therefore, QMPs is called a second-order measurement model. As it is the case of this study, the second-order factor structure has two layers of latent variables. For instance, Quality Management Practices (QMPs), Human-Oriented Element Satisfaction (HOE-Sat) and Organizational Performance (OP) are called second-order constructs as they caused multiple first order latent factors (Hair *et al*., 2010). Moreover, the following sub-section justifies the use of QMP, HOE-Sat, and OP as second-order factor models.

4.11.1 Second Order Constructs Establishment

This study has three second-order latent constructs namely, Quality Management Practices (QMPs), Human-Oriented Element-Satisfaction (HOE-Sat) and Organizational Performance (OP). Byrne (2010) emphasized that for the first-order constructs to be conceptually explained by a second-order construct, they have to be explained well by the hypothesized second-order construct and they have to be distinct. In other words, before proceeding to test the research model, procedures conducted in order to examine whether the first order constructs were qualified to be conceptually explained by the respective second-order construct.

For the Quality Management Practices (QMP) construct, the six first-order constructs namely Leadership, Strategic Planning, Customer Focus, Information Analysis, Human Resource Focus, and Process Management are explained well by the QMP construct since the R square ranged from 0.306 to 0.654 as exhibited in Table 4.12.

In addition to that, as illustrated in Table 4.12, these constructs were confirmed to be distinct using the Fornell and Larcker (1981) criteria. Thus, these constructs are conceptually explained by the second-order construct as named as the Quality Management Practices (QMP), Human-oriented Elements (Satisfaction) (HOE-Sat), and Organizational Performance (OP).

Table 4.12
Second-Order Constructs Establishment

Second Order Construct	First Order Construct	Loading	Standard Error	T Value	P Value	R square
Quality Management Practices	Leadership	0.537	0.057	10.115	0.000	0.306
	Strategic Planning	0.810	0.024	34.090	0.000	0.654
	Customer Focus	0.795	0.030	26.095	0.000	0.598
	Information Analysis	0.761	0.030	25.558	0.000	0.588
	Human Resource Focus	0.623	0.052	11.878	0.000	0.502
	Process Management	0.792	0.026	30.533	0.000	0.570
Human-Oriented Elements-Satisfaction	Functional	0.833	0.022	38.317	0.000	0.615
	Technical	0.870	0.017	51.419	0.000	0.768
	Image	0.691	0.051	13.683	0.000	0.545
Organizational Performance	Financial	0.700	0.043	16.266	0.000	0.474
	Customer	0.773	0.038	20.553	0.000	0.620
	Internal Process	0.863	0.016	54.044	0.000	0.783
	Learning & Growth	0.823	0.024	34.521	0.000	0.674

Note: Correlation significant at $p<0.01$ level

In similar vein, the Human-Oriented Element-Satisfaction (HOE-Sat) construct was hypothesized to be measured through the three first-order constructs namely, Functional, Technical, Image. These constructs were explained well by the Human-Oriented Element-Satisfaction (HOE-Sat) construct as showed by the R square that were 0.615, 0.768 and 0.545 respectively. For instance, Table 4.11 concerning to the results of the discriminant analysis confirmed that these constructs although correlated, yet distinct. Thus, Human-Oriented Element-Satisfaction (HOE-Sat) as a second-order construct is explained by the three hypothesized first-order constructs.

Finally, for the Organizational Performance (OP) construct, it is hypothesized to be explained through Financial, Customer, Internal Process, and Learning and Growth. Table 4.12 illustrated that these constructs were explained well by the Organizational Performance (OP) construct as the R square were 0.474, 0.620, 0.783 and 0.674 respectively. Having confirmed the distinction of each one of these constructs through the discriminant analysis results, the second order nature of Organizational Performance construct was established.

4.12 MODEL QUALITY PREDICTION

Unlike CB-SEM, PLS-SEM does not optimize a unique global scalar function and the consequent lack of global goodness-of-fit measures (Hair, 2012). Hair (2010) added that when using PLS-SEM, researcher should rely on measures indicating the model's predictive capabilities to judge the model's quality.

The cross-validated redundancy measure (Q^2), a common sample re-use technique (Geisser, 1974; Stone, 1974), allows for assessing a model's predictive validity (Fornell & Cha, 1994; Hair *et al*., 2012). In this regards, redundant communality was found to be larger than zero for all the endogenous variables, the model is considered to have predictive validity, otherwise, the predictive relevance of the model cannot be concluded (Fornell & Cha, 1994). Thus, Wold (1982) recommended that Q^2 represents a synthesis of cross-validation and function fitting and is a recommended assessment criterion for PLS-SEM applications.

Furthermore, several scholars (*e.g.* Chin, 1998; Fornell & Cha, 1994; Geisser, 1975; Stone, 1974) proposed that assessment can be performed by employing the blindfolding procedure embedded in Smart-PLS 2.0 package. Blindfolding procedure is designed to remove some of the data and to handle them as missing values to estimate the parameters. Next, the estimated parameters are then used to reconstruct the raw data that are assumed previously missing. As a result, the blindfolding procedure produces general cross-validating metrics Q^2 (Chin, 1998; Fornell & Cha, 1994).

Moreover, there are different forms of Q^2 that can be obtained based on the form of desired prediction (Chin, 2010). A cross-validated communality Q^2 is obtained when the data points are predicted using the underlying latent variable scores. Whereas, if the prediction of the data points is obtained by the LVs that predict the block in question, then a cross-validated redundancy Q^2 is the output (Chin, 1998; Wold, 1982).

Table 4.13
Predictive Quality Indicators of the Model

Variable	R Square	Cross-Validated Communality	Cross-Validated Redundancy
Quality Management Practices	-	0.242	0.236
HOE-Satisfaction	0.368	0.383	0.731
HOE-Commitment	0.330	0.425	0.154
HOE-Loyalty	0.361	0.536	0.162
Organizational Performance	0.648	0.538	0.191

The results related to the prediction quality of the model in this study (*see* Table 4.13) shown that the cross-validated redundancy for the QMP, HOE-Satisfaction, HOE-Commitment, HOE-Loyalty, and Organizational Performance were 0.236, 0.731, 0.154, 0.162 and 0.191 respectively. As proposed by Fornell and Cha (1994), these values are enough predictive validity of the model (based on the criteria that more than zero).

4.13 GOODNESS OF FIT ON THE OVERALL MODEL

Having done with the predictive quality model, the next step is to recognize that the term of goodness of fit (GoF) that has different meanings between CBSEM and PLS-SEM. Hair *et al*. (2012) claimed that a GoF statistic for CB-SEM are derived from the discrepancy between the empirical and the model-implied (theoretical) covariance matrix, whereas PLS-SEM focuses on the discrepancy between the observed (in the case of manifest variables) or approximated (in the case of latent variables) values of the dependent variables and the values predicted by the model in question.

Hair et al., (2012) maintained that a global criterion of GoF has been suggested by Tenenhaus, Amato and Vinzi (2004). Unlike CBSEM, PLS-SEM has only one measure of GoF.

Tenenhaus *et al*. (2005) maintained that a GoF for PLS path modeling is the geometric mean of the average communality and average R^2 for the endogenous constructs. Hence, the GoF measure accounts for the variance extracted by both outer and inner models. In line with Tenenhaus *et al*. (2005), in order to support the validity of the PLS model, GoF value was estimated according to the guidelines as proposed by Wetzels, Shroeder and van Oppen (2009) as in the following formula:

$$Gof = \sqrt{(\overline{R^2} \times \overline{AVE})}$$

Table 4.14
Goodness of Fit

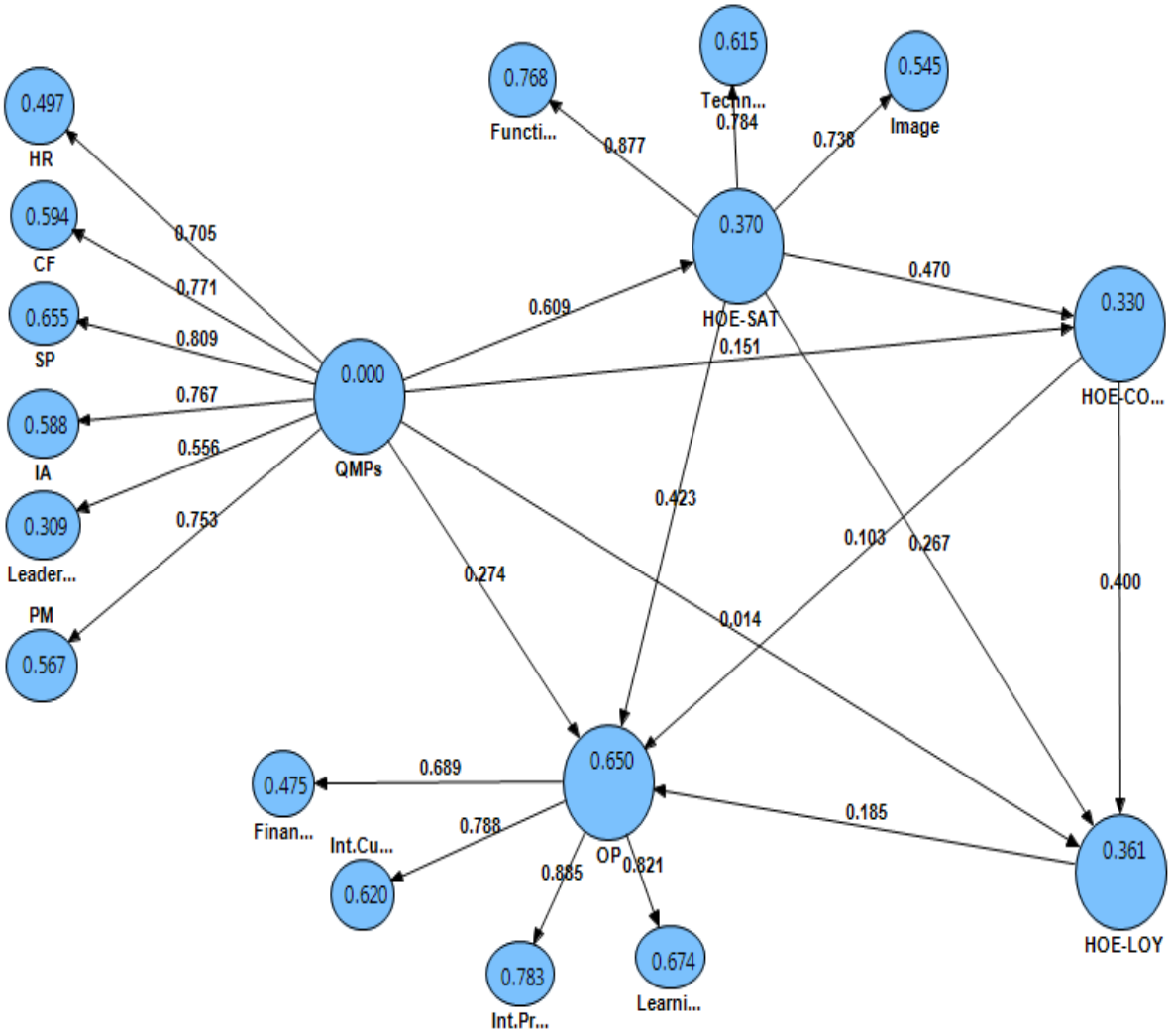
Constructs	**R Square**	**AVE**
QMP-Leadership	0.309	0.503
QMP-Strategic Planning	0.654	0.594
QMP-Customer Focus	0.598	0.509
QMP-Information Analysis	0.588	0.539
QMP-Human Resource Focus	0.502	0.631
QMP-Process Management	0.570	0.547
HOE-Satisfaction-Functional	0.615	0.526
HOE-Satisfaction-Technical	0.768	0.718
HOE-Satisfaction-Image	0.545	0.736
HOE-Commitment	0.330	0.536
HOE-Loyalty	0.361	0.538
OP-Financial	0.474	0.558
OP-Customer	0.620	0.606
OP-Internal Process	0.783	0.697
OP-Learning and Growth	0.674	0.668
Average	0.559	0.594

Goodness of Fit	**0.576**

By following the earlier mentioned formula in this section, the GoF value for this study was 0.576. The results indicated that the model GoF measure is large indicating an adequate of global PLS model validity. This result was made based on the values of GoF (small=0.1, medium=0.25, large=0.36) as proposed by Wetzels *et al*. (2009).

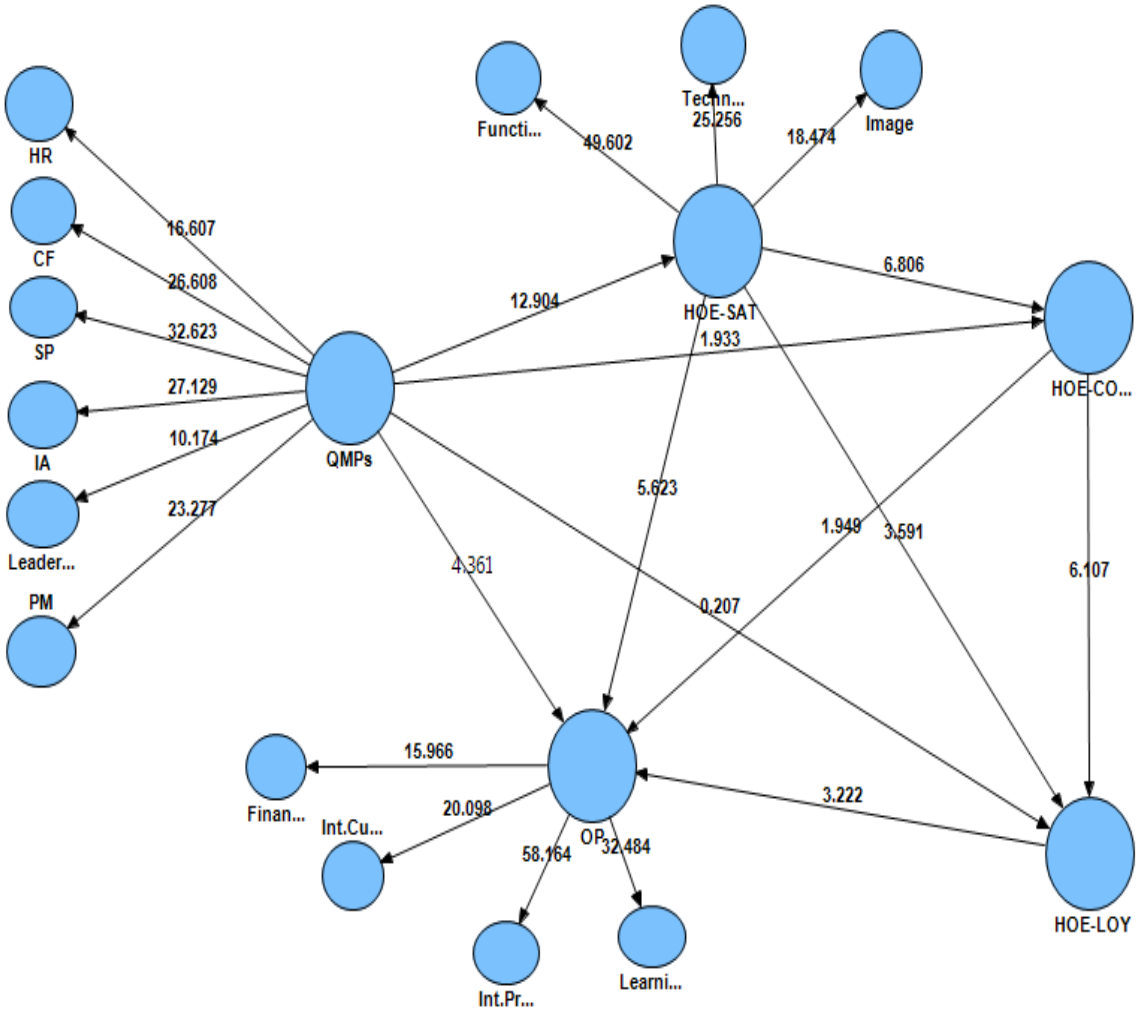
4.14 STRUCTURAL MODEL (INNER MODEL) AND TESTING PROCEDURES ASSESSMENT

After assessing the GoF of the outer model has been confirmed, the next step was to examine the standardized path coefficients in order to test the hypothesized relationships among the constructs. The hypothesized model was tested by using the SmartPLS 2.0 in order to run the PLS Algorithm. The path coefficients were then presented as illustrated in the Figure 4.6 (*p*-value) and Figure 4.7 (*t*-value).



Note: Correlation significant at p≤0.01 level

Figure 4.6
Path Model Results (p-value)



Note: Correlation significant at p≤0.01 level

Figure 4.7
Path Model Significance Results (t-value)

Barclay *et al*. (1995) stated that the traditional t-tests are not calculated in PLS-SEM as part of the PLS algorithm to determine the statistical significance of the loadings and of the path coefficients because the underlying data is not assumed to be multivariate normal. Alternatively, nonparametric resampling procedures such as jackknifing or bootstrapping are used to examine the accuracy of the estimates and to generate significance tests of the results (Chin, 1998; Tenenhaus *et al*., 2005). Thus, this study used the bootstrapping techniques embedded with SmartPLS 2.0 in order to conclude whether the path coefficients are statistically significant or not. As also highly proposed by Preacher and Hayes (2004), and Efron and Tibshirani (1993), bootstrapping is increasingly being utilized to get around this issue.

In this regards, the *t*-values accompanying each path coefficient was generated using the bootstrapping technique and subsequently the P values were generated as reported in Table 4.15. The results presented that the Quality Management Practices (QMPs) has a positive significant impact on the Organizational Performance (OP) at the 0.01 level of significance (β= 0.270, t=4.228, $p \leq 0.01$), and Human-Oriented Element atisfaction (HOE-Satisfaction) (β= 0.607, t=12.404, $p \leq 0.01$). These result supported the hypothesized relationship as involved in H_1 and H_2.

Furthermore, it was found that the positive relationship between Human-Oriented Element Satisfaction (HOE-Sat) also has an effect on Organizational Performance (OP) (β= 0.425, t=5.660, $p \leq 0.01$), Human-Oriented Element Loyalty (HOE-Loy) on Organizational Performance (OP) (β= 0.186, t=3.306, $p \leq 0.01$), Human-Oriented Element

Satisfaction (HOE-Sat) on Human-Oriented Element Commitment (HOE-Comm) (β= 0.473, t=7.072, $p \leq 0.01$), Human-Oriented Element Satisfaction (HOE-Sat) on Human-Oriented Element Loyalty (HOE-Loy) (β= 0.274, t=4.421, $p \leq 0.01$), and Human-Oriented Element Commitment (HOE-Comm) on Human-Oriented Element Loyalty (HOE-Loy) (β= 0.402, t=6.081, $p \leq 0.01$). Therefore, the results of the study support the hypotheses of $H_{5,}$ H_7 through $H_{10.}$

However, the analysis shown that there have no effect of Quality Management Practices (QMPs) on Human-Oriented Element Commitment (HOE-Comm) (β= 0.150, t=1.933, $p > 0.01$), Human-Oriented Element Loyalty (HOE-Loy) (β= 0.142, t=0.207, $p \geq 0.01$) and Human-Oriented Element Commitment (HOE-Comm) on Organizational Performance (OP) (β= 0.105, t=1.905, $p \geq 0.01$). These results do not support the hypotheses of H_3 and $H_{6.}$

For addition, the results shown positive sign of the beta regarding the effect of all variables involved. For example, QMPs on OP indicates that the higher is the effort in QMPs, the higher of performance in an organization. Further discussions regarding these findings are provided in the discussion chapter.

Table 4.15
The Results of the Inner Structural Model

Hypothesis	Hypothesized Effect	Path Coefficient	Std Error	T Value	P Value	Decision
H_1	**QMPs → OP**	0.274310	0.062905	4.360711	0.000	Supported
H_2	**QMPs →HOE-Sat**	0.608618	0.047164	12.90420	0.000	Supported
H_3	**QMPs →HOE-Comm**	0.150782	0.078009	1.932895	0.028	Not Supported
H_4	**QMPs→HOE-Loy**	0.014218	0.068833	0.206555	0.420	Not Supported
H_5	**HOE-Sat→OP**	0.423355	0.075296	5.622525	0.000	Supported
H_6	**HOE-Comm→OP**	0.103353	0.053036	1.948728	0.028	Not Supported
H_7	**HOE-Loy→OP**	0.184850	0.057363	3.222428	0.000	Supported
H_8	**HOE-Sat→ HOE-Comm**	0.470262	0.069097	6.805806	0.000	Supported
H_9	**HOE-Sat→ HOE-Loy**	0.266870	0.074315	3.591047	0.000	Supported
H_{10}	**HOE-Comm→ HOE-Loy**	0.400412	0.065564	6.107174	0.000	Supported

Note: Note: *p≤0.1; **p≤0.05; ***p≤0.01

4.15 POTENTIAL MEDIATING EFFECT OF THE HUMAN ORIENTED ELEMENT (SATISFACTION, COMMITMENT, LOYALTY)

MacKinnon (2008) maintained that the main benefit of SEM compared to regression is the capableness of SEM to test mediating variables as part of a comprehensive model. As suggested by (Albers, 2010), the examination of inner model estimates involved both in terms of values and significance and also the direct and indirect effects.

This study targeted to examine the mediating effect of Human-oriented Elements on the relationship between QMPs and OP, and the other constructs related to Human-oriented Elements. In doing that, the SmartPLS 2.0 was employed to examine the interaction effect of Human-oriented Elements. As performed in Table 4.16, the mediating effect of Human-oriented Elements (Satisfaction, Commitment, Loyalty) on the relationship between QMPs and OP, and the other constructs related to Human-oriented Elements was examined using the PLS algorithm.

To evaluate indirect effects in the mediation model, this study employed the bootstrapping strategy as proposed by Preacher and Hayes (2008). Derived from a 1,500 bootstrap sample, results present that the estimates of indirect effects are significant for all hypotheses except H_{14} and $H_{17.}$

In order to estimate the level of mediation either partial or full, this study applied suggestions made by Baron and Kenny (1986) and Mathieu and Taylor (2006). The

mediating effects can be qualified as full when then the coefficient of direct relationship when the mediator is accounted for is not significant. Therefore, if the direct relationship and indirect path are significant, but the direct relationship when the mediator is accounted for is not significant, this reveals a full mediation. Otherwise, if both the indirect path and direct relationship when mediator is accounted for are significant, the mediating effects are partial. In other hands, the strength of the significant relationship between IV and DV become weaker when controlling for the mediator also provide support for partial mediating effects.

The results exposed that the HOE-Sat was found to be a significant mediator of the relationship between QMPs and HOE-Loy (β= 0.258, t=5.059, p≤0.01). It was found that HOE-Comm (β= 0.0154, t=1.123, p≥0.1) and HOE-Loy (β= 0.0025, t=0.184, p≥0.1) not to mediate the relationships between QMPs and OP. This result, while partial supporting six hypotheses of the study ($H_{11,}$ $H_{13,}$ $H_{15,}$ $H_{16,}$ $H_{18,}$ $H_{19)}$ as performed in Table 4.16.

Table 4.16
The Results of the Mediating Variable

Hyp.	Hypothesized Effect	Direct R/ship	Direct R/ship when the Mediator is accounted for	Indirect Path	Std Error	T Value	P Value	Decision
H_{11}	**QMPs→HOE-Sat→OP**	**0.633*****	0.270***	0.258***	0.051	5.059	0.000	Partial Mediation
H_{12}	**QMPs→HOE-Sat→ HOE-Loy**	**0.347*****	**0.013**	0.166***	0.046	3.613	0.000	Full Mediation
H_{13}	**QMPs→HOE-Sat→ HOE-Comm**	**0.437*****	**0.147***	0.287***	0.048	6.008	0.000	Partial Mediation

H_{14}	**QMPs→HOE- Comm →OP**	**0.633*** **	**0.270*** **	0.0154*	0.015	1.123	0.131	No Mediation
H_{15}	**HOE-Sat→HOE-Comm→HOE- Loy**	**0.500*** **	**0.274**	0.190***	0.044	4.284	0.000	Partial Mediation
H_{16}	**HOE-Sat→HOE-Comm→OP**	**0.741*** **	**0.425*** **	0.088***	0.026	3.344	0.000	Partial Mediation
H_{17}	**QMP→HOE- Loy →OP**	**0.633*** **	**0.271*** **	0.0025*	0.013	0.184	0.427	No Mediation
H_{18}	**HOE-Sat→HOE-Loy →OP**	**0.741*** **	**0.425*** **	0.051**	0.020	2.567	0.005	Partial Mediation
H_{19}	**HOE-Comm→ HOE-Loy→OP**	**0.575*** **	**0.185***	0.075**	0.027	2.768	0.003	Partial Mediation

Note: *p≤0.1; **p≤0.05; ***p≤0.01

4.16 CHAPTER SUMMARY

This chapter examined the hypotheses outlined in Chapter 2. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used as the main analysis technique since the assumption of multivariate normality of the data was not fulfilled. Once the measurement model has been proven to be valid and reliable, the next step was to test the hypothesized relationships. Before examining the hypothesized relationships, the predictive power of the model was investigated and reported and the goodness of the overall model was performed. Having done this, the structural model was examined and the results were reported in details. A summary of the findings of the hypotheses test are displayed in Table 4.17. It shown that the hypotheses $H_{1,}$ $H_{2,}$ $H_{5,}$ $H_{7,}$ $H_{8,}$ $H_{9,}$ H_{10} and H_{12} were statistically supported by the findings of the study, whereas the H_{14} and H_{17} were not, and the other hypotheses were partially supported.

Table 4.17
Summary of the Findings

Hypothesis	Hypothesized Path	Decision

H_1	There is a positive relationship between Quality Management Practices (QMPs) and Organizational Performance (OP)	Supported
H_2	There is a positive relationship between Quality Management Practices (QMPs) and Human-oriented Element (Satisfaction)	Supported
H_3	There is a positive relationship between Quality Management Practices (QMPs) and Human-oriented Element (Commitment)	Not Supported
H_4	There is a positive relationship between Quality Management Practices (QMPs) and Human-oriented Element (Loyalty)	Not Supported
H_5	There is a positive relationship between Human-oriented Element (Satisfaction) and Organizational Performance (OP)	Supported
H_6	There is a positive relationship between Human-oriented Element (Commitment) and Organizational Performance (OP)	Not Supported
H_7	There is a positive relationship between Human-oriented Element (Loyalty) and Organizational Performance (OP)	Supported
H_8	There is a positive relationship between Human-oriented Element (Satisfaction) and Human-oriented Element (Commitment)	Supported
H_9	There is a positive relationship between Human-oriented Element (Satisfaction) and Human-oriented Element (Loyalty)	Supported
H_{10}	There is a positive relationship between Human-oriented Element (Commitment) and Human-oriented Element (Loyalty)	Supported
H_{11}	Human-oriented Element (Satisfaction) will fully mediate the relationship between Quality Management Practices (QMPs) and Organizational Performance (OP)	Partially Supported

Table 4.17
Summary of the Findings (*continued*)

H_{12}	Human-oriented Element (Satisfaction) will fully mediate the relationship between Quality Management Practices (QMPs) and Human-oriented Element (Loyalty)	Supported
H_{13}	Human-oriented Element (Satisfaction) will fully mediate the relationship between Quality Management Practices (QMPs) and Human-oriented Element (Commitment)	Partially Supported
H_{14}	Human-oriented Element (Commitment) will fully mediate the relationship between Quality Management Practices (QMPs) and Organizational Performance (OP)	Not Supported

H_{15}	Human-oriented Element (Commitment) will fully mediate the relationship between Human-oriented Element (Satisfaction) and Human-oriented Element (Loyalty)	Partially Supported
H_{16}	Human-oriented Element (Commitment) will fully mediate the relationship between Human-oriented Element (Satisfaction) and Organizational Performance (OP)	Partially Supported
H_{17}	Human-oriented Element (Loyalty) will fully mediate the relationship between Quality Management Practices (QMPs) and Organizational Performance (OP)	Not Supported
H_{18}	Human-oriented Element (Loyalty) will fully mediate the relationship between Human-oriented Element (Satisfaction) and Organizational Performance (OP)	Partially Supported
H_{19}	Human-oriented Element (Loyalty) will fully mediate the relationship between Human-oriented Element (Commitment) and Organizational Performance (OP)	Partially Supported

CHAPTER FIVE

DISCUSSIONS AND CONCLUSION

5.1 INTRODUCTION

This chapter discusses the results of the study presented in Chapter Four. Section 5.2 and Section 5.3 discuss the key findings from the hypotheses testing that set out to answer the research objectives. Section 5.4 describes the theoretical, methodological and practical implications of the current study. Next, the limitations of the study, directions for further research and the concluding remarks are presented in the Section 5.5, 5.6 and 5.7 respectively.

5.2 RECAPITULATION OF STUDY

The purposes of this study were to investigate the relationship between quality management practices and organizational performance, to determine the relationship of quality management practices on human-oriented elements (satisfaction, commitment, loyalty), and to examine the relationship of human-oriented elements (satisfaction, commitment, loyalty) on organizational performance. The aim of this study was also to look at the interrelationships between human-oriented elements (satisfaction, commitment, loyalty). Lastly, this study tries to look at the mediating effect of human-oriented elements (satisfaction, commitment, loyalty).

The theoretical framework utilized in this study was based on the four stages of Systems Theory and the variables involved were grounded from operations management, organizational behavior/psychology and management accounting disciplines, with prominence given to the higher education industry. That are, QMPs referred to input stage, human-oriented elements (satisfaction, commitment, loyalty) concerned to process stage, and output stage denoted to organizational performance. Finally, the feedback stage pertained to the customer complaints after the end of the process or while the process is still in progress and can be used as an input for the next process. Consequently, all of these four stages interact with the environment in the open system.

The target population for this study comprised of twenty public universities in Malaysia. Due to the geographical scattering of the targeted respondents, questionnaires were distributed by employing the personal-administered survey through personal contact for each university. The total response rate was 61.7 percent.

The Cronbach coefficient alpha of the variables employed in this study has obtained an excellent composite reliability outcome with a ranging from 0.764 to 0.910. PLS-SEM was employed in this study to examine the relationship of the variables and the mediating effects of human-oriented elements. The results shown that eight hypotheses were supported, five were not, and six have only indicated partial mediation.

5.3 DISCUSSION OF FINDINGS

5.3.1 The Relationship between Quality Management Practices and Organizational Performance

The first research question postulated in Chapter One is to investigate the relationship between quality management practices and organizational performance among head of departments in Malaysian public universities. The research findings in this study indicated that QMPs is found to have a significant and positive relationship with OP, in support of $H_{1.}$ This result is consistent with the prior studies (*e.g.* Demirbag *et al*., 2006; Heras *et al*., 2006; Li *et* al., 2003; Martínez-Costa & Martínez-Lorente, 2007; Sacchetti, 2007; Sayeda *et al*., 2010; Yasin *et al.,* 2004), in which these scholars have reported that QMPs has proved to be a powerful instrument for improving organizational performance.

The result of this study entails that the excellence implementation of QMPs in the higher education institutions, the higher performance the organization will perceive. This empirical result also confirm previous authors' findings (*e.g.* Choi *et al*., 1998; Dow *et al*., 1999; Powell, 1995; Terziovski & Samson, 2000, 1999; Zhang, 2000) regarding QMPs as an effective mean by which organizations can increase their performance. Furthermore, QMPs is a general philosophy of management that attempts to maximize the performance of an organization through the continual improvement of the quality of its services, people, processes and environments. In detail, QMPs with the specific purpose of driving internal operational improvements tend to experience the best organizational performance (Arauz & Suzuka, 2004; Martinez-Costa & Martinez-Lorente, 2003). The literature also suggested not only that effective and efficient QMPs

implementation improves organizational performance (Hendricks & Singhal, 1997; Brah, Wong & Rao, 2000), but also that both manufacturing and service firms can successfully adopt QMPs because quality performance levels do not differ significantly between these two characters of industries (Prajogo, 2005). In other words, QMPs can be applied to service organisations (*i.e.* higher education institutions), as its implementation is connected with better organizational performance levels.

5.3.2 The Relationship between Quality Management Practices on Human-oriented Elements (Satisfaction, Commitment, Loyalty)

This study was designed to determine the relationship between quality management practices on human-oriented elements (satisfaction, commitment, loyalty) were practiced among head of departments in Malaysian public universities. Therefore, along with the second research question, the result also shows that H_2 is supported. QMPs is found to have a significant and positive relationship with Human-Oriented Element (Satisfaction). This result is in line with previous studies (*e.g.* Agus and Abdullah (2000); Anderson *et al*. (1995); Chang *et al*. (2010); Das *et al*. (2000); Forza & Flippini (1998); Kanji *et al*. (1999); Lagrosen, 2001; Sakthivel *et al*., 2005; Terziovski, 2006) in which the implementation of QMPs also improves the satisfaction of employees. In this regard, this finding concurred with the emphasizes of Terziovski (2006) and Zhang (2000) that effective and participative management that focus on employees' requirements while adopting employee-centric approaches in QMPs could contribute towards the level of satisfaction.

Surprisingly, little support is found for the set of hypotheses H_3 and H_4 with respect to the Human-Oriented Element (Commitment) and Human-Oriented Element (Loyalty). The survey data does not support hypotheses H_3 and H_4 since Quality Management Practices (QMPs) is not significant to Human-Oriented Element (Commitment), and to Human-Oriented Element (Loyalty). In short, the implementation of QMPs is not based on commitment and loyalty among the employees. Interestingly, these findings differ from Taylor's (1995) study of 682 organizations in Northern Ireland, which found that QMPs implementation to commitment brought about significant improvements in the attitudes and behaviors of the senior executives in those organizations. As noted earlier, QMPs would be effective only when all employees are committed (Evans & Lindsay, 1993). In other hand, the finding also differ from Navarro *et al.* (2005), Sila and Ebrahimpour (2005); Yaya *et al.*'s (2011) which established that QMPs has a significant and positive relationship with loyalty.

A plausible reason regarding this phenomenon is the cause for pursuing QMPs in the majority organizations. First, it may be driven by a customer request to affirm with their internal quality control and supplier quality assurance systems. Second, it can be driven by the adopting organization as a route to increasing home and overseas market share where QMPs has a value that is somewhat transferable to service quality. Lastly, it can be seen as a means of improving internal processes and service quality. In other word, the QMPs initiatives are based on top-down instruction. In this regards, those employees face more uncertainty in their seek for the best way to perform their multiple functions, especially when they have to react to different customer needs and complete job assigned

by top management simultaneously. Thus, commitment and loyalty are seems not significant in this situation.

5.3.3 The Relationship of Human-oriented Elements (Satisfaction, Commitment, Loyalty) on Organizational Performance

In response to the third research question of this study, as expected, Human-Oriented Element (Satisfaction) and Human-Oriented Element (Loyalty) were found to have a significant positive effect on Organizational Performance, providing evidence to support hypotheses H_5 and H_7. The result of this study is consistent with the findings of Agus and Abdullah (2000), and Heskett *et al*. (1994) in term of Human-Oriented Element (Satisfaction), and Ali & Shastri (2010), and Douglas, McClelland & Davies (2008) concerning on Human-Oriented Element (Loyalty).

The results of this study also are confirmed by literature findings that satisfaction and loyalty by all levels in the organization, specifically head of department, is a prerequisite to obtaining organizational performance. The employees are an important determinant in the input-process-output chain in the educational system and thus, their satisfaction and commitment cannot be ignored. A satisfied and loyal employee would act as an efficient service provider. In short, the satisfaction and loyalty of the external customer (*i.e*. students, parents, public) would have to be preceded by the satisfaction and loyalty of the employees.

However, Human-Oriented Element (Commitment) was ascertained not to have a significant effect on Organizational Performance, leaving prove to reject hypothesis H_6.

The present finding is not consistent with the past studies from Baugh and Roberts (1994); Benkhoff (1997); Cohen (1992); Mathieu and Zajaz (1990) that Human-Oriented Element (Commitment) have a positive link with Organizational Performance. Again, Human-Oriented Element (Commitment) involves a range of people within the organization such as top management, work unit employees and organization itself. Apparently, several studies (e.g. Mathieu & Zajac, 1990; Meyer & Allen, 1997; Mowday, 1998) conclude that Human-Oriented Element (Commitment) is related to improve organizational performance.

A credible reason that based on the results of this study is the operational condition for non-profit sector (*i.e.* higher education) may not always be suited to the absolute application of management tools developed in other sectors. That is, for the profit sector it is to be more high risk rather than non-profits. This is a factor as stated by Hull and Lio (2006), in which the non-profit sector appears largely governed by the nature of their environment that often relies upon stability of service provision.

5.3.4 The Interrelationships among Human-Oriented Elements (Satisfaction, Commitment, Loyalty)

In the case of answering research question four, this study empirically found that all hypotheses (H_8, H_9, H_{10}) are supported expected, Human-Oriented Element (Satisfaction) have a positive relationship with Human-Oriented Element (Commitment) and Human-Oriented Element (Loyalty). Consequently, Human-Oriented Element (Commitment) also have a positive significant with Human-Oriented Element (Loyalty).

Through the assessment of discriminant validity, this result strengthens the expectation that Human-Oriented Element (Satisfaction, Commitment, Loyalty) are interrelated as proved by the prior study from Dimitriades (2006) in Greece service organization. Furthermore, the human-oriented elements are the behavioural aspects of management or the human aspects (Wilkinson & Dale, 2002). In other words, elements of human-oriented elements are essentially variables of people management. The effective use of human-oriented elements (*i.e.* satisfaction, commitment, loyalty) in the organization can bring quality improvement (Dow *et al*., 1999; Samson & Terziovski, 1999). This connotes to the management that by focusing and implementing human-oriented elements in higher education institution, it would promote overall QMPs which in turn enhance the organizational performance. Thus, the soul or living principle of the QMPs is the mental attitude and emotional participation of the employees and their satisfaction, commitment and loyalty to the organization's quality concerns and goals. This study also demonstrates that satisfaction, commitment and loyalty in an organization is important for the successful and enduring quality programs.

5.3.5 Mediating Effects of Human-oriented Elements (Satisfaction, Commitment, Loyalty)

Finally, this study answered research question five by exploring empirically the three mediation effects of satisfaction, commitment and loyalty.

5.3.5.1 Satisfaction

As asserted by Nair (2006), and Sila and Ebrahimpour (2005), the relationship between QMPs to organizational performance happens indirectly through other variables (mediator). Amazingly, the result of this study performed that the Human-oriented Element (Satisfaction) does not appear to be a full mediator influencing both QMPs and organizational performance as expected. Thus, the hypothesis H_{11} is partially supported. The present result is not in line with a study by Agus and Abdullah (2000) at Malaysian manufacturing companies. They reported that the Human-oriented Element (Satisfaction) is found as mediator between QMPs and organizational performance. From this finding it is reasonable to conclude that almost all QMPs implementation by itself can lead to improvement in organizational performance.

Nevertheless, consistent with expectations, the results of this study performed that the Human-oriented Element (Satisfaction) is a full mediator in predicting QMPs and Human-oriented Element (Loyalty) relationship. The result of this study support the previous study (*e.g.* Douglas *et al*. 2008; Heskett *et al*. 1997; Reichheld 1993) in which Human-oriented Element (Satisfaction) is necessary precondition for Human-oriented Element (Loyalty) which is in turn a key driver of organizational performance.

Furthermore, this study also found that Human-oriented Element (Satisfaction) is partially mediate the relationship of QMPs and Human-oriented Element (Commitment). This finding proposed that a total commitment from an employee cannot be achieved without sustained their satisfaction. Based on the result, this study indicates for any organization those applied QMPs in producing their services and products, realizes the Human-oriented Element (Satisfaction) plays a key role in their QMPs approach.

5.3.5.2 Commitment

Surprisingly, the result of this study established that the Human-oriented Element (Commitment) does not be a mediator determining both QMPs and organizational performance as expected. Thus, the hypothesis H_{14} is not supported. On the other hands, Human-oriented Element (Commitment) also seems partially mediated on links of Human-oriented Element (Satisfaction) and Human-oriented Element (Loyalty), and Human-oriented Element (Satisfaction) and Organizational Performance. These findings determined that H_{15} and H_{16} are partially supported.

Accordingly, this study provide an evidence that not consistent with previous studies such as Powell (1995) and Dow *et al.* (1999), whose demonstrated that Human-oriented Element (Commitment) has significant effects and mediator on the relationships of QMPs and organizational performance. The result also suggests that uncommitted management and employees are obviously severe obstacles for managing an implementation. This notion is also maintained by Tsang and Chan (2000), and Saad and Siha (2000) that the

difficulties obtaining commitment need have to do with the characteristics of individuals, such as perceptions, attitudes, expectations and values. That is, these construct that could obstruct acceptance of and motivation to work with an implementation of QMPs. Consequently, the intangible factors such as involvement, ownership and understanding are important in obtaining commitment, in that they affect behaviour characteristics (Ghobadian & Gallear, 2001; Saad & Siha, 2000). Thus, an approach is needed that facilitates the management of commitment by identifying what, and how, various enabling activities promote intangible factors.

5.3.5.3 Loyalty

As not expected, this study also detected that the Human-oriented Element (Loyalty) does not seems to be a full mediator determining both QMPs and organizational performance. In short, the hypothesis H_{17} is not supported. Additionally, Human-oriented Element (Loyalty) also founds partially mediated on links of Human-oriented Element (Satisfaction) and Organizational Performance, and Human-oriented Element (Commitment) and Organizational Performance. In short, H_{18} H_{19} are partially supported.

Interestingly, these findings differ from several studies (*e.g.* Ali & Shastri, 2010; Chen & Lai, 2010), which found that Human-oriented Element (Loyalty) is the best predictor and had a significant effect on organizational performance. A plausible reason that grounded from this result is supported by the opinion made by Schermerhorn and Bond (1997), in which Malaysian work teams generally show high levels of collectivism and possess

great respect for authority in supervisor-subordinate relationships. Hofstede (1984) asserted that collectivism is characterised by a tight social framework in which people distinguish between in-groups and out-groups, they expect their in-group to look after them, and in exchange for that they feel they owe absolute loyalty to it. Hence, employees in Malaysia are unlikely to experience loyalty concerning organizational performance because they work according to their superiors' instructions and they are usually reluctant to act against authority. These findings also provide further empirical support for the previous observation that satisfied employees influence loyalty (Dick & Basu, 1994; Helgesen & Nesset, 2007; Navarro *et al*., 2005; Oliver, 1999; Pritchard *et al*., 1999).

As a small conclusion for this section, the findings of study lead to the inference QMPs is not just a tool for enhancing quality standards of the products and services of organizations but could be used as a powerful mechanism by organization managements for transforming the character and quality of the manpower (*i.e.* satisfaction, commitment, loyalty) in an organization.

5.4 IMPLICATIONS OF STUDY

5.4.1 Theoretical Implications

This study is grounded in the principles of Systems Theory that views an organization interact with its environment in an open system. It also postulates that organizations take inputs such as raw materials, money, labor from the external environment, transform them into products or services, and then send them back as final products to the external

environment (Houston, 2008; Stoner *et al*., 1995). The results of this study allow for support to this theory since it has shown that the various QMPs like leadership, strategic planning, customer focus, information analysis, human resource focus, and process management are crucial factors that could be engaged by public universities in Malaysia in order to enhance their performance. Consequently, the emergence of the mediating variables are also a key element in Systems Theory. Based on this theory, organizational performance could be improved if there is an effective alignment with human-oriented elements such as satisfaction, commitment, and loyalty (*see* Agus & Abdullah, 2000; Dimitriades, 2006; Douglas, McClelland & Davies, 2008; Dow *et al*., 1999; Helgesen & Nesset, 2007; Kanji, Tambi & Wallace, 1999; Navarro *et al*., 2005; Powell, 1995; Sayeda, Rajendran & Lokachari, 2010). Following to the Systems Theory, the relationship between QMPs (input) and organizational performance (output) is based upon the human-oriented elements (process). The result of this study have shown that the significant impact amongst human-oriented elements are interdependently in order to produce a positive effect on organizational performance.

Another leading implication of this study that relevant to the public universities in Malaysia is the establishment of a theoretically based model which incorporates the components of QMPs, human-oriented elements (satisfaction, commitment, loyalty), and organizational performance. Specifically, this study affirms the formation of empirical relationships between the research variables proposed in the structural model of QMPs, human-oriented elements (satisfaction, commitment, loyalty), and organizational performance.

Furthermore, prior studies, such as Jitpaiboon and Rao (2007), Kaynak (2003), and Micaela Martínez-Costa *et al*. (2009) mentioned that there are very limited studies that have uncovered the indicators of organizational performance (involving of financial, customer, internal process, and learning and growth) to evaluate QMPs implementation, specifically in the higher education institutions context (Mehralizadeh & Safaeemoghaddam, 2010). According to Sila and Ebrahimpour (2005), and Kwak and Anbari (2006), further studies are needed to understand whether and how organizational performance measurements (*i.e.* financial, customer, internal process, and learning and growth) performs indicators for evaluating QMPs implementation and human-oriented elements. In response to the above, this study provided the Balance Scorecard (involving of financial, customer, internal process, and learning and growth) as a very accurate way of evaluating QMPs implementation and human-oriented elements.

Moreover, the employ of PLS-SEM in this study allow for a new way to analyze the research model simultaneously, examine the mediating effects of human-oriented elements (satisfaction, commitment, loyalty), and provide outer and inner model examinations aimed to ensure that the hypothesized models are correctly determined. Interestingly, most quality management researchers are very familiar with the fundamentals of covariance-based-type SEM models, whereas current familiarity with PLS-SEM is relatively low in the field of quality management, making it difficult for researchers to properly evaluate its use (Turkyilmaz, Tatoqlu, Zaim & Ozkan, 2010).

Thus, this contribution crucial because the simultaneous examinations of QMPs, human-oriented elements (satisfaction, commitment, loyalty), and organizational performance offers a more comprehensive understanding of the processes and advances the current knowledge concerning the interrelationships among of QMPs, human-oriented elements (satisfaction, commitment, loyalty), and organizational performance.

In details, this study confirms the positive linkages between QMPs with organizational performance and human-oriented element (satisfaction), between human-oriented element (satisfaction) and human-oriented element (loyalty) with organizational performance, between human-oriented element (satisfaction) and human-oriented element (commitment), between human-oriented element (satisfaction) and human-oriented element (commitment) with human-oriented element (loyalty). On the other hand, this study affirms that no linkages between QMPs with human-oriented element (commitment) and human-oriented element (loyalty), between human-oriented element (commitment) and organizational performance.

5.4.2 Methodological Implications

Although human-oriented elements are examined as independent variable (*e.g.* Abdullah, Uli & Tari, 2008), and dependent variables in the previous study (*e.g.* Kanji *et al*., 1999; Sayeda *et al*., 2010; Yaya *et al*., 2011), the study design of this research differs from other studies by empirically examining human-oriented elements (satisfaction, commitment, loyalty) as mediating variable. This contribution is important that this study constitutes a fundamental shift in study design of the independent, dependent and

mediating variables that is useful in the context of operations management, organizational psychology and organizational behavior research.

In addition, to date, scarcity known about the studies in the area of QMPs and organizational performance have examined both direct and indirect effects on the links of QMPs, human-oriented elements (satisfaction, commitment, loyalty), and organizational performance. The examination and establishment of reflective nature of QMPs and mediating relationships between QMPs, human-oriented elements (satisfaction, commitment, loyalty), and organizational performance simultaneously in this study is a significance distinction that past studies have not identified. Specifically, the mediation analysis affirms that only human-oriented element (satisfaction) is only a full mediator on the relationship between QMPs and human-oriented element (loyalty), whilst human-oriented element (commitment) and human-oriented element (loyalty) are not mediator on the relationships between QMPs and organizational performance, and others are partially mediator.

5.4.3 Practical Implications

Derived from the results, it recognized that a main factor in any quality initiative is human. When it comes to implementation, the success of quality management practices tools and techniques, and the truth of its theories, relies hardly on the understanding of human-oriented elements (satisfaction, commitment, loyalty). On the other hand, when organization fail to meet the human-oriented elements (satisfaction, commitment,

loyalty), employees are considered to be ineffective. This is definitely unhealthy for any organization in order to increase their performance.

The first strike to manage human-oriented element is to further raise awareness among head of department of public institutions of higher learning on the essential of institutionalizing of QMPs in their institutions. As a middle manager of an institution, their persistence, long-term vision, customer-oriented mindset and as decision maker are important ingredients for performing QMPs. This awareness should further be followed by increasing their satisfaction, commitment and loyalty towards the implementation of QMPs in order to gain the effectiveness.

Furthermore, this study provides evidence that satisfaction is a necessary precondition for loyalty, which is in turn a key driver of organizational performance. It means that the administrators and managers in public universities must give attention to the pressures of satisfaction which causes increased loyalty. Consequently, as argued by Dick and Basu (1994) that emotions (*i.e.* satisfaction) lead to either positive or negative feelings capable of disrupting ongoing behaviour. Wong and Low (2004) also stress that emotions influence behaviour, and employees tend to respond to events in ways that maintain positive emotions and avoid negative ones. Evidences of this study therefore confirm that head of department (i.e. administrators and managers) may need to pay more attention to employee emotions if they really wish to maintain their competitive edge. That is, knowing how employees feel about their job will help administrators and managers to develop appropriate strategies that focus on satisfaction and loyalty. Then,

when managers know which strategies they need to adopt and update, they will be able to enhance the positive emotions that lead to employee satisfaction and loyalty.

Next, this study also suggests that the management could stress on behavioral measure in the employee annual performance appraisal, specifically for the customer contact employees, to gain the levels of satisfaction among the employees. The purpose of behavior-based performance appraisal gives employees more control over their performance, thereby reducing employees' dissatisfaction (Hartline & Ferrell, 1996).

Finally, the head of department should clearly define the job functions and responsibility of the employees in order to gain the satisfaction and loyalty among the employees. In this regard, it is proposed that the management to redesign the workflow, job design, and the training, compensation and reward systems. This is because contradictory assignments of responsibilities create ambiguous role demand, and discontentment with the training, compensation and reward systems resulting in higher levels of dissatisfaction and disloyalty.

5.5 LIMITATIONS OF STUDY

Dolen, Ruyter and Lemmink (2004) maintained that one of the strengths of any study is to recognize its limitations. While this study makes a contribution to the body of quality management, organizational behavior/psychology, and management accounting literatures, this study has several limitations that need to be addressed. This section presents the limitations of this study. The first limitation relates to the variables

contained within the research model (satisfaction, commitment, loyalty). Even though the research model comprehends the variables that are central to the study, there are a number of possible variables that could affect the relationship between quality management practices and organizational performance. The research model, for instance, does not includes organizational culture, reward and recognition that also considered as the determinants of quality management practices and organizational performance.

Second, this study only limited to the public universities in Malaysia. Public institutions of higher learning institution such as polytechnics and also private universities were excluded from the sampling frame in this study. Therefore, the fruitful findings in this study would gain a deeper understanding into the practice of QMPs, human-oriented elements (satisfaction, commitment, loyalty), and organizational performance by involving other public and private institutions of higher learning in Malaysia.

Third, this study employed a cross-sectional survey design for the purpose of data collection. Even though cross-sectional data may be helpful in predicting relationships among variables, it does not capture continuous evolutions that might involve the hypothesized relationships. For instance, the level of human-oriented elements (satisfaction, commitment, loyalty) could be enhancing or shortening because of the continuous implementation of QMPs. Consequently, there may have an effects by time on relationships among the research constructs of QMPs, of human-oriented elements (satisfaction, commitment, loyalty), and organizational performance.

5.6 DIRECTION FOR FURTHER RESEARCH

The study also encourages further research in the following areas. First, this study is concentrated on the direct and indirect effect between the variables involved in the research model. Besides direct and indirect relationships, the introduction of other variables could help to complete the model. For example, Al-Swidi and Mahmood (2012) reported that organizational culture moderates the relationships between QMPs and organizational performance. Furthermore, Sureshchandar *et al*. (2001) proposed that reward and recognition could potentially moderate on the mentioned relationship. Thus, further research could test the moderating effect of these variables in a research model. Investigating the direct, mediating, and moderating effects of these variables simultaneously could potentially provide a better understanding and compatibility of the relationship among the variables.

Second, the research setting for this study was public institutions of higher learning in Malaysia (public universities). Respondents were limited to head of department as a single key informant from each public universities understudied. Therefore, the results of this study can be regarded as being representative of the public universities in Malaysia. Although the respondents of this study were an authoritative person and a reasonable informant, but the performance of public universities should also be assessed by other shareholders and stakeholders. To further increase the generalizability, future study should replicate the study's findings with larger samples (*i.e*. premier grade employee, supporting employee, students, parents, public, ministry) and in different contexts (*i.e*. comparison of public and private universities).

Third, by using the questionnaires, data in this study was collected at a single point of time (cross-sectional data) rather than longitudinal data. Cross-sectional data limits the extent to which causality can be inferred from the results. Nevertheless, the scope of this study was limited by time and resources, as is often the case with doctoral studies; it is difficult to operationalize as such a longitudinal study. However, the postulated causal relationships in this study are based in well developed theory and practice and have the theoretical support for the direction of the relationship. In order to examine the causality of these relationships, future research will certainly benefit from longitudinal study. A longitudinal examination of the multiple aspects of the QMPs, human-oriented elements (satisfaction, commitment, loyalty), and organizational performance would make the findings more robust.

5.7 CONCLUDING REMARKS

In conclusion, the primary purpose of this study is to examine the relationship of quality management practices on organizational performance when human-oriented elements (satisfaction, commitment, loyalty) are involved among an authorized administrative officer (head of department) in Malaysian higher learning institutions. Therefore, this study has covered a significant contribution in QMPs and organizational performance

literature by formulating, examining and establishing a research model linking the mediating relationships between QMPs, human-oriented elements (satisfaction, commitment, loyalty), and organizational performance. Although QMPs, human-oriented elements (satisfaction, commitment, loyalty), and organizational performance have received much interest, but there have been little effort to integrate all these variables in a single theoretical model. Therefore, this study carried to develop and validate a theoretical framework to further explain the structural relationship. On the other hands, the mediation analysis confirmed that only HOE-Satisfaction was found to be a full mediator between QMPs and HOE-Loyalty. The HOE-Commitment and HOE-Loyalty were found to be not a mediator of the relationship between QMPs and Organization Performance, whilst the other hypotheses regarding on mediating effects were found as partially mediated. Based on the findings of the study, the significant contributions to the theoretical and practical were performed. Finally, this study has distinguished the limitations of the study and suggests directions for further research as concluding remarks.

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SOAL SELIDIK

PROJEK PENYELIDIKAN UNIVERSITI UTARA MALAYSIA

Penilaian Amalan Pengurusan Kualiti dan Prestasi Organisasi di Institusi Pengajian Tinggi Awam Malaysia

Prof. Madya/Dr./Tuan/Puan yang saya hormati,

Saya seorang calon PhD di Kolej Perniagaan, Universiti Utara Malaysia, Kedah. Soal selidik yang dilampirkan adalah sebahagian daripada projek penyelidikan yang dibentuk untuk mengkaji amalan pengurusan kualiti dan prestasi organisasi dalam institusi pendidikan tinggi. Hasil kajian ini akan menyumbang kepada literatur perkhidmatan dan membantu pihak pengurusan universiti dalam aktiviti pengurusan mereka.

Saya menjemput anda untuk mengisi soal selidik yang disertakan. Maklum balas anda akan *dirahsiakan*. Hanya ahli kajian ini sahaja akan mempunyai akses kepada maklumat yang anda berikan. Dalam usaha untuk memastikan kerahsiaan maksimum, kami telah menyediakan satu nombor pengenalan bagi setiap peserta. Nombor ini akan digunakan oleh kami hanya sebagai prosedur susulan. Keputusan kajian ini akan diterbitkan sebagai sebahagian daripada tesis PhD saya dan juga untuk kegunaan kepada institusi pendidikan tinggi. Walau bagaimanapun, penerbitan dan keputusan untuk kajian ini tidak akan membawa kepada pengenalan responden. Bagi memahami maklumat dan soalan yang berkaitan, anda disyaratkan mempunyai ijazah pertama dan ke atas.

Melengkapkan soal selidik ini memerlukan tidak lebih daripada 20 minit masa anda. Sila pulangkan kembali kepada Pegawai Penilai apabila anda telah selesai. Jika anda mempunyai sebarang pertanyaan atau masalah, sila hubungi saya di 019-56507610 atau email di abd.rahim @ uum.edu.my.

Maklumat yang anda berikan adalah sangat penting untuk kejayaan kajian ini. Terima kasih atas masa dan kerjasama anda. Saya amat menghargai bantuan anda dalam usaha ini.

SETIAP SOAL SELIDIK YANG DIPULANGKAN, SEBANYAK RM3 AKAN DIDERMAKAN KE MAAHAD TAHFIZ DI JITRA KEDAH

Terima kasih.

Haji Abd. Rahim Haji Romle

SULIT

SOAL SELIDIK PROJEK PENYELIDIKAN UNIVERSITI UTARA MALAYSIA

Soal selidik ini mengandungi beberapa bahagian. Anda dipohon untuk menjawab semua soalan. Tiada jawapan yang benar atau salah. Jawapan yang jujur dan spontan daripada anda amat penting dalam menjayakan kajian ini.

BAHAGIAN 1: AMALAN PENGURUSAN KUALITI (cth: ISO 9001, TQM, 5S)

Mohon tandakan (✓) nombor-nombor berikut bagi menunjukkan sejauhmanakah anda bersetuju atau tidak bersetuju dengan penyataan di bawah.

No	Penyataan	Sangat Tidak Setuju	Tidak Setuju	Neutral	Setuju	Sangat Setuju
	Kepemimpinan					
1	Pihak pengurusan aktif mengambil bahagian dalam usaha berkaitan kualiti	1	2	3	4	5
2	Pihak pengurusan amat menyokong keterlibatan jabatan kami dalam aktiviti pengurusan kualiti	1	2	3	4	5
3	Pihak pengurusan tidak memperuntukkan sumber-sumber yang mencukupi untuk jabatan kami bagi tujuan latihan dan pendidikan berkaitan kualiti	1	2	3	4	5
4	Pihak pengurusan memberi kuasa kepada jabatan kami untuk menyelesaikan masalah yang berkaitan kualiti	1	2	3	4	5
5	Pihak pengurusan selalu menekankan kepentingan yang berorientasikan pelanggan	1	2	3	4	5
6	Pihak pengurusan mengambil berat tentang mutu perkhidmatan jabatan kami	1	2	3	4	5
7	Pihak pengurusan mengambil berat tentang maklumbalas dan kajian daripada staf	1	2	3	4	5
	Perancangan Strategik					
1	Perancangan kualiti dalam jabatan kami adalah komprehensif dan dibentuk berdasarkan matlamat jangka masa pendek dan jangka masa panjang	1	2	3	4	5
2	Perancangan kualiti di universiti ini mengambilkira keupayaan jabatan ini	1	2	3	4	5
3	Perancangan kualiti di universiti ini tidak mengambilkira pihak-pihak yang berkepentingan *(stakeholders)*	1	2	3	4	5
4	Semua staf dalam jabatan berkongsi misi yang sama tentang kualiti	1	2	3	4	5
5	Semua staf di jabatan ini bersetuju dan menyokong objektif strategik dan pelan tindakan	1	2	3	4	5
6	Jabatan kami punyai objektif strategik yang jelas untuk jabatan ini	1	2	3	4	5

	Fokus Terhadap Pelanggan					
1	Jabatan kami secara aktif mencari maklumat dari pelanggan bagi menentukan kehendak mereka	1	2	3	4	5
2	Jabatan kami tidak mengendalikan tinjauan/kajian/soal selidik tentang kepuasan pelanggan untuk setiap tahun	1	2	3	4	5
3	Staf di jabatan kami mempunyai maklumat yang tepat tentang kehendak pelanggan	1	2	3	4	5
4	Jabatan ini tidak mengambil tindakan susulan terhadap hasil tinjauan/kajian/soalselidik ke atas kepuasan pelanggan	1	2	3	4	5
5	Dalam membentuk perkhidmatan/produk yang baru, jabatan kami mengambilkira kehendak pelanggan	1	2	3	4	5
6	Komplen/rungutan pelanggan digunakan sebagai satu kaedah untuk penambahbaikan	1	2	3	4	5
	Analisis Maklumat					
1	Jabatan kami mempunyai kebolehcapaian data dan maklumat tentang kualiti	1	2	3	4	5
2	Data/maklumat tentang kualiti tidak dipamerkan di jabatan kami	1	2	3	4	5
3	Data/maklumat tentang kualiti tidak digunakan dalam pembuatan keputusan di jabatan kami	1	2	3	4	5
4	Kami telah melaksanakan penandaarasan (benchmarking) berkaitan teknologi	1	2	3	4	5
5	Kami telah melaksanakan penandaarasan (benchmarking) berkaitan khidmat pelanggan	1	2	3	4	5
6	Kami telah melaksanakan penandaarasan (benchmarking) berkaitan kualiti perkhidmatan dan prosedur dari jabatan yang lain	1	2	3	4	5
	Fokus Kepada Sumber Manusia					
1	Jabatan kami memberi kuasa kepada kakitangan kami	1	2	3	4	5
2	Jabatan kami mempunyai sistem penilaian yang telus dan berkesan untuk mengiktiraf dan memberi ganjaran kepada kakitangan atas usaha mereka	1	2	3	4	5
3	Jabatan kami menekankan kerja berkumpulan semangat kerja berpasukan	1	2	3	4	5
4	Jabatan kami memotivasikan kakitangan dan membangunkan potensi mereka sepenuhnya	1	2	3	4	5
5	Jabatan kami melatih kakitangan kami dalam konsep kualiti, menjaga keperluan mereka dan membangunkan kecekapan mereka	1	2	3	4	5
6	Jabatan kami menyediakan persekitaran kerja yang selamat dan sihat	1	2	3	4	5

	Pengurusan Proses					
1	Jabatan kami mengalakkan staf untuk berinovatif dan membangunkan cara baru bagi peningkatan prestasi jabatan	1	2	3	4	5
2	Staf di jabatan kami memahami peranan yang perlu dilakukan	1	2	3	4	5
3	Jabatan kami mempunyai maklumat tentang kehilangan pelanggan dan mengenalpasti sebab kehilangan itu	1	2	3	4	5
4	Jabatan kami tidak mempunyai kaedah tertentu untuk mengukur kualiti perkhidmatan/produk	1	2	3	4	5
5	Sebelum menjalankan proses penyampaian yang baru, jabatan kami menjalankan ujian yang komprehensif untuk menjamin kualitinya	1	2	3	4	5
6	Jabatan kami berkongsi pengalaman kami dalam proses penambahbaikan kualiti dengan jabatan lain di universiti ini	1	2	3	4	5

SULIT

Sambungan Bahagian 1

BAHAGIAN 2: KEPUASAN

Mohon tandakan (✓) untuk setiap penyataan di bawah yang bersesuaian menggambarkan kepuasan di jabatan anda.

No	Penyataan	Sangat Tidak Setuju	Tidak Setuju	Tidak Pasti	Setuju	Sangat Setuju
	Kualiti Teknikal					
1	Jabatan kami memberi latihan yang mencukupi kepada staf berkaitan kemahiran yang diperlukan dalam tugas	1	2	3	4	5
2	Jabatan kami memberi pendedahan tentang kepelbagaian sosial kepada staf	1	2	3	4	5
3	Jabatan kami mengambil berat berkaitan staf dan pembangunan kerjaya mereka	1	2	3	4	5
	Kualiti Fungsional					
4	Staf di jabatan kami mempunyai hubungan kerja yang cukup baik di antara satu sama lain	1	2	3	4	5
5	Jabatan kami mempunyai peralatan kerja yang terkini	1	2	3	4	5
6	Penyelarasan kerja di antara staf di jabatan kami tidak memuaskan	1	2	3	4	5
	Imej					
7	Universiti ini cukup terkemuka di Malaysia dari pandangan jabatan kami	1	2	3	4	5
8	Universiti ini mempunyai reputasi yang tinggi untuk menjadi institusi akademik terbaik di Malaysia dari pandangan jabatan kami	1	2	3	4	5
9	Persekitaran universiti ini menjadi tempat terbaik untuk didiami dan belajar dari pandangan jabatan kami	1	2	3	4	5

BAHAGIAN 3: KOMITMEN

Mohon tandakan (✓) untuk setiap penyataan di bawah yang bersesuaian menggambarkan komitmen di jabatan anda.

No	Penyataan	Sangat Tidak Setuju	Tidak Setuju	Tidak Pasti	Setuju	Sangat Setuju
1	Setiap staf di jabatan ini bersedia untuk menghabiskan keseluruhan kerjaya mereka di universiti ini	1	2	3	4	5
2	Setiap staf di jabatan ini seronok membincangkan berkaitan universiti ini dengan orang luar	1	2	3	4	5
3	Jika universiti ini menghadapi apa-apa masalah, kami menganggap bahawa ianya bukan masalah jabatan kami	1	2	3	4	5
4	Kami merasakan bahawa pihak universiti boleh secara mudah untuk memindahkan atau membubarkan jabatan ini	1	2	3	4	5
5	Jabatan ini merasakan bahawa kami sebahagian daripada universiti ini	1	2	3	4	5
6	Jabatan ini merasakan kami terlibat secara langsung di universiti ini	1	2	3	4	5
7	Universiti ini cukup bermakna kepada jabatan kami	1	2	3	4	5
8	Tiada semangat kekitaan (*sense of belonging*) di universiti ini menurut pandangan jabatan kami	1	2	3	4	5

SUT

BAHAGIAN 4: KESETIAAN

Mohon tandakan (✓) untuk setiap penyataan di bawah yang bersesuaian menggambarkan kesetiaan di jabatan anda.

No	Penyataan	Sangat Tidak Setuju	Tidak Setuju	Tidak Pasti	Setuju	Sangat Setuju
1	Jabatan ini akan menyampaikan hal-hal yang positif tentang universiti ini kepada orang lain	1	2	3	4	5
2	Jabatan ini cenderung untuk mencadangkan (*recommend*) universiti ini kepada pihak lain	1	2	3	4	5
3	Jabatan ini selalu mencadangkan rakan-rakan untuk bekerja atau belajar di universiti yang sama	1	2	3	4	5
4	Jabatan ini akan mempertimbangkan universiti yang sama sebagai pilihan pertama kepada staf yang ingin mengikuti pengajian lanjutan	1	2	3	4	5
5	Jabatan ini akan mengadu kepada jabatan lain jika menghadapi apa-apa masalah	1	2	3	4	5
6	Jabatan ini akan mengadu kepada pihak luar jika menghadapi masalah	1	2	3	4	5
7	Staf di jabatan kami akan cuba untuk bertukar ke universiti lain jika menghadapi masalah	1	2	3	4	5
8	Staf di jabatan kami akan cuba untuk bertukar ke jabatan lain di dalam universiti yang sama jika menghadapi masalah	1	2	3	4	5
9	Staf di jabatan ini akan bekerja di universiti yang lain jika mendapat tawaran gaji yang lebih baik	1	2	3	4	5
10	Staf di jabatan ini akan meneruskan kerjaya mereka di universiti ini walaupun tidak mendapat kenaikan pangkat	1	2	3	4	5
11	Staf di jabatan ini bersedia membayar lebih untuk apa-apa perkhidmatan/produk yang diterima jika dikenakan bayaran	1	2	3	4	5

SUIT

BAHAGIAN 5: PRESTASI ORGANISASI *selepas pelaksanaan*
AMALAN PENGURUSAN KUALITI (cth: ISO 9001, TQM, 5S)

Mohon tandakan (✓) untuk setiap penyataan di bawah yang bersesuaian dengan anda.

No	Penyataan	Sangat Tidak Setuju	Tidak Setuju	Tidak Pasti	Setuju	Sangat Setuju
	Kewangan					
1	Jabatan kami berjaya menguruskan belanjawan dengan baik	1	2	3	4	5
2	Jabatan kami tidak mencapai penjimatan dalam kos operasi	1	2	3	4	5
3	Produktiviti di jabatan kami semakin menurun	1	2	3	4	5
4	Kos sesuatu perkhidmatan/produk yang disediakan oleh jabatan kami sentiasa meningkat	1	2	3	4	5
	Pelanggan					
1	Perkhidmatan/produk yang disediakan oleh jabatan kami mempunyai permintaan yang tinggi dari komuniti (dalam dan luar)	1	2	3	4	5
2	Kepuasan pelanggan menjadi keutamaan di jabatan kami	1	2	3	4	5
3	Jabatan kami sentiasa menekankan tentang ketepatan masa (jangkamasa yang ditetapkan) dalam perkhidmatan/produk yang disediakan	1	2	3	4	5
4	Reputasi jabatan kami di kalangan pelanggan adalah memuaskan	1	2	3	4	5
	Proses Dalaman					
9	Motivasi staf di jabatan kami adalah di tahap yang tinggi	1	2	3	4	5
10	Program latihan kepada staf di jabatan kami dilaksanakan dengan baik	1	2	3	4	5
11	Tahap keselamatan dan kesihatan staf di jabatan kami adalah terjamin	1	2	3	4	5
12	Persekitaran kerja di jabatan kami dapat menyokong pencapaian matlamat jabatan	1	2	3	4	5
	Pembelajaran dan Perkembangan					
13	Jabatan kami peka dalam mengenalpasti perubahan terhadap keperluan pelanggan/komuniti luar	1	2	3	4	5
14	Jabatan kami mengambil masa yang panjang untuk memperkenalkan sesuatu perkhidmatan/produk yang baru	1	2	3	4	5
15	Jabatan kami menggunakan teknologi terkini bagi meningkatkan kecekapan dan keberkesanan tugas	1	2	3	4	5
16	Jabatan kami berjaya membentuk prosedur kerja bagi meningkatkan kualiti perkhidmatan/produk yang disediakan	1	2	3	4	5

BAHAGIAN 6: MAKLUMAT TAMBAHAN

Jika anda mempunya apa-apa komen atau maklumat tambahan, mohon berikan pendapat anda di bawah:

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BAHAGIAN 7: DATA PERSONAL

Sila tandakan (✓) di dalam kotak yang menggambarkan demografi anda. Semua maklumat yang diberi adalah **SULIT DAN DIRAHSIAKAN.**

Jabatan anda	❑ Akademik		❑ Bukan akademik				
Pengalaman Kerja (tahun)	□ 1-5	□ 6-10	□ 11-15	□ 16-20	□ 21-25	□ 26-30	□ 31 dan ke atas
Pengalaman Kerja (tahun) Universiti Sekarang	□ 0-5	□ 6-10	□ 11-15	□ 16-20	□ 21-25	□ 26-30	□ 31 dan ke atas
Jumlah (tahun) di Jawatan Sekarang	□ ≤ 1	□ 1-5	□ 6-10	□ 11-15	□ 16-20	□ 21-25	□ 26 dan ke atas
Anggaran Jumlah Staf Di Jabatan Sekarang	□ 1-25		□ 26- 50	□ 51-100		□ 101 dan ke atas	
Universiti tempat anda bekerja: ……							

Terima Kasih atas kesudian anda menjawab.
Kerjasama dan pertolongan ini cukup dihargai.

SULIT