The Impact of Subordinates' Professionalism on Leadership Effectiveness in the Construction Industry

by

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Certificate of Originality

I hereby declare that this thesis is my own work and that, to the best of my knowledge, it reproduces no material previously published or written, nor material that has been accepted for the award of any other degree or diploma, except where due acknowledgement has been made in the text.

Chan Tak Shing Antony

Dedication

With Love

For

My Mother, Father,

My Brothers, Ben and Benny

&

My Wife, Hellas, and My Son, Hui Long whose love,

patience and encouragement helped immeasurably

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I would like to thank many people who have generously dedicated their love, patience and efforts throughout the every step of my part-time doctoral study over the past several years.

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Abstract

Professionalism is often considered as the extent to which skilled personnel are committed to their profession and their work, which is characterized by a set of attributes including a commitment to professional organisation and profession, and a strong belief in altruistic service, self-regulation and autonomy.

Previous research suggested that professionalism among skilled personnel served as a form of resistance and control for coping with the leadership behaviour of their leaders. It was revealed that professionalism, as possessed by professional subordinates, would reduce their need for dependence on task-related information and reduce the effects of leadership from their leaders. In fact, professionalism is considered one of the key-determining factors prevailing in leadership research of professionals working in organizations. In this regard, it is particularly relevant and significant to have a thorough understanding of how subordinates' professionalism influences their work outcomes under different leadership styles. The purpose of this study is to empirically analyse professionalism as a moderating variable in the leader-subordinate relationship. Specifically, it explores the effects of subordinates' professionalism on the relationships between transformational, transactional and laissez-faire leadership styles, and subordinates' work outcomes in the construction industry. A conceptual model is constructed to explain the hypothesized relationships.

The main objectives of this study are:

- to investigate the level of professionalism among professional subordinates.
- to examine the leadership styles of building professional leaders as perceived by their professional subordinates.

- to examine the relationships between leadership styles and subordinates' work outcomes.
- to analyse the moderating effects of subordinates' professionalism on the relationships between leadership styles and subordinates' work outcomes (subordinates' extra effort, leader effectiveness perceived by subordinates, and subordinates' satisfaction with leaders).

A cross-section of 510 qualified building professionals, stratified by professional affiliation (architects, structural engineers and surveyors) and countries (Australia, Hong Kong, Singapore, and the United Kingdom), was drawn to explicate the identified issues from a cross-national perspective. Questionnaire survey through electronic mails was adopted as the primary instrument of data collection. This study is based on two main hypotheses:

(1) Leadership styles (transformational, transactional and laissez-faire) are significantly correlated with subordinates' work outcomes (subordinates' extra effort, perceived leader effectiveness and satisfaction with leaders).
(2) Subordinates' professionalism has a significant moderating effect on the relationships between leadership styles and subordinates' work outcomes.

The findings of this study support the proposition that transformational and transactional leadership are in general positively correlated with subordinates' work outcomes while laissez-faire leadership showed negative effects. The results further support that transformational leadership can augment transactional leadership to produce more effective subordinates' work outcomes. The results of moderated regression analyses suggest that subordinates' professionalism has different moderating effects dependent upon the type of

leadership styles and the type of subordinates' work outcomes. The results of this study reveal that high levels of professionalism among subordinates serve to enhance the positive relationships between transformational leadership and subordinates' work outcomes. However, these same high levels of professionalism will differently neutralise or exacerbate the impact of transactional leadership on subordinates' work outcomes. They will also exacerbate the negative relationships between laissez-faire leadership and subordinates' work outcomes.

All in all, the findings of this study suggest that appropriate use of leadership styles for the management of professionals in organisations can lead to more effective work outcomes in subordinates. Taken together, transformational leadership is more compatible with and conducive to a professional culture in organisations in the built environment than either transactional or laissez-faire leadership.

Keywords: building professionals, construction industry, professionalism, full range of leadership model, transactional leadership, transformational leadership

CHAPTER ONE – INTRODUCTION

1.0 INTRODUCTION

This introductory chapter will give an overall picture of the research, beginning with a summary of the problem on which it is based. This is followed by statements outlining the aim, objectives, and purpose of this study, together with a description of the structure of the thesis, so as to illustrate the general framework of this study.

1.1 STATEMENT OF THE PROBLEM

In recent years, the construction industry in many of the world's more developed countries has been subjected to comprehensive industrial reviews, and as a consequence has been undergoing quite dramatic changes (Construction 21 Committee, 1999; CIRC, 2001; DETR, 1998; ISR, 1999; Latham, 1994; NAO, 2001; NEDO, 1976). The aim of these reviews has been to reform and optimise the performance of the construction industry – generally, and one of the issues they have highlighted has been the crucial role of building professionals. As a report initiated by the Government of Singapore (Construction 21 Committee, 1999) explicitly points out: "*There is currently a wide disparity in the professional standards of industry players (i.e. developers, architects, engineers, project managers and contractors). While some may have institutes and associations that strive to maintain a level of professionalism, others are less focused. In fact, many lack the capabilities to measure up to world class standards. Hence, it is crucial to change the image of the industry and raise the level of professionalism and competence among industry players so that every player is able*

to maintain a certain level of professionalism when carrying out their responsibilities". The meaning of professionalism here can be considered as the extent to which skilled personnel are committed to their profession and their work, which is characterized by a set of attributes including a commitment to professional organisation and profession, and a strong belief in altruistic service, self-regulation and autonomy. It is clear that the standard of professionalism among building professionals has been a controversial issue, and raises a great deal of concern at both local and international level. In this regard, professionalism is defined as an attitude and ideology held by professionals, which denotes the extent to which one is committed to his own profession (Hall, 1968). This raises the question: 'To what extent are professionals important to society generally, and the construction industry in particular?'

Since the age of the industrial revolution, the role of professional employees has taken on tremendous importance. Society today has become very dependent on the specialized expertise and knowledge, hence the increasing numbers of professionals and professional associations. As business organizations and government administrations become more complex, they need to employ more professionals on whose services they now depend (Becher, 1999; Lynn, 1963; Von Glinow, 1988). This proliferation of professionals has led to increased specialization and the emergence of a variety of new disciplines, which have been added to the traditional professional structure in society (Chan, Chan & Chan, 2000). Durkheim (1952) suggests that specialization has allowed our economic sectors to flourish with minimal conflict as new groups of occupations emerge to control the markets with specialized knowledge and skills (Presthus, 1978).

Evers and Silcock (1977, p.14) express that

> *"… If then professionals are, in evolutionary terms, the most developed species, if they are the most modernized of men, the latest model in modern society, they should also be the spearhead of development, agents of change (social political and cultural), innovators and active modernizers."*

Goode (1960, p.902) also notes that a developing "*industrializing society is a professionalizing society*". Benveniste (1987, p.1) adds that professionals are important to modern organizations because they are exceptional workers, who have specialized knowledge and tend to be well educated, creative, and well socialized for work. In this regard, professionals are regarded as the major agent of social change and modernization; their role is indispensable and imperative to the very functioning of society.

The above phenomenon is particularly prominent in the construction industry. In most countries, the construction industry plays a significant economic role, because it stimulates growth and promotes efficiency and productivity (Hillebrandt, 1985). In the construction industry, building professionals play important leadership roles essential to the entire construction process. They are the most influential group because they are responsible for designing, planning, constructing and maintaining building-related commodities for the welfare and enjoyment of society. Over time the construction industry has become more sophisticated and complex in nature. Now a single project necessitates a team of professionals from different disciplines and often with different cultural backgrounds. These require the input of new technologies in order to meet their clients' growing demands and to discharge their socio-economical/ environmental responsibility.

The modern construction industry is often characterised by its complex, multi-fragmented nature and its high use of professional people (Boland, 1979; Fox, 2003; Liebing, 2001). The range of organizational settings where professionals work has undergone a dramatic change from solo practices and partnerships to multidisciplinary practices. Building professionals constitute a major proportion of professional personnel involved in construction-related organizations. Some assume leadership roles, while others are subordinates. Through tertiary education and professional training, professionals acquire specialized knowledge and expertise, and a strong belief in self-regulation and autonomy. Thus, they tend to work independently. Nevertheless, the leaders' hierarchical authority and the hierarchical structure in organizations offer potential for conflict between leaders and professional subordinates (Abernethy & Stoelwinder, 1995; Drucker, 1952; Hall, 1967 & 1968; Lebell, 1980; Marcus, 1985; Raelin, 1984, 1986 & 1989; Sorensen & Sorensen, 1974). Flynn (1999) even argues that this situation might arouse many latent structural and attitudinal contradictions between managerialism and professionalism. On the other hand, Raelin (1986) believes that with this culture, professionals would not be compromised by their serving organizations. Sergiovanni (1990a,b) offers a salient suggestion that leadership could be enhanced or replaced by the professionalisation of followers. Indeed, professional ideals could offer the moral authority for action without the intervention of leadership. Being professionals, these subordinates often commit more to their own professions than employing organizations do. In this regard, professionalism among subordinates impacts strongly on leader-subordinate conflicts in organizations.

Building professionals desire professionalism in order to justify their claims for autonomy and social status in the built environment. From a theoretical standpoint, recent research

suggests that professionalism is an important moderating variable in prevailing leadership research (Howell & Dorfman, 1986). Professionalism among skilled personnel not only reduces their need for dependence on task-related information, but also reduces the effects of leadership from their leaders (Howell et al., 1990; Kerr, 1977; Kerr & Jermier, 1978; Podsakoff, Mackenzie & Fetter, 1993). Professionalism is also considered one of the factors that may have a substitution effect on leadership. Kerr (1977, p.142-43) in his study of substitutes of leadership notes that *"The professional's expertise, normally acquired as a result of specialized training in a body of abstract knowledge, often serves to reduce the need for structuring information; furthermore, a belief in peer review and collegial maintenance of standards often causes the professional to look to fellow professionals rather than to the hierarchical leader for what informational needs remain."*

Kerr's findings suggests that a professional's value system or professional orientation (professionalism), as well as his or her ability, experience, training and/or knowledge can influence leadership behaviour. He also argues that the leadership substitutes construct is neglected by both leadership theorists and organizational designers, which may have a detrimental effect on organization theory, research, and practice. Howell and Dorfman (1986, p.31) in their study of substitutes for leadership conclude that professionalism is an important moderator variable for leadership research, and has important implications for managerial leadership of organizations. They argue that professional workers *"tend to resist influence attempts by leaders and look elsewhere for information relevant to tasks and feedback on their performance"*, and therefore may be more *"… susceptible to the operation of substitutes for leadership"* than other employees. Professional subordinates therefore tend to be more inclined towards their professional peers and associations rather than their serving organizations. Howell, Bowen, Dorfman and Podsakoff (1990) further state that workers

with strong professional norms often require a minimum of supervision and leadership. This means that individuals who are incorporated with a higher level of professionalism are internally motivated by their own values and ethics, and this to some extent may diminish the possible effect of leadership on their work. In other words, they might not necessarily be encouraged by the leader to do superior work.

1.2 JUSTIFICATION FOR THE RESEARCH

The body of research on professionalism and leadership has developed considerably over the past two decades. Nevertheless, literature on professionalism and leadership among building professionals offers relatively little theoretical and empirical information that is specific to the construction industry. Many studies have identified the links between leadership and subordinates' work outcomes (Avolio & Howell, 1992; Bass & Avolio, 1990; Enshassi & Burgess, 1991; Hater & Bass, 1988; Keller, 1992), however, the level of professionalism among building professionals remains unclear, and no-one knows exactly to what extent this will affect the ways leaders challenge and lead their subordinates in the built environment.

The phenomena in the above section clearly capture the relationships between leaders and subordinates and show that a clash exists between leaders and professional subordinates, which may have unfavourable effects on organizational performance and subordinates' satisfaction and performance at work. It is also apparent that the effects of leadership styles on subordinates' work outcomes are to some extent, conditional on the level of professionalism among professional subordinates. It follows that professionalism among professional subordinates should be regarded as a critical moderating factor in subordinates' resistance to their leaders' control.

From a broad perspective, this research seeks to contribute to literature on leadership and professionalism in the construction industry by gaining an understanding of professionalism among skilled subordinates and the relationships between leadership styles and subordinates' work outcomes. Although the relationships have already been well established in business, educational, industrial and military research, rarely have these relationships been tested in the construction industry. This study therefore seeks to fill this gap within the context of the construction industry. The fundamental hypotheses (e.g. Main Hypothesis 1) about those relationships are included for testing again before exploring the focus areas of this study.

The findings of this study may also address the pleas of numerous researchers (Bass, 1998; Howell, Dorfman & Kerr, 1986; Yukl, 1999) for more empirical research on the moderators of the leadership-performance relationship. More specifically, this research hopes to answer the following questions: What are the relationships between leadership styles and subordinates' work outcomes? How does professionalism among professional subordinates in the construction industry moderate these relationships?

1.3 PURPOSE OF THE STUDY

The aim of this research study is:

> To examine the role of professionalism among professional subordinates on the relationships between perceived leadership styles and subordinates' work outcomes in the context of the construction industry.

The four objectives of this study are as follows:

The first objective is to determine the level of professionalism among building professionals measured by Hall's (1968) Professionalism Scale.

The second objective is to examine the transformational, transactional and laissez-faire leadership styles of leaders in building professions perceived by their professional subordinates, which are measured by the Multifactor Leadership Questionnaire (Bass & Avolio, 2000).

The third objective is to examine the relationships between perceived transformational, transactional and laissez-faire leadership styles and professional subordinates' work outcomes as measured by a Multifactor Leadership Questionnaire (Bass & Avolio, 2000).

The final and main objective of this study is to analyse the moderating effects of subordinates' professionalism on the relationships between perceived transformational, transactional and laissez-faire leadership styles and subordinates' work outcomes (extra effort by subordinates, perceived leader effectiveness and satisfaction with leaders) in the context of the construction industry.

The following section highlights the research contributions that this study aims to accomplish.

1.4 SIGNIFICANCE AND ORIGINALITY OF THE STUDY

This study is both significant and original, in that it provides empirical data describing building professionals from a cross-national perspective, and it investigates how professionalism among skilled subordinates affects relationships between leadership styles and professional subordinates' work outcomes. More specifically, this study contributes to the body of knowledge on theoretical contributions and practical significance and gives an insight into these by examining leadership processes in the management of professionals within the context of the construction industry as follows:

First, while there has been a variety of theoretical leadership approaches pertaining to the leader-subordinate relationship, a review of prior literature reveals that there has been very little empirical work done in the area of leadership in building professionals. Rarely has this issue been investigated using a Full Range of Leadership Model such as the one conceptualised by Bass and Avolio (1991). Examining leader-subordinate relations under the Full Range of Leadership Model will link any current and future findings on this subject to previous leadership research findings. Hence, the findings in this study may provide useful cross-validation in future cross-cultural/ national/ occupational studies for different disciplines of professionals in different fields or countries, thereby enriching the theoretical foundations of leadership research, not only in the construction industry, but also in the fields of social and organizational research.

Second, professionalism among subordinates has long been a concern in the leadership literature of professionals. However, there has been little effort in advancing the understanding of the role of professionalism in leadership research in the construction industry. A sample of building professionals with different professional backgrounds has

been used in this study, in the hope of achieving an increase in the variability of the results and of enhancing the generalizability of the conclusions to the wider construction community.

Third, in the theory of situational leadership, professionalism has always been considered one of the situational variables, which may moderate the relationship between leadership and subordinates' outcomes. However, much of the earlier research on the theory of situational leadership, especially substitutes for leadership theory, has neglected to consider professionalism among subordinates as a multi-dimensional construct. Instead a single-item measure was used. By employing a conceptually rich and methodologically sound measure of professionalism, this study hopes to produce an index of professionalism for building professionals which future research in occupational studies may employ for the purpose of comparison and analysis.

Fourth, methodologically, this study hopes to contribute and extend the situational leadership theory by considering a multidimensional construct of professionalism as the single, most important moderator on the effects of leadership in leadership research. This not only make sense for a community of professionals within the context of the construction industry, but also is in line with the justifications of previous researchers in avoiding multiple moderating effects (De Vries, 2002; De Vries, Roe & Taillieu, 1998).

From a practical point of view, an examination of the relationships between leadership styles and subordinates' work outcomes, and how the role of professionalism influences these relationships, offers the following implications:

First, in most organisations today, effective leaders are considered to be valuable assets.

Therefore it is essential to the success of any organisation, that they identify their leaders' styles and also any subordinates who have the potential for leadership. Next, it is imperative for efficient human resource management that appropriate development and training programmes be initiated aimed at identifying leaders' styles and needs. A better understanding of leadership styles can not only improve relationships between leaders and subordinates, but also enhance subordinates' performance and satisfaction at work.

Second, professionals are characterized as having a strong belief in self-regulation, autonomy and identification with professional organizations. These characteristics may create potential problems in the management of professionals. A better understanding of the components of professionalism may help organizations reduce the clashes between leaders and subordinates (Raelin, 1986). This can also aid the development of appropriate administrative or organizational systems, including reward systems that are acceptable to professional subordinates.

Finally, as organizations are increasingly employing more professionals to do complex and unstructured tasks, leadership of professionals may become a potential problem. This study will identify ways to achieve effective management of professional subordinates by understanding how their levels of professionalism moderate the effects of leadership styles on subordinates' work outcomes. As professionalism among subordinates may vary individually, appropriate styles of leadership will need to be adapted. This study will offer some insight into the previously untouched segments of leadership research. An understanding of the professionalism among subordinates, in terms of leadership potential and specialized skills, can serve as an aid in strategic human resources planning and initiatives.

1.5 METHODOLOGY

This study was designed to investigate the potential effects of professionalism among professional subordinates on the relationships between leadership styles and subordinates' work outcomes. The main conceptual foundation of this study was primarily built upon the theories of Bass and Avolio's (1991) Full Range of Leadership Model and Hall's (1968) Professionalism Model. The present study made use of two established theories supported by a cross-national data collection strategy. The cross-national approach by means of a questionnaire survey method was undertaken to collect quantitative data from building professionals in Australia, Hong Kong (China), Singapore, and the United Kingdom. The target respondents were requested to fill in questionnaires in a Professionalism Inventory Scale, a Multifactor Leadership Questionnaire (MLQ) and a demographic data sheet. This study adopts a correlational design to examine the research data using a series of factor analyses and hierarchical regression analyses to answer the research questions posited. Details of the research methodology will be discussed in Chapter Four.

1.6 DELIMITATIONS OF THE STUDY

The major delimitation of this research is that the setting of this study was confined to the construction industries in Australia, Hong Kong (China), Singapore, and the United Kingdom. Therefore this pioneering research was confined within the national boundary of the research setting. Further generalization of the findings of this study beyond these countries could be made yet with serious caution because of differences in cultural values, legal and political systems. Another delimitation of this study is that only three disciplines of building professionals, namely architects, structural engineers and surveyors were considered. The

findings of leadership styles and levels of professionalism investigated could only be made with regard to these disciplines of professionals.

In addition, it states clearly that this study does not attempt to make any comparative analyses of the potential cross-national, cross-cultural or cross-disciplinary effects on leadership effectiveness in the context of the construction industry.

1.7 OPERATIONAL DEFINITIONS

Building Professionals

In this study, building professionals refers to architects, structural engineers and surveyors, who are the qualified members of their respective professional associations in their own countries.

Professionalism

The term 'Professionalism' in the current study adopts Hall's (1968) definition as "the attitudes and ideology held by individual professionals reflecting the manner in which they view their profession and work". Professionalism is operationalized as a multi-dimensional construct operated on an individual level and is measured by the Snizek's (1972) modification of Hall's Professionalism Inventory Scale (Hall, 1968) in attitudinal dimensions including 'Use of the professional organization as a major referent', 'Belief in public service', 'Belief in self regulation', 'Sense of calling to the field' and 'Belief in Autonomy'. For the purpose of this study, individual professionalism is operationalized as scores obtained by a respondent on

the overall scale and on each of the five subscales.

Leadership Styles

In the context of this study, leadership styles are defined under the Full Range of Leadership Model proposed by Bass and Avolio (1991). The Full Range of Leadership Model comprises three types of leadership styles: transformational, transactional and laissez-faire leadership.

Transformational leadership is defined as a transformation process through which leaders can motivate their followers to do more than they originally expected to do. They can also raise followers' level of awareness and level of consciousness. They can also get their followers to transcend their own self-interest for the sake of the team, organization or country (Bass, 1985).

Transactional leadership is defined as an exchange process whereby leaders direct the efforts of their followers through tasks, rewards and structures. A list of performance and achievement guidelines for their followers is set out, against which rewards in terms of money, praise and promotion will be given in return (Bass, 1985).

Laissez-faire leadership is defined as negation of leadership or a non-leadership factor (Bass & Avolio, 1990). Laissez-faire leaders offer their group members a sense of avoiding intervention and absence of leadership, or both. These leaders often keep themselves from making decisions, giving feedback, rewards or participation with their followers in discussions.

Subordinates' Work Outcomes

In this study, subordinates' work outcomes refer to the subordinates' self-ratings of their own performance as a result of leaders' styles. Subordinates' work outcomes are defined under the Full Range of Leadership Model proposed by Bass and Avolio (1991). The Full Range of Leadership Model comprises three types of subordinates' work outcomes: extra effort, perceived leader effectiveness, and satisfaction with leaders.

Extra Effort refers to the extent to which subordinates exert their effort beyond their original expectation.

Perceived Leader Effectiveness refers to how effective is the leader in developing good relations with subordinates, and the ability to influence subordinates.

Satisfaction with Leaders refers to how satisfied subordinates are with their leaders' styles and methods, as well as how satisfied they are in general with the their leaders.

1.8 THESIS FRAMEWORK

The thesis is presented in a number of chapters that logically develop the issues being addressed in relation to this investigation. Figure 1 depicts the pictorial presentation of the thesis framework.

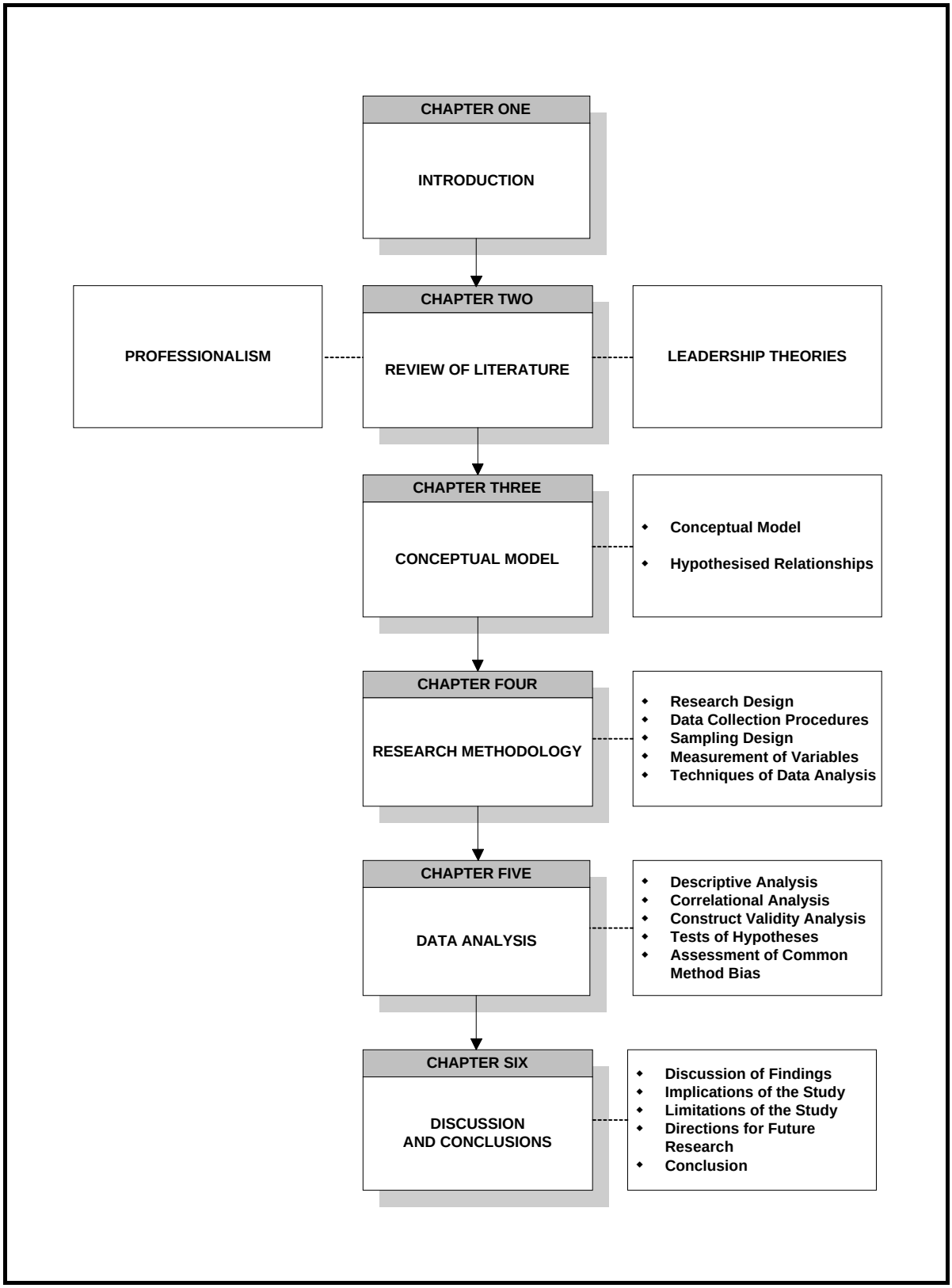

Figure 1 - Thesis Framework

Chapter One presents the introduction and background to the identified research problems. The purpose of this chapter is to outline the argument and present the problem within the context under examination.

Chapter Two reviews literature in relation to professionalism and leadership theories in the field and within the context of the construction industry. It lays the foundations for the conceptual framework developed in Chapter Three. The review of literature relevant to professionalism focuses on the development of professionalism, development of professionalism scales, and professionalization in the construction industry. Definitions of professionalism for the three disciplines of building professionals are also reviewed and discussed. This chapter will then review the relevant literature of leadership theories, especially Bass's (1985) transformational leadership, and discuss the prior leadership research in the construction industry. Finally, it identifies the research gaps existing in previous literature of professionalism and leadership theories.

Chapter Three presents the conceptual model that was tested, and the rationale for the hypothesized relationships posited among constructs in the context of this research study. The conceptual model is derived from the two theoretical models examined in Chapter Two, namely, Bass and Avolio's (1991) Full Range of Leadership Model and Hall's Professionalism Model (1968). Hypotheses are developed to test the model. The influences of professionalism among professional subordinates on the relationships between leadership styles and subordinates' work outcomes are discussed, and the hypothesized relationships among them are analysed.

Chapter Four sets out to describe the research design and methodology upon which this investigation was built. It describes the development of the research methodology adopted to test the research hypotheses. It includes a description of the instrument, sample and statistical techniques used to analyse the data collected.

Chapter Five presents the results obtained from the data collected. It presents the results of the data analyses, which include descriptive analyses of demographic and background variables of the respondents. Means, standard deviations and Cronbach's alpha reliabilities of all variables were calculated. Pearson product-moment correlation analysis was performed to evaluate the general relationships between the variables in the study. Exploratory and confirmatory factor analyses were conducted to validate the internal factor structure of the Snizek's modified Hall's Professionalism Scale and the Multifactor Leadership Questionnaire (MLQ). A series of hierarchical regression analyses was conducted to examine the effects of leadership styles on subordinates' work outcomes. Moderated regression analysis was employed to examine the potential effects of subordinates' professionalism on the relationships between leadership styles and subordinates' work outcomes. Statistical results for each research hypothesis will be described.

Chapter Six begins with a brief review of the aims and objectives of this study, and the research questions that this study has addressed. A summary of major findings is then presented in light of the model of leadership for professionals, followed by a discussion of the theoretical and practical implications of the research. The methodological limitations of this study are also identified. Finally, leading from the research findings and discussion, directions for future research are suggested and conclusion is drawn.

CHAPTER TWO – REVIEW OF THE LITERATURE

2.0 INTRODUCTION

This chapter reviews the literature relevant to professionalism and leadership in order to lay the foundations for the conceptual framework developed in Chapter Three. The main research question under investigation is: 'what are the effects of professionalism among professional subordinates on the relationships between leadership styles and subordinates' work outcomes?' This chapter firstly reviews the past research in professionalism and its significance to the construction industry. Secondly, the area of leadership and its associated literature is wide and deep. The literature that is more closely linked to the study is reviewed, specifically the research on transformational leadership. The final section identifies the research gaps existing in previous literature of professionalism and leadership theories.

2.1 PROFESSIONALISM

Professionalism has been the hallmark of all professions. It was widely investigated in the community of researchers and practitioners in the 1960s' and 1970's. Throughout the past four decades, different occupational groups have attempted to examine their own characteristics of professionalism with a view to clearly distinguishing themselves from other 'non-professions'.

The function of professionals is to dedicate themselves to serve the welfare of society. They believe that they have a life-long commitment to provide altruistic services, which transcend

self-interest. To fulfil the needs of society, they develop and maintain distinct bodies of specialized knowledge and impart expertise in them through formal theoretical and practical education. Professions establish for themselves entry requirements to provide a basis to distinguish them from other professions and non-professions. To this end, professions establish their own ethos and standards to maintain their competence, and a high level of technical and ethical standards of practice. In this regard, they are granted by society a great deal of autonomy for self-regulation.

The following sections will have a brief introduction on the definitions of a profession, followed by a discussion on the characteristics of professionalism, theoretical foundations on professionalism, development of professionalism scales, and finally the role of professionalism in the construction industry.

2.1.1 Defining Profession

Much literature has been written on the sociology of professions for decades. There is a great deal of discussion focusing on what are the attributes of professions, how to qualify as a profession, and what are the pathways through which an occupational group becomes a profession (how do professions develop). Since the early nineteenth century, this line of inquiry has generated a significant wave of investigations as to the terms - profession, professionalism and professionalisation (Larson, 1977). However, this distinct area of research was criticized for terminological confusion induced by interminable attempts at exploring various definitions of profession, professionalism and professionalisation (Foreman, 1975; Freidson, 1986). Because of the disappointment in and the confusion of definitions in the field, Freidson (1986, p.35) concluded that *"All in all, I would argue that, as*

a concept capable of dealing with more than prestige and the fact of formal knowledge, with the way professionals can gain a living, and with the institutions that shape the way they gain a living, profession must be used in a specific historical and national sense. It is not a scientific concept generalisable to a wide variety of settings. Rather, to use Turner's epithet, it is a historically and nationally specific 'folk concept'". It follows that no single definition of profession exists and no consensus on the framework that describes how they develop is evident. Stevenson (1944) considered that *"To choose a definition is to plead a cause, so long as the word defined is strongly emotive"*. In view of this, Cogan (1953) in his research of the definitions of profession selected a wide variety of disciplines such as law, history, philosophy, government and sociology in an attempt to comprehensively clarify the concept of profession. He revealed that there was no general agreement on any *"authoritative statement"*. On the whole, there is no broad consensus as to the definition of a profession, and its meaning is confused and causes confusion.

2.1.2 Characteristics of Professionalism

Professionalism is an elusive concept. As an alternative to offering a definition of professionalism, most sociologists and researchers would prefer and follow an inductive approach by listing a wide range of characteristics to define professionalism. Because these characteristics are ideal in nature, no profession can completely meet these criteria; it is just a matter of degree rather than a rigid scale of criteria. While different analyses of the professionalism are available, a review of literature suggests that there are five commonly acknowledged characteristics of professionalism, which are described as follows:

(i) Specialised knowledge

Professionals have an abstract and specialized knowledge of their field. This specialized knowledge is firmly built upon the theoretical knowledge derived from formal tertiary education, and practical knowledge from professional training and experience at work. Specialised knowledge enables the professionals to perform their jobs for their clients and society at large so that they are granted with high standing in society to earn a living (Barber, 1963; Carr-Saunders, 1928; Cogan, 1953; Flexner, 1915; Hughes, 1963; Millerson, 1964; Schein, 1972; Wilensky, 1964).

(ii) Altruistic service

Professionals have a strong belief that they are indispensable and beneficial to society. This belief refers to a two-way interaction that professionals and society both benefit from each other (Barber, 1963; Cogan, 1953; Flexner, 1915; Schein, 1972).

(iii) Self-regulation

Because of their highly specialized knowledge and high ethical standards they maintain, professionals are entrusted by society to self-regulate. They also believe that their practice should be best reviewed and governed by colleagues or peers (Carr-Saunders, 1928; Greenwood, 1957; Vollmer & Mills, 1966).

(iv) Life-long commitment to the profession

Professionals have a strong sense of commitment to their work and profession. They tend to regard their profession as a permanent career instead of a means for further advancement to another profession (Goode, 1957). While working in an organization, they are even more inclined to their professional peers rather than serving organizations when conflicts exist (Abbott, 1988; Leicht & Fennel, 2001).

(v) High degree of individual autonomy for practice

Professionals strongly believe that they are free to make decisions and perform in the workplace without being influenced by external pressures such as their clients and organisations. Their specialised knowledge and skills offer them a privilege of autonomous practice (Barber, 1963; Flexner, 1915; Freidson, 1986; Raelin, 1989; Schein, 1972).

Despite discouraging confusion in the defining of a profession, a synthesis of the above characteristics of professionalism in the field can underpin the theoretical foundations of professionalism.

2.1.3 Theoretical Foundations of Professionalism

The theoretical foundations of professionalism were built upon Vollmer and Mills's (1966) professional model. Their model defined professionalism as a set of attitudes in relation to the

conduct, qualities and work that characterize the professional group with an ideology and associated activities. Vollmer and Mills (1966) and Hall (1968) distinguished two types of professionalism: structural and attitudinal attributes. The structural attributes of professions were characterized through a series of 'professionalization' processes in four stages: the creation of a full time occupation; the establishment of a training school; the formation of professional associations; and the formation of a code of ethics (Wilensky, 1964). The attitudinal attributes of professions comprise: the use of the professional organization as a major referent; a belief in the service to the public; a belief in self-regulation; a sense of calling to the field; and a belief in autonomy (Hall, 1968; Snizek, 1972).

In recent years, several scholars have revisited the subject of professionalism (Chan & Chan, 2003; Chan, Chan, Scott & Chan, 2001; Lawson, 2004; Swailes, 2003). Morrow and Goetz (1988) considered that this might be brought about by a growing interest in the study of commitment or careers among professionals. The keen quest for such investigation did initiate substantial studies of professionalism undertaken from a variety of approaches. From the perspective of organizational commitment, Mowday, Steers and Porter (1979) proposed a measure of organizational commitment that operationalized professionalism by substitution of the word "profession" for "organization". Using a multi-dimensional approach, Bartol (1979) operationalized professionalism as a predictor of organizational commitment, role stress and turnover from a sample of computing specialists. Similar to the concept of professionalism, Blau (1985) advocated a career commitment concept that aimed at investigating one's attitude toward one's profession or vocation. Aranya, Pollock and Amernic (1981) developed a professional commitment concept that concentrated on the relative strength of identification with and involvement in the profession. Wang and Armstrong (2001) also investigated professional commitment among project management

professionals using a structural equation modelling. Research studies on the subject of professionalism are abundant, however, a multi-dimensional construct of professionalism has been the prevailing approach (Bartol, 1979; Hall, 1968; Haywood-Farmer & Ian Stuart, 1990; Kerr, Von Glinow & Schriesheim, 1977; Shafer, Park & Liao, 2002; Swailes, 2003). Some of the previous studies are included in Table 1.

Table 1 - Previous Studies on Professionalism among Different Professions/Occupations

Professions/ Occupations	Researchers
Architects	Foreman (1975)
Accountants	Lee (1995); Norris & Niebuhr (1983)
Doctors	Arnold, Blank, Race & Cipparrone (1998)
Librarians	Mowery (1986)
Marketing practitioners	Thakor & Kumar (2000)
Newsmen	McLeod & Hawley (1964); Pollard (1985)
Nurses	Matassarin-Jacobs (1985)
Pharmacists	Hammer et al. (2000); Schack & Hepler (1979);
Police officers	Crank (1987)
Public and non-profit managers	Berman (1999)
Television news directors	Rushing (1982)
Quantity Surveyors	Male (1984)

2.1.4 Development of Professionalism Scales

The measurement of professionalism has long been an issue of considerable concern. Barber (1963) once pointed out that the essential attributes of professional behaviours defined a scale of professionalism, which is a way of measuring the extent to which it is present in different forms of occupational performance. The most professional behaviour would be that which realizes all attributes in the fullest possible manner. Many researchers in different fields of study attempted to operationalise professionalism in a measurable construct and establish professionalism in the form of a measurement scale (Hall, 1968; Hammer et al., 2000;

Haywood-Farmer & Ian Stuart, 1990). Among these studies, Hall's (1968) conceptualisation of professionalism was considered the classic treatment (Morrow & Goetz, 1988) and the modern concept of professionalism (Norris & Niebuhr, 1983). His scale, with a history of forty years, has been widely adopted in prior research and continues to gain popularity nowadays (Crank, 1987; Mowery, 1986; Poole & Regoli, 1980; Regoli, Crank, Culbertson & Poole, 1988; Schack & Hepler, 1979; Swailes, 2003). Cogan (1953, p.47) observed that *" in the case of those who consider definition of profession impossible or even undesirable, the impracticality of defining it seems to derive from an inability to measure the degree in which traits must be present for a profession to exist, rather than from the impossibility of identifying those traits"*. At this juncture, Hall's (1968) operationalisation of professionalism made a useful remark here. He developed a scale of professionalism that can operationalise the 'traits' of professionals into measurable attitudinal dimensions. Hall's endeavour, in this regard, seemed to relieve the concern expressed by Cogan regarding the 'inability' to measure the 'traits'.

Hall (1968) was one of the first sociologists who conceptualised professionalism in a multi-dimensional approach. He suggested that the combination of the structural and attitudinal aspects served as the basis for a professional model. The former refers to the characteristics that are part of the structure of an occupation. The attitudinal aspect is concerned with the attitudes and ideology held by its practitioners, and denotes the degree of professionalism and characteristics of an occupation. In other words it reflects the manner in which the practitioners view their profession and work (Snizek, 1972). Hall (1968) contended that the theoretical foundation of the 'professional' construct was grounded upon observable phenomena, consisting of a set of attitudes. The attitudinal dimension of professionalism may also influence the behaviour and performance of professionals at work. It can be assessed and

operated on the individual level. To assess an individual's level of professionalism, the "*attitudinal approach was considered to be logically and empirically more valid than the structural approach for the assessment of an individual's position on the professionalisation continuum*" (Ritzer, 1973; Schack & Hepler, 1979, p.98). The attitudes themselves can be investigated for their scientific utility, whether or not the construct of 'professional' has such utility (Hall, 1968). For example, the extent to which a practitioner has adopted certain attitudes may influence the way in which he works or the nature of his performance. Hall (1968) also showed that attitudes (professionalism) form an integral part of the work of the professionals and were strongly associated with behaviour. They are more inclined to endorse their views and attitudes with their peers than their leaders and serving organizations. Accordingly, Hall's conceptualisation of professionalism was selected for use in this study. Although Hall's Professionalism Scale was developed several decades ago, it is still the best tool available in the field. Some of the dimensions in the Hall's scale may not be appropriate for contemporary professionals in the construction industry, nevertheless, this study will try to identify those dimensions that may not be valid any more or their importance may have changed in the industry.

2.1.5 Hall's Professionalism Scale

Richard Hall, among the sociologists during the time of his work, made a promising approach to operationalise professionalism in a multi-dimensional construct. Professionalism was measured by using a 50-item Likert type scale, with 10 items representing each of the five attitudinal dimensions: (1) use of professional organization as a major referent, (2) a belief in public service, (3) a belief in self-regulation, (4) a sense of calling to the field, and (5) a desire for autonomy. These dimensions were thus viewed as subscales of professionalism.

Examples of statements evaluated in this measure are 'I systematically read the professional journals' and 'Other professions are actually more vital to society than mine'. Respondents were asked to evaluate how well each statement corresponded to the way they felt and behaved. Response options ranged from 1 to 5, with 1 indicating very well and 5 indicating very poorly. The data for his study was gathered in 1966 from professionals in 23 various organizations, which focused on the structural and attitudinal aspects of professionalisation, and on the organizational settings in which many professional occupations exist. Hall administered the instrument to 328 subjects representing 11 different occupational groups including: accountants, advertising executives, engineers, lawyers, librarians, nurses, personnel managers, physicians, social workers, stockbrokers and teachers. The attitudinal attributes, which constitutes the core professional models, are described as follows:

Attitudinal Attributes

Five attitudinal attributes of the professional were proposed by Hall (1968), and further analysed and re-fined by Snizek (1972). Hall (1968) proposed five dimensions of attitudinal attributes of the professional:

(i) Use of professional organization as a major referent

Professional groups set up associations for the benefits of their peer professionals via licensing and chartership sanctioned by government authorities. The professional associations and peer groups promote and strive to uphold their members' status and professionalism in society. They also represent the most influential and powerful source of ideas for practitioners in their work. Such associations reinforce the beliefs, values

and identity of the profession by formulating appropriate codes of conduct and ethics. The practitioners thus share a common value system with and become more strongly influenced by the norms and standards established by their associations. Those professionals, who adopt such a strong value, are more likely to adhere to their associations and peers than their employing organisations.

(ii) Belief in public service

A belief in service to the public implies an altruistic commitment of professionals to the public and to the professionals themselves. Professionals will receive self-fulfilment while benefiting the public. They consider that they play an indispensable role in society. In a business setting, they also believe that their own self-interest should not transcend the interest of their clients.

(iii) Belief in self-regulation

Self-regulation is concerned with the practice of self-control. Professionals who have highly specialised skills and knowledge often believe that only fellow professionals and colleagues are qualified to judge their work.

(iv) Sense of calling

This is a belief that a professional has personal dedication and lifelong commitment to his profession and his work, where *"work is defined as an end in itself and not merely a means to an end"* (Snizek, 1972, p.110). Professionals often regard their profession as a

permanent career rather than a stepping-stone to another occupation (Goode, 1957). This is one of the prominent characteristics of a professional, i.e. a willingness to continue in the profession even though there are few extrinsic rewards.

(v) Belief in autonomy

Autonomy is considered the most important attribute of professionals as it essentially affects the manner in which professionals behave. This belief is built upon the premise that professionals should be free to make their own decisions and exercise judgement without being influenced by any external pressures from his clients and his employers (Hall, 1968; Snizek, 1972). Professional autonomy lies in the responsibility placed on professionals by their tertiary education and stature within a community. Inappropriate and unnecessary control on the autonomy of professionals may give rise to potential conflicts between professionals and their organizations (Raelin, 1989). It is therefore believed that professionals, serving in those organizations that can offer more autonomy to their employees, can display a high level of professionalism.

2.1.6 Snizek's Modification of Hall's Professionalism Scale

Snizek (1972) employed Hall's Professionalism Scale in a study of 566 physicists, chemists, and aeronautical, nuclear and chemical engineers. Through the use of principal axis factor analysis, Snizek determined the degree of empirical 'fit' of the items used to measure each of the five theoretical dimensions of professionalism. Upon comparison of his own data with Hall's, it was revealed that approximately half of the fifty items formulated by Hall had less than an acceptable factor loading on their appropriate theoretical dimension. He then

shortened the items of scale by deleting some of the original items proposed by Hall. He demonstrated that the remaining 25-item scale achieved a reliability coefficient more or less equivalent to the complete 50-item (hereinafter called the modified Hall's Professionalism Scale). Although this shorter version was criticized by Fox and Vonk (1973) for having procedural problems in nature and limitations in the statistical tools chosen, numerous studies (Crank, 1987; Mowery, 1986; Morrow & Goetz, 1988; Swailes, 2003) have still supported this modified scale for measurement of professionalism because it was statistically valid.

2.2 PROFESSIONALISM IN THE CONSTRUCTION INDUSTRY

The purpose of this study is to gain an understanding of the effects of professionalism upon leadership effectiveness among building professionals. An understanding of the relevant literature on the contemporary and historical perspective of professionalisation as well as the concept of professionalism in the construction industry is pertinent to this research.

Today's modern society is more in favour of commercialism and a consumerist economy. Professionals and their services are gauged with reference to the continual changes in social and economic structure of society. Professionalism has been encroached upon by various changes in the areas of technological, organizational, socio-economic and statutory policies (Broadbent, Dietrich & Roberts, 1997). For the general public in our society, professionals are respected largely due to their specialized skills and recognition through publicity, and yet little is based on their integrity in terms of professional competence, social commitment and possession of a common body of knowledge. In the construction industry worldwide, building professionals are the major players essential to the normal functioning of the whole industry. Indeed, the roles of different disciplines of building professionals are ever-changing

and not easily defined. Definition of professionalism within building professions is subject to challenge.

Building professionals have faced immense challenges on technological fronts and social pressure at various stages of the historical development of the profession. In recent decades, controversial issues concerning commercialism, professionalism, consumerist economies, globalisation of professional services and competition from different disciplines of building professionals have aroused a great deal of interest and feedback in the building professions (Duffy & Hutton, 1998; Hui, 1997; Nicholson & Jepson, 1992; OECD, 1995; RIBA, 1995; RICS, 1998; Symes, Eley & Seidel 1995). Both society and the professions themselves believe that the professions no longer have the high moral standing that once was their hallmark in the late nineteenth century. In response to these issues, persistent discussions and extensive research studies were initiated to review the current situation and to cope with the potential threat to the profession itself (RIBA, 1995; RICS, 1991; Tay, 1997).

With regard to the practice of professionalism, Oates (1993, p.44) perceived professionalism should extend beyond the mere knowledge. He once remarked *"…professionalism may be defined by the highest standards of values and laws, which are not necessarily followed by society; it also transcends the mere statement of ethics by applying these ethics to life"*. Under these general principles for professionalism, different disciplines of building professionals such as architects, engineers and surveyors have their refined definitions of professionalism appropriate to their profession (Kaye, 1960; as cited in RICS, 1971; Wisely, 1983). The attributes of professionalism are commonly constituted of (a) specialized professional skills, (b) specialized knowledge, (c) a belief in altruistic services, (d) self-regulation through following codes of professional conduct, (e) a belief in autonomy in

their work, and (f) a belief in lifelong commitment to the field (Barber, 1963; Schein, 1972). However, this traditional concept of professionalism prevailing in western countries in the 60's and 70's, as noted by Becher (1999), is under pressures to change in today's society in (i) cognitive change: information technology, specialism, and new knowledge and techniques, (ii) immediate context: managerialism, business values and client attitudes, and (iii) wider social change: internationalisation, economic pressures, and legislation and national policy. Continuing professional development has been increasingly receiving more attention in recent decades, as building professionals are required to keep themselves up-to-date with new developments in the rapidly changing built environment. Lifelong learning is required to establish, maintain and elevate the level of accomplishment suggested by each of the above characteristics of professionalism. High quality professional services cannot be rendered by anyone who has failed to keep abreast of the new knowledge and skills that are constantly replacing past ideas and practices. It is important that building professionals do strive to uphold professionalism in their best endeavours in order to gain the trust and respect that they deserve from the public and the client.

When professionalism was established in European culture in the late nineteenth century, a professional imposed upon himself an obligation to be called to serve society with his professed specialized skill and with his best endeavour without questioning how he is to be rewarded. In return, he was respected and comfortably provided for with a reasonable remuneration. Such notion of a social contract based on unwritten rules requires all the relevant parties to comply with voluntarily. Nowadays, it seems that society as a contracting party has, perhaps quite rightly, unilaterally repudiated such contract. Professional services and remuneration are measured in commercial value. Professionals have been sticking to their principles and unilaterally abide by the social contract. In view of this, evidence is in

abundance for the building profession to cast doubt on the definition of professionalism (Chan & Chan, 1999). To preserve the traditional relationship between building professionals and other counterparts, changes in the construction industry need to be guided by building professionals' unique professional attitudes and behaviour.

In light of the above analysis, there is no doubt that professionalism is of great significance to the operation and development of the construction industry and society at large. In spite of an evident decline in professionalism, surprisingly, this has not spawned a series of studies in professionalism among building professionals. Research in this area is deficient, however, with the exception of Foreman (1975) and Male's (1984) seminal works on the investigation of professionalism in the architectural and quantity surveying professions. Apart from their research, rarely have researchers in the context of construction investigated the influence of professionalism among building professionals in the industry today.

2.2.1 Professionalism among Building Professions

In the construction industry, professionals play an indispensable role in various arenas from property development to maintenance. The industry is often characterised by its high use of specialized knowledge and skills offered by building professionals. To a great extent its proper functioning largely hinges on the professionalism of building professionals, which defines the relationship between professionals and their clients. Although building professionals are highly respected by members of society, a review of the literature suggested that rarely has the subject of professionalism been widely investigated.

Building professionals are the key players in the construction industry. Architects, structural

engineers and surveyors, among all parties concerned, constitute the primary professional workforce in the property development processes. Although their specialized skills and knowledge are distinct, they are highly amalgamated and coordinated to contribute to project and organizational success. Therefore, professionalism is given a special meaning within these professions.

Assuming the primary role of designer and overall project management, architects are often involved in the process of articulating design and orchestrating diversified skills and knowledge from different disciplines of professionals. Kaye (1960) suggested that professionalism of the architectural profession might be defined as *"the institutionalisation of an occupation based on a skilled intellectual technique, whereby the competence and integrity of practitioners are guaranteed to prospective purchasers of their services"*. For engineers, Wisely (1983) defined engineering professionalism as *"the pursuit of a learned art in the spirit of public service"*. Lawson (2004) drew from a list of scholarly literature on engineers and conceptualised professional ideal in three attributes including knowledge, organization and the ethics of professional services. With particular reference to the surveying profession, RICS (as cited in 1971, p.513) defined professionalism as *"the art of determining the value of all descriptions of landed house property and of various interests therein; the practice of managing and developing estates; and the science of admeasuring and delineating the physical features of the Earth"*. One central feature shared among these definitions is that building professionals acquire honour, status and power from their social contract with society through the acquisition of specialized knowledge and skills. In essence, the solid foundation of professionalism is built upon the trust and respect granted by the general public.

2.3 THEORIES OF LEADERSHIP

2.3.1 Introduction

Leadership has been an extensive research issue in the behavioural and organisational literature for over half a century. It is generally believed that the importance of leadership is built upon its influence on all facets of organisations in different cultures and countries. Prior studies on leadership are diverse, as researchers have approached the concept from a variety of perspectives. The works of researchers resulted from extensive inquiries in the subject leading to the emergence of a number of leadership theories in the field. Major breakthroughs in scientific research on leadership did not begin until the twentieth century (Bass, 1981). Leadership theory has evolved in this century through several stages. Some researchers have examined what great leaders are like as people by looking at demographic variables, personality traits and types of skills. Without followers, there can be no leaders; accordingly, other researchers have examined leader-follower interactions. Some focused on the effects of situations in which leadership occurs and this has attracted a great deal of attention. These studies viewed from different perspectives have made leadership an interesting yet complicated topic for study. However, few studies have pulled together all the features of leadership theories in a comprehensive way. A review of the literature in the following sections will first briefly describe the definitions of leadership, followed by a review of numerous representative leadership theories. Finally, the transformational leadership theory advocated by Bass (1985) and later the most comprehensive Full Range of Leadership Model proposed by Bass and Avolio (1991) to be used in this study is described in detail.

2.3.2 Defining Leadership

Many researchers have attempted to define leadership but the majority of them conceived it as a really difficult phenomenon to define and understand.

Stogdill (1974) carried out the most comprehensive review of the leadership literature that was then revised and further expanded by Bass (1990). As Stogdill (1974, p.259) concluded in his study that *"there are almost as many definitions of leadership as persons who have attempted to define the concept"*. He added that the operational definition was to a great extent dependent on the purpose of the research being undertaken. Burns (1978, p.2) turned up 130 definitions of leadership and he made a remark in his book that *"Leadership is one of the most observed and least understood phenomena on earth. Definitions of leadership are infinite as long as one tries to define in his own ways based upon personal experience, observation and his interaction with the environment where he lives and works"*.

On the whole, defining leadership is a challenging yet difficult task. However, serving as a general term, it can be defined as a process between leaders and subordinates aiming at achieving goals for individuals, teams, organizations or a large entity. A review of leadership literature in the following sections may unveil the mystery of defining leadership inherent in different theories of leadership.

2.3.3 Trait Theories of Leadership

Most of the earlier researchers on the subject of leadership pursued the trait approach.

Leaders were perceived to be different from the rest of the population. Studies thus searched for these personality traits and skills such as personality, appearance, knowledge and intelligence, etc. Stogdill (1974) reviewed more than 200 research projects from 1904 - 1970 with inconclusive results as to the traits of a leader. Stogdill (1974, p.81) summarized his research findings with specific references to trait approach as follows:

> *"… The trait approach tended to treat personality variables in anatomistic fashion, suggesting that each trait acted singly to determine leadership effects … The trait approach did not consider the interaction of the leader with his group or the fact that different situations demanded different traits."*

However, this approach of identifying specific traits for leaders was frustrated because the results of numerous studies revealed that there was no single trait or group of characteristics associated with effective leadership (Jenkins, 1947) and no specific traits that correlated with effective leadership in all situations (Tosi, Rizzo & Carroll, 1986). This approach, though not promising, was incorporated into later theories (Fiedler, 1967; House, 1971; Kerr & Jermier, 1978) as part of the explanatory factors in leadership research. On the whole, the trait approach, which can merely depict a list of personal attributes, is unable to provide causal links between traits of leadership and the consequences of leadership effectiveness. It also fails to offer a guideline for leadership development.

2.3.4 Behavioural Theories of Leadership

As an alternative approach to looking at traits of leaders, researchers focused on behavioural aspects of leaders in relation to leadership effectiveness. This leadership theory began to take

shape as it received strong empirical support (Fleishman & Harris, 1962). From a practical point of view, it allowed practising leaders to analyse and improve their leadership skills and effectiveness. Of worthy note was the major behavioural leadership research undertaken in Ohio State University leadership studies, University of Michigan leadership studies and Managerial Grid Model conceptualised by Blake and Mouton (1964, 1978).

2.3.4.1 The Ohio State University and University of Michigan Leadership Studies

During the period of the 1950s, the two groups of researchers at the Ohio State University (OSU) and the University of Michigan (UM) conducted a similar stream of leadership studies. Research at the Ohio State University and the University of Michigan aimed at identifying leadership behaviour that was instrumental to the performance and satisfaction of subordinates and the attainment of organizational goals. These studies were designed to determine the relationships that existed between leader behaviour and criteria such as job satisfaction and performance. The Leader Behaviour Descriptive Questionnaire (LBDQ) was one of the five questionnaires developed from the Ohio State University leadership studies. The Ohio State University leadership studies involved a series of questionnaire studies that investigated effective leader behaviour. The studies resulted in identifying two major dimensions of leaders' behaviour – initiation and consideration. Initiation is concerned with organizing, planning, clarifying, developing procedures and evaluating performance while consideration refers to that behaviour showing concern, taking care of the followers and empowerment of authority. The studies undertaken in the University of Michigan also distinguished two types of behaviour, namely production-centred and employee- centred leadership styles. The production-centred leadership style corresponded to OSU's initiation structure while employee-centred leadership styles referred to OSU's consideration structure.

The results of both studies supported the view that initiation structure/ production-centred leadership styles would lead to higher subordinates' work outcomes in terms of productivity and satisfaction than consideration structure/ employee-centred leadership styles would. However, it was believed that the most effective leaders were ones who exhibited both types of behaviours by adapting to the specific situations and modifying their own behaviour accordingly (Stogdill, 1974).

2.3.4.2 Blake and Mouton's Managerial Grid

Another similar stream of behavioural leadership theory was undertaken by Blake and Mouton (1964, 1978) in terms of a Managerial Grid. The Managerial Grid was built upon the work of the researchers at the Ohio State University, who developed two dimensions of leadership styles: concern for people and concern for production (Hersey & Blanchard, 1982). The Managerial Grid is a measure of a leader, which can be considered an attitudinal model for *"portraying types of leadership behaviour and their various potential combinations"* (Moorhead & Griffin, 1998, p. 359). The Grid is a two-dimensional chart, consisting of two intersecting axes: the horizontal axis measuring concern for people while the vertical one measuring concern for production. Each dimension was measured on a nine-point scale. It follows that theoretically the most effective leader would be measured at 9-9 on the scale, i.e. highly concerned for both individuals and production.

All in all, behavioural theories of leadership were found to have significant weaknesses (Yulk, 2002). These theories lacked empirical supports and some were simply found to be ineffective. In addition, it failed to address the importance of a situation when dealing with leadership effectiveness. However, they are valuable in that they identified several examples

of fundamental leader behaviour used in leadership theories today (Bass, 1990).

2.3.5 Situational Theories of Leadership

During a later period of time, researchers observed the possible impact that situations may impose particular role requirements on leadership effectiveness. They then began to take a more direct approach to determine how the effects of leadership vary across situations. Situational leadership theories explore the relationship between leaders, followers and the situation. Yulk (1994) suggested that situational theories can explain leadership effectiveness in terms of situational moderator variables. The most representative leadership theories under the umbrella of situational theories of leadership include House's Path-Goal Theory of Leadership, Fiedler's Contingency Theory and Kerr's Leadership Substitutes Theory.

2.3.5.1 House's Path-Goal Theory of Leadership

Developed from research undertaken in 1971, House's Path Goal Theory of Leadership (1971) studied how the behaviour of leaders affected the satisfaction and performance of subordinates. He suggested that leaders must adopt a style that can offer a guiding path through direction and support to lead subordinates to attain their goals. The leaders must also ensure that goals are balanced with those of the organization. The path-goal theory of leadership described leader behaviour in four ways (House & Mitchell, 1974): supportive, directive, participative and achievement-oriented leadership. Supportive leadership shows individualised concerns and offers a sense of amicable and friendly relations with subordinates. Directive leadership makes followers aware of what is expected of them, and provides solid and explicit directions. Participative leadership enjoys a sharing atmosphere

and allows an interactive environment among followers and leaders. Lastly, achievement-oriented leadership is concerned with goal-setting, achievement expectation and intellectual encouragement of followers to perform at high levels, and showing confidence in their abilities. This theory is promising in that it helps to identify a set of potential situational moderator variables relevant to leader-follower relations. However the model is considered too complex that rarely has research been conducted to test the whole model (Schriescheim & Kerr, 1977; Wright & Noe, 1976; Yulk, 2002).

2.3.5.2 Fiedler's Contingency Model

Almost in the same period of situational theories put forward by House (1971), Fiedler (1967) proposed a new contingency theory of leadership. Fiedler (1967) stated that *"Leadership style is defined as the underlying need-structure of the individual which motivates his behaviour in various leadership situations. Leadership style thus refers to the consistency of goals or needs over different situations"*. The theory was built upon the use of the Least Preferred Coworker (LPC) measure of leader personality in the form of a questionnaire. The questionnaire was designed to measure whether an individual is task-oriented or relationship-oriented. Fiedler argued that an individual's score in the LPC questionnaire was associated with his/her own leadership style. By displaying low LPC scores leaders would value task completion over maintenance of relationships whilst those with high LPC scores would put more value on leader-follower relationships.

According to the theory, the effectiveness of the leader was contingent on the combination of three situational variables with high LPC leaders more effective in certain situations, whilst low LPC leaders were more effective in others. The three variables, as determining factors of

effective leadership, were (1) leader/member relations, (2) task structure, and (3) the position power of the leader. The contingency theory suggested that a situation that requires a high degree of task structure would be more advantageous for a low LPC leader than one that requires a high degree of leader/member relations. Fiedler noted that leader/member relations are generally more important than task structure, which is generally more important than position power.

Since its development, Fiedler's theory has been subject to vigorous controversy and strong criticism. Bass (1990) identified and consolidated a number of Fielder's studies on the investigation of actual meanings of LPC as a measure of social distance, cognitive complexity, motivational hierarchy, and value-attitude. However, these attempts seemed to be fruitless as evidence showed that the LPC measure lacked sufficient empirical and theoretical supports (Gruenfeld & Arbuthnot, 1968; Larson & Rowland, 1974; Weissenberg & Gruenfeld, 1966), failed in the test of validity (Vecchio, 1977) and generated contradictory data (Rice, 1978). Recent evidence further showed that the LPC was also a measure of an individual's inner state, not a measure of his/her behavioural patterns. In fact the LPC construct has little face or concurrent validity (Ayman et al., 1995). In recent years, evidence from research communities has indicated that researchers have rarely employed the LPC measure for leadership studies.

2.3.5.3 Substitutes for Leadership Theory

Substitutes for leadership theory advocated by Kerr (1977) represented another major stream of theories in the field of leadership research. It identifies aspects of the situation that make leadership behaviour redundant or irrelevant. Kerr and Jermier (1978) distinguished two

types of situational variables: substitutes and neutralizers. They defined 'substitutes' as characteristics, which make the effects of leadership not only impossible but also unnecessary. 'Neutralizers' are characteristics that prevent a leader from exerting necessary leaders' effects on subordinates' performance. Numerous contingency theories previously mentioned assumed that some type of hierarchical leadership is essential and vital in formal organizations. Ineffective leadership is believed to be the result of leader behaviour that does not 'match' the situation. Kerr and Jermier (1978) questioned these assumptions and suggested an alternative that certain aspects of the individual, the task or the organization might reduce the importance of formal leadership by 'neutralizing' or 'substituting' the effects of leader behaviour. Furthermore, other situational variables not only 'neutralize' leader behaviour, but also 'substitute' for them. Howell et al. (1986) further defined two additional types of moderators of leadership performance: 'enhancers' and 'supplements'. 'Enhancers' may augment the leader-outcome relationship to produce greater effects on leadership outcomes while 'supplements' for leadership may have influence on the performance of subordinates yet do not cancel out nor enhance the leader's direct effects.

Results of previous studies supported that both 'neutralizers' and 'substitutes' have similar effect of reducing the impact of leadership upon subordinates' attitudes and performance. Kerr (1977) stressed that substitutes for leadership theory was critical to the study of leadership and the leader-follower interaction process in that it had explanatory power in predicting the results of leadership. The existence of substitutes was essential for leadership training, organizational development and task design. Absence of it would inevitably lead to ineffective functioning of an organization and frustration of members involved. The theory put emphasis on the investigation of these non-leader sources of situational determinants, which have potential effects on the expression of leader-follower interaction. It also

recognized that many factors surrounding the followers' environment could provide, to a certain extent, guidance needed for the job.

In recent years, attention has been drawn to the substitutes for leadership in the management of professionals (Kerr et al., 1977; Howell & Dorfman, 1986; Podsakoff, Mackenzie & Fetter, 1993). Especially, subordinates' characteristics such as professional orientation, ability, experience training and knowledge, degree of intrinsic satisfaction and the presence of a closely knit cohesive work group tend to be more pertinent to the management studies of professionals in organizations and are instrumental to the purpose of the this study.

The model has been well accepted by researchers in the field of leadership for more than 20 years since its inception. Its development is promising in that it offers *"a better understanding of situations under which specific styles of leadership are more likely to be effective"* (Podsakoff et al., 1993). However, unsatisfactory results that gave poor empirical support for the moderating effects of substitutes were repeatedly yielded in numerous research studies (Howell & Dorfman, 1981, 1986; Kerr & Jermier, 1978; Podsakoff, MacKenzie, Ahearn, & Bommer, 1995; Podsakoff, Mackenzie & Bommer, 1996; Tosi & Banning, 1998). These are the reasons why considerable attempts have been made to provide empirical support to the theory. Yulk (2002) further criticised that the theory did not present clearly the rationale for each substitute and neutralizer in terms of causal processes of intervening variables. Identification of specific substitutes and neutralizers for broadly defined behaviour categories including supportive and instrumental leadership presents another theoretical problem.

However, this leadership approach can allow researchers to better understand the existence of

possible ‘substitutes’ and ‘neutralizers’, which may minimize leadership effectiveness towards followers. More importantly, a better understanding of the possible effects of these ‘substitutes’, ‘neutralizers’ and ‘enhancers’ can facilitate or enhance the leadership processes and interactions between leaders and followers.

2.3.6 Bass’s Transformational Leadership Theory

The world is rapidly changing with giant strides. Considerable pressures such as increasing sophistication of technology, growing client expectations and cruel competition among industry players have pushed various reforms upon organizations and especially leaders. Organizations and their leaders are therefore more confronted with contemporary challenges, struggling with the inevitable need to change.

In the past decades, approaches of leadership theories flourished and numerous theories emerged. However, most of these old leadership approaches were tested yet led to unsatisfactory results in theoretical and practical application. Until the late twentieth century, much attention had been focused on examining the approaches of leaders who have successfully transformed organizations in different settings. The stream of this research was built upon the theoretical model of transformational leadership put forward by Burns (1978) and further advanced by Bass (1985).

Under the turbulent situations in current society with fierce competition, organizations must strive for continual changes, and their success greatly hinge on remarkable leaders who display transformational leadership. Bass and Avolio (1990, p.232) mentioned that:

> *"The turnover in technology and the changes in the work force throughout the remainder of this century and into the next will require leadership that is flexible, developmentally-oriented, willing to accept diverse points of view and capitalize on them, and that has the ability to challenge a better educated work force. The leadership required to address the predicted changes in organizations over the next twenty-five years is appropriately referred to as transformational leadership."*

The approach of transformational and transactional leadership was a promising theory stemming from the thoughts of Burns (1978) and further developed by Bass (1985). The theory identifies two types of leadership - transactional and transformational. Bass (1985) built upon previous leadership models and expanded on the work of Burns (1978) to develop a theory of transformational leadership, which has been extensively examined by scholars, researchers and practitioners. According to Bass's theory (1985), transformational leadership is of importance in that it arouses transcendental interest in followers and/or elevates their need and aspiration levels, resulting in greater satisfaction and effectiveness.

In the past, the old leadership theories can be said to have been transactional in nature; it was a feature of past leadership styles to focus on individuals. The leaders primarily pay attention to planning, establishing, implementing rules and policy, evaluating the followers, and structuring the organization. The employees are rather more concerned about following administrative procedures and getting their jobs done in exchange for self-benefits (Bass, 1985; Burns, 1978).

2.3.6.1 Differences between Burns and Bass on Transformational Model

In formulating the theory of transformational leadership, Bass's model fundamentally built upon Burn's approach, yet important differences existed in three recognizable aspects. Firstly, Bass (1985, p.20) added the *"expansion of the employees' portfolio of needs and wants"*. Secondly, Burns saw the transformation as one that was necessarily elevating; furthering what was good rather than evil for the person and the polity. Third, Burns saw transformational leadership as the opposite end of a single continuum from transactional leadership. However, Bass found that leaders would exhibit a variety of patterns of transformational and transactional leadership, and most leaders are likely to exhibit both transformational and transactional leadership in different amounts and intensities (Bass, 1985). In essence, Bass's transformational theory was built upon the major premise that followers' motivation, inspiration and performance are enhanced more by transformational leadership than by transactional leadership.

2.3.6.2 Bass's Transformational Leadership Model

Bass (1985) considered that transactional leadership could motivate followers to the extent that the services they offered were in return for the rewards. However, this seemed to be incomplete without the contribution of transformational leadership. The functions of transactional leadership could be explained in that it lets subordinates know what is expected of them, what level of performance they should achieve, and to what extent they should pay for their effort in order to exchange it for rewards. This is merely an exchange process by which leaders provide what followers need at a given expectation level. Bass and Avolio

(1990) commented that transactional leadership is of utmost importance in effective functioning of organizations and has the most promising result in the prediction of followers' expected levels of performance in agreement with their leaders. However, its presence does not necessarily inhibit a leader from being transformational, nor the reverse.

Significantly different from transactional leadership, transformational leaders are able to recognize the needs, aspirations and values of their followers, and are capable of envisaging and articulating strategies and goals that will motivate followers to exert their collective efforts beyond their expectation originally planned (Avolio & Bass, 1987). In recognizing the contribution of transformational leadership, Waldman, Bass and Yammarino (1989) pointed out that transformational leadership did not replace transactional leadership; indeed it augments transactional leadership in achieving the goals of the leader, follower, group and organization. Transformational leadership builds on transactional leadership to produce an additive effect in motivating followers to perform beyond their expectations. However, the relationship is not reciprocal.

Full Range of Leadership Model

Bass's theory (1985) was extensively researched, tested, validated and applicable in a wide range of organizational settings, organizational levels, cultures and countries (Al-Anazi, 1993; Bass, 1997). The theory, constituting transformational, transactional and laissez-faire leadership styles, was referred to by what Avolio and Bass (1991) called a 'Full Range of Leadership Model', which far outweighs the previous leadership models that merely captured and focused on the core of transactional leadership. Figure 2 depicts a pictorial presentation of the model. The meaning of each leadership factor will be discussed in the following

paragraphs.

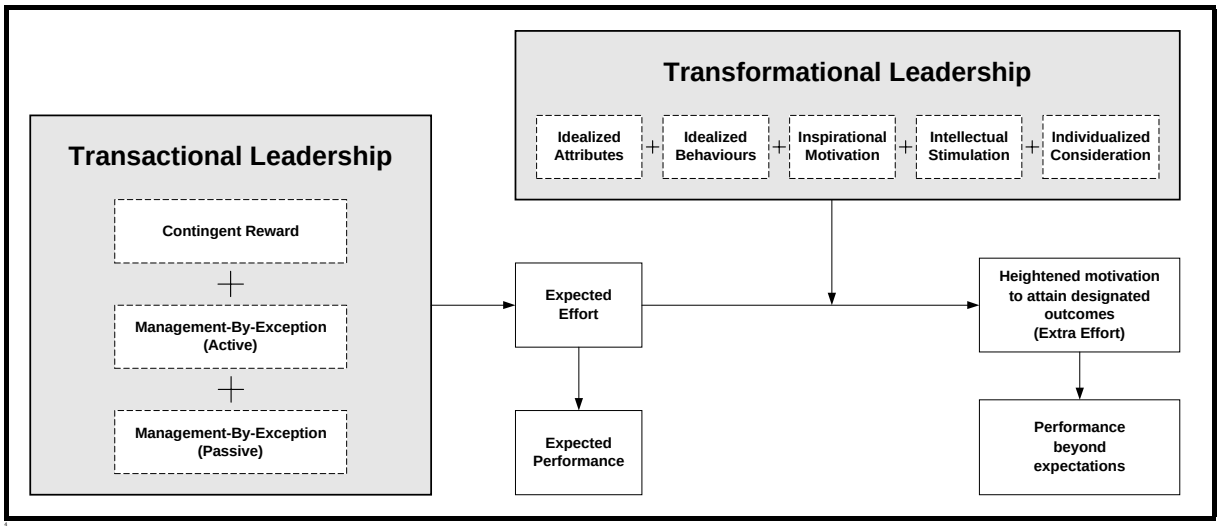

Figure 2 – Bass & Avolio' s Full Range of Leadership Model (adapted & modified from Bass & Avolio, 1990)

According to the Full Range of Leadership Model, every leader exhibits their style to some extent and amount. Figures 3 and 4 show the optimal and sub-optimal profile of the leadership model. The two figures depict three dimensions in the model: the horizontal active dimension helps clarify and identify the style; the vertical effectiveness dimension generally represents the impact of the leadership style on performance; and the third dimension (depth) corresponds to how frequently an individual displays a particular style of leadership.

In Figure 3, the optimal profile depicts that a leader frequently exhibits the transformational leadership: Four I's [Idealised Influence - Idealised attributes (IA) and Idealised behaviour(IB), Inspirational Motivation (IM), Intellectual Stimulation (IS) and Individualised Consideration (IC)]. In the meantime, the leader also infrequently displays laissez-Faire leadership (LF) and increasing frequencies of transactional leadership styles of Contingent Reward (CR), Management-by-Exception (Active) [MBEA] and Management-by-Exception (Passive) [MBEP].

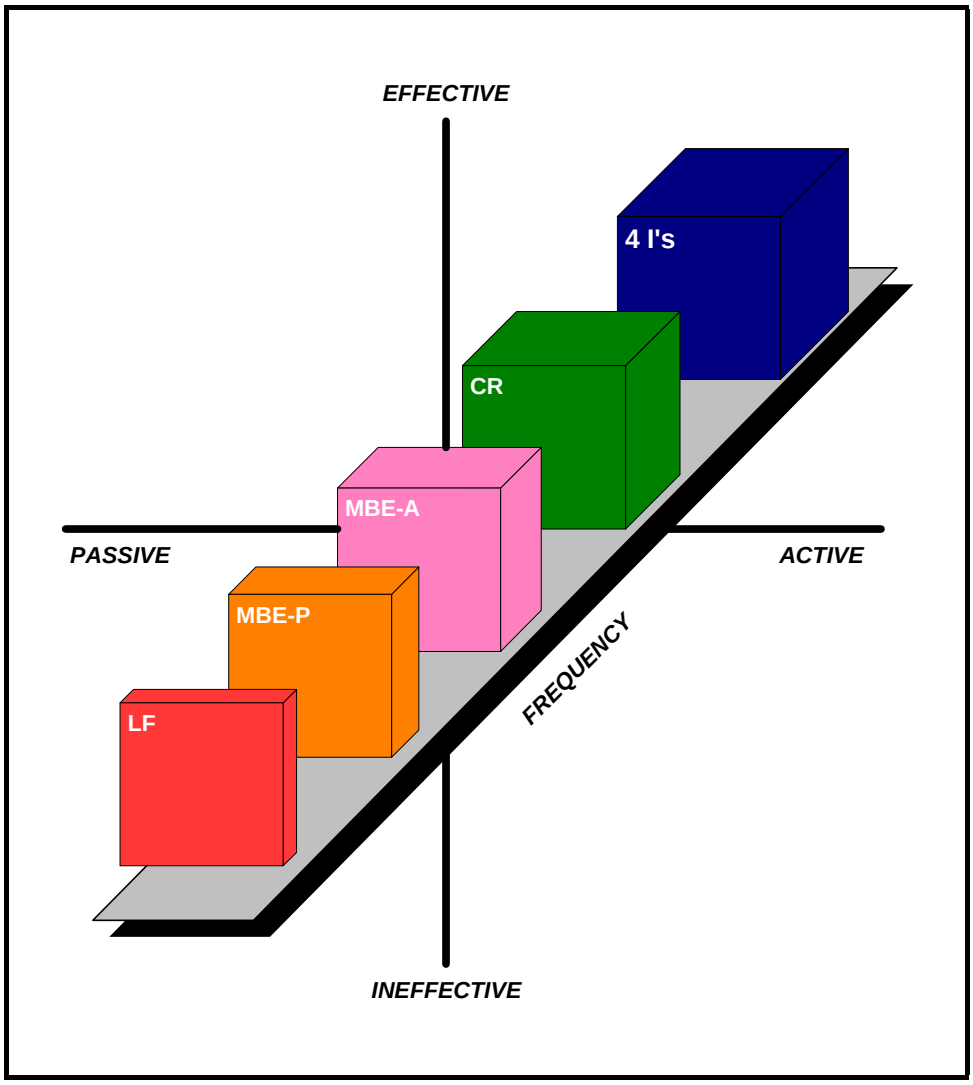

Figure 3 – Full Range of Leadership Model (Optimal Profile) (adapted from Bass & Avolio, 1994)

On the contrary, in sub-optimal profile as shown in Figure 4, the leader rarely displays transformational leadership and increases the use of transactional leadership and laissez-faire leadership to perform tasks in an inactive and ineffective manner.

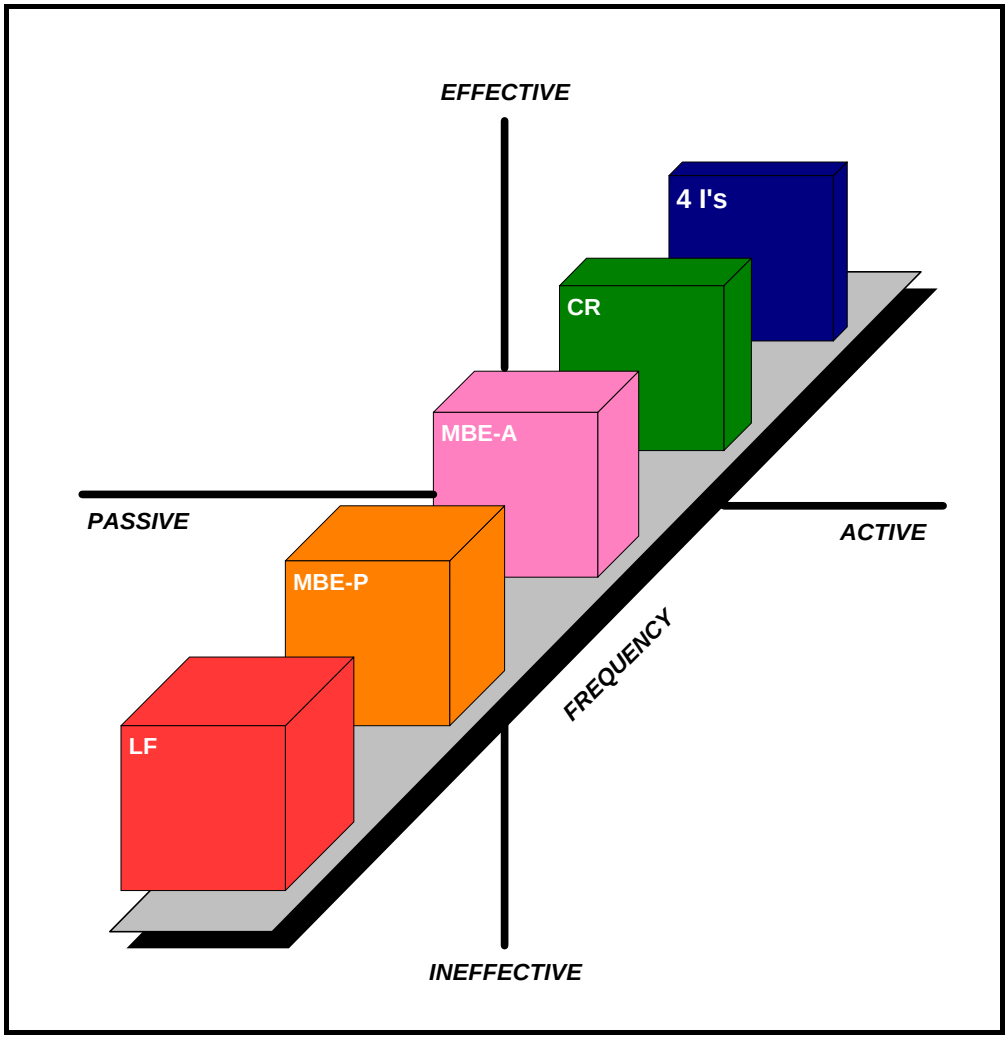

Figure 4 – Full Range of Leadership Model (Suboptimal Profile) (adapted from Bass & Avolio, 1994)

Multifactor Leadership Questionnaire

Most of the empirical research on Bass's theory has made use of an instrument developed by Bass (1985) called the Multifactor Leadership Questionnaire (MLQ) to measure various aspects of transformational and transactional leadership, and rated outcomes in organizational sciences. The instrument was widely used and supported in terms of its validity and reliability through a great deal of vigorous theoretical and practical research studies (Avolio, Bass & Jung, 1999; Den Hartog, Van Muijen & Koopman, 1997; Tejeda, Scandura & Pillai, 2001). Of particular note was Lowe, Kroeck and Sivasubramaniam's (1995) study, which offered the most comprehensive review of the MLQ to date. They employed meta-analysis by looking at

38 studies from a variety of organizational settings, organizational levels and countries. The results supported that the MLQ was a valid and reliable instrument of transformational, transactional and laissez-faire leadership though some criticisms existed (Carless, 1998; Yulk, 1999). All in all, the MLQ is considered a highly reliable, valid and convenient instrument used for the research of transformational and transactional leadership, and leadership training development of followers and leaders in organizations.

The original factors of the transformational and transactional leadership model conceptualised by Bass (1985) comprised six leadership factors – Charisma, Inspirational Motivation, Intellectual Stimulation, Individualised Consideration, Contingent Reward, Management-by-Exception, and Laissez-Faire. Scales measuring separate aspects of transformational and transactional leadership are based on factor analysis of the former-version questionnaire and subsequent modified versions. Since its conceptualisation, the model has been subject to major revision, changing from a six-factor to nine-factor model with the following modification (Avolio, Bass & Jung, 1996): Charisma was further sub-divided into Idealised Influence (Attributed) and Idealised Influence (Behaviour) whilst Management-by-Exception was sub-divided into Management-by-Exception (Active), and Management-by-Exception (Passive). Detailed measurement of each factor is discussed in Chapter Four. The factors of transformational, transactional, and non-leadership described as follows:

Factors of Transformational Leadership

Transformational leadership *"occurs when one or more persons engage with others in such a way that leaders and followers raise one another to higher levels of motivation and morality"*

(Burns, 1978, p.20). Burns considered that transformational leaders could raise followers from a lower to a higher level of need in accordance with Maslow's (1954) hierarchy of needs. They also recognise the needs of followers and seek to satisfy their higher needs and engage the full person of the followers (Avolio & Gibbons, 1988; Tichy & Devanna, 1990). A transformational leader often serves as a coach, mentor and teacher gaining a sense of commitment and dedication from followers (Keller, 1992). They are also more likely to be proactive than reactive in their thinking; more creative, novel, and innovative in their ideas; and less inhibited in their search for solutions (Yukl, 1998). Transformational leaders were characterized by (Burns, 1978; Bass, 1985):

(1) raising the level of awareness of followers about the importance of achieving valued outcomes, a vision and the required strategy;
(2) getting followers to transcend their own self-interest for the sake of the team, organization or larger collectivity and
(3) expanding followers' portfolios of needs by raising their awareness to improve themselves and what they are attempting to accomplish.

Factor 1 and 2: Idealised Influence (Charisma – Attributes and Behaviour)

Charisma is considered the primary factor in the component of transformational leadership. Bass (1985) regarded this charismatic component as idealised influence. Idealised influence is generally defined with respect to followers' reactions to the leader as well as to the leader's behaviour. Leaders who display Idealised Influence represent the highest level of transformational leadership in that their followers have trust and confidence in the leaders (Bass & Avolio, 1997). Leaders with these attributes are highly admired, respected, and

trusted, and have a high level of self-confidence, self-esteem, and self-determination. They are usually regarded as role models and demonstrate high standards of ethical and moral conduct. They identify and recognize the needs, values and hopes of their followers and also have the ability to arouse and articulate the feelings of need among followers. More often followers want to emulate their leaders' behaviour and are fully committed to achieving the common goals and collective vision put forward by the leaders. A sample item of idealised attributes in the Multifactor Leadership Questionnaire (Form 5X) is 'The leader reassures others that obstacles will be overcome'. A sample item of idealised behaviour is: 'The leader emphasizes the importance of having a collective sense of mission'.

Factor 3: Inspirational Motivation

Inspirational motivation describes the ability of leaders who can motivate and inspire followers and colleagues by building confidence, and arousing enthusiasm and spirit in the group. Through the inspirational process, followers are motivated to be more committed to the goals and shared visions in the future growth of organizations. Transformational leaders will also coach and inspire followers to meet challenges facing the organizations (Tichy & Devanna, 1990). Yulk (1994) stated that an inspirational appeal is an attempt to develop enthusiasm and commitment by arousing strong emotions and linking a request or proposal to a person's needs, values, hopes, and ideals. This type of leader provides symbols, metaphors and simplified emotional appeals to increase awareness and understanding of mutually desired goals (Bass & Avolio, 1997). A sample item in the MLQ is: 'The leader articulates a compelling vision of the future'.

Factor 4: Intellectual Stimulation

Bass (1985, p.99) describes intellectual stimulation as *"the arousal and change in followers of problem awareness and problem solving, of thought and imagination, and of beliefs and values, rather than arousal and change of immediate action"*. Intellectual stimulation is often employed to encourage and stimulate followers to think about old problems in new ways and to pay extra effort to their work. As a result, the followers can develop themselves with capabilities of exploring, analysing and solving problems with more independent thought in order to cope with the ever-changing environments of organizations. Bass and Avolio (1997) remarked that intellectual stimulation would have potential effect on the followers' ability in solving problems at individual, group and organizational levels. A sample item in the MLQ is: 'The leader re-examines critical assumptions to question whether they are appropriate'.

Factor 5: Individualised Consideration

Individualised consideration is considered a key significant factor of transformational leadership. By acting as a coach or mentor, leaders pay special attention to the individual followers' needs for personal growth, advancement and achievement in organizations. Each follower is taken care of individually and uniquely. This two-way exchange process highlights the mutual trust, sharing, and concerns between leaders and followers.

Bass (1985) found that a positive impact of individualised consideration was found on subordinates' satisfaction with leaders, as well as overall productivity. Bass and Avolio (1995, p.202) expressed that similar to contingent reinforcement, *"individualised consideration can*

be in the form of negative as well as positive feedback, aimed directly at developing the follower who is expected to complete the task while also learning from successes as well as mistakes". A sample item in the MLQ is: 'The leader spends time teaching and coaching'.

Factors of Transactional Leadership

Transactional leadership is simply contingent reinforcement (Bass, 1985). Transactional leaders link with their followers merely in an exchange process whereby the leaders set out a list of performance and achievement guidelines for followers against which rewards in terms of money, praise and promotion will be given in return. Tichy and Devanna (1990) described transactional leaders as those where *"their focus is on how to best keep the system running for which they are responsible – reacting to problems generated by observed deviances: looking to modify conditions as needed and remaining ever mindful of the organisational constraints within which they must operate"*.

A transactional leader was characterized by Burns (1978) and Bass (1985) as one who:

(1) recognizes what it is that one wants to get from one's work and tries to see that one gets what one wants if the performance warrants it;
(2) exchanges rewards and promises of reward for effort; and
(3) is responsive to one's immediate self-interests if they can be met by getting the work done.

According to Bass (1990), the factors of transactional leadership included Contingent Rewards and Management-by-Exception (Active) and Management-by-Exception (Passive).

Factor 6: Contingent Reward

Contingent reward may be considered to have the most incentive and be the most direct way for followers to work harder in accordance with the mutually agreed performance level. In return for their services and work done, contingent rewards may be utilized by transactional leaders in the form of praise and recognition for satisfactory work accomplishment, and recommendations for increase in pay and promotion, or commendation for outstanding effort (Bass, 1985). This factor is also a characteristic of transactional leaders as compared with transformational leaders; they put greater emphasis on efficient processes than substantive ideas (Zaleznik, 1967). A sample item in the MLQ is: 'The leader makes clear what one can expect to receive when performance goals are achieved'.

Factor 7 and 8: Management-by-Exception (Active and Passive)

Transactional leaders utilizing management-by-exception can be described as those who intervene followers' work only when performance does not meet the expectations or work done deviates from the agreed-upon standard. The leader will only take corrective actions when things go wrong. According to Bass's (1990) recent research, management-by-exception can be active or passive in nature. A transactional leader who monitors to avoid mistakes and actively takes steps to keep an eye on errors and deviances that require necessary corrective action is seen to practise active management-by-exception. The leader who practises passive management-by-exception does not take any action until obvious errors, deviances and mistakes occur, which is then followed by corrective action. The corrective process tends to be less effective than contingent reward or the components of

transformational leadership. A sample item for the active form in the MLQ is: 'The leader directs attention toward failures to meet standards'. A sample item for the passive form in the MLQ is: 'The leader takes no action until complaints are received'.

Non-Leadership Factor

Factor 9: Laissez-Faire

This is a non-leadership factor as mentioned by Bass and Avolio (1990). They suggested that laissez-faire leaders would offer their group members a sense of avoiding intervention and absence of leadership, or both. Leaders often keep themselves from making decisions, giving feedback, rewards and participation with followers for discussion. Transactional interaction with followers is generally absent. They also do not attempt to motivate others or to recognize and satisfy their needs. A sample item in the MLQ is: 'The leader avoids getting involved when important issues arise'.

Relationship Between Leadership Styles and Subordinates' Work Outcomes

Under the Full Range of Leadership Model (Bass & Avolio, 1991), there are three outcome variables including extra effort, perceived leader effectiveness and satisfaction with leaders. Extra effort refers to the extent to which subordinates exert their effort beyond their original expectation. Perceived leader Effectiveness refers to how effective is the leader in developing good relations with subordinates, and the ability to influence subordinates. Satisfaction with leaders refers to how satisfied subordinates are with their leaders' styles and methods, as well as how satisfied they are in general with the their leaders. A number of empirical studies have

been undertaken to establish the patterns of the relationships between transformational, transactional and laissez-faire leadership styles, and subordinates' work outcomes (Avolio & Bass, 1998; Lowe et al., 1996).

Transformational Leadership and Subordinates' Work Outcomes

Transformational leadership is consistently and positively related to how much effort subordinates will expend for the leader, how effective the leader is perceived by subordinates, and how satisfied the subordinates are with the leader (Hater & Bass, 1988; Howell & Avolio, 1993; Keller, 1992). Transformational leaders understand the needs of their subordinates, raise subordinates to a high level of need, and develop their full potential through intellectual stimulation, individualised consideration, and inspirational motivation (Avolio & Bass, 1987). Transformational leaders are able to inspire and motivate their subordinates to perform beyond what they originally expected (Bass, 1985). Transformational leaders have also been found to have more positive correlation with perceived effectiveness of leaders than transactional leaders (Bass & Avolio, 1989). Subordinates of transformational leaders were more satisfied compared with those of transactional leaders (Bass, 1990; Yammarino & Bass, 1990).

Transactional Leadership and Subordinates' Work Outcomes

Transactional leaders are different from transformational leaders in that they place more emphasis on the results rather than the process at work by establishing a set of performance and achievement guidelines. Previous empirical research suggested that dimensions of transactional leadership had different patterns of relationships with subordinates' work

outcomes. Contingent reward and active management-by-exception had a positive relationship with subordinates' work outcomes while passive management-by-exception show a negative relationship (Bass & Avolio, 2000; Lowe et al., 1995). These studies further suggested that compared to transformational leadership, contingent reward was positively related to subordinates' work outcomes but to a lesser extent. Active management-by-exception was slightly positively related to subordinates' work outcomes. Subordinates of transformational leaders would exert more effort than those of transactional leaders (Bass, 1990; Yammarino & Bass, 1990).

Laissez-faire Leadership and Subordinates' Work Outcomes

Laissez-faire leadership is often considered as non-leadership or the absence of the leader. Laissez-faire leader is one who is absent when needed. It is also the least satisfying and least effective style of leadership (Bass, 1990). This form of leadership rarely makes decisions, and offers little care, guidance, sense of encouragement and accomplishment to their subordinates. Past research provided strong support that laissez-faire leadership was negatively correlated with subordinates' work outcomes (Avolio, Waldman & Einstein, 1988; Bass & Avolio, 2000; Hater & Bass, 1988). The more leaders exhibit laissez-faire behaviour, the poorer subordinates perform at work.

Augmentation Effect of Transformational Leadership on Transactional Leadership

Numerous empirical studies revealed that transformational leadership could augment transactional leadership to produce enhanced leadership outcomes. Transformational

leadership was also complementary to transactional leadership (Avolio & Howell, 1992; Bass & Avolio, 2000; Hater & Bass 1988; Waldman, Bass, Yammarino, 1989). In fact, both leadership styles would produce greater effects on outcomes than either one style in isolation. The results of these studies reported that transformational leadership did not replace transactional leadership; it would augment transactional leadership in achieving the goals of the leader, follower, group and organization. Transactional leadership lays the foundations of the leader-subordinate relation, where transformational leadership builds on it to produce an additive effect in motivating followers to perform beyond expectations. However, the relationship is irreversible (Figure 2).

2.4 LEADERSHIP IN THE CONSTRUCTION INDUSTRY

2.4.1 Introduction

In today's construction industry, complex project environment has hastily driven building professionals not only to keep abreast of new knowledge in project procurement and latest technologies, but also to be capable of motivating and leading various parties concerned to achieve common goal-settings (Slevin & Pinto, 1988). Appropriate and effective types of leadership are thus essential to lead a team of professionals to achieve organizational/ project-specific goals, and to recognize their needs, satisfaction and effectiveness at work. Leadership is believed to be one of the most important research areas, nevertheless it receives relatively little attention in the construction industry. It is often considered a social exchange process between leaders and followers. Within the built environment, leadership has imposed significant impacts on the performance of construction projects, and is important in determining project success (Diekmann & Thrush 1986; Djebarni, 1993; Rowlinson, 1988).

2.4.2 Leadership Studies in the Construction Industry

Leadership studies in the construction industry are limited. This section reviews numerous representative leadership research in the built environment in order to capture a broader picture of the status quo in construction research.

Among a wide variety of leadership research, Fiedler's Contingency Theory (1967) has been regarded as one of the most popular leadership theories adopted by construction researchers. Bresnen, Bryman, Ford, Beardsworth and Keil (1986, 1987) were particularly interested in Fiedler's Contingency Theory (1967). They undertook a study to investigate the role of construction site managers as leaders of their teams and the range of leadership styles adopted in managing site work. The study adopted Fiedler's model to measure the leadership styles of site managers and assess their performance across a specified range of situations. In their research, they intentionally added three situational variables, which were considered important in construction activities, to the original Fiedler's Contingency Model. These variables were duration of contract, value of contract and proportion of direct labour. Bresnen et al. (1986) also found that leadership orientations were related to project effectiveness and this relationship is dependent upon the three additional situational variables. Bresnen et al. (1987) further reported that a completely different controlling variable, transient nature of project-based organizations on site, was also found to affect the relationship between the Least Preferred Scale and performance. These results were somewhat different from Fiedler's model. The actual meaning of the scores of the Least Preferred Scale and the measure's validity still remain in doubt. On the whole, the results might lead to questions about the applicability of Fiedler's Contingency Model in the construction setting.

Dulaimi (1991) carried out a study to investigate job behaviour of site managers in the UK. The study aimed to examine the interaction effects of situational variables and the personal characteristics of site managers on the behaviour and effectiveness of site managers. The research adopted the Fiedler's Contingency Model of leadership and identified the situational and personal variables in its model over 62 site managers. The study employed an adapted form of the Behaviourally Anchored Rating Scales (BARS) to assess the effectiveness of site managers. The findings of the study showed that project performance and the behaviour of site managers varied independently from each other. The results further supported that situational variables and the personal characteristics of site managers were significantly related to site managers' behaviour and project performance.

Rowlinson, Ho and Yuen (1993) studied the leadership styles of Hong Kong Chinese construction managers by using Fiedler's Least Preferred Co-worker (LPC) scale. Two questionnaire surveys were separately conducted to design team leaders and construction site staff, who were mainly civil engineers. The results suggested that leaders in Hong Kong tended to more frequently adopt relationship-oriented leadership styles than their western counterparts. The major differentiation was attributed to cultural differences. As a limitation of the study, they concluded that the LPC scale might not be an appropriate instrument applicable to a construction project and alternative measures should be adopted to take into account the situational dependence.

Similar to Rowlinson et al.'s study (1993), Djebarni (1993) undertook a research to explore leadership in the Algerian construction industry and to investigate the impact of a site manager's leadership behaviour on site effectiveness. The theoretical background developed

in the study for leadership styles was also built upon Fiedler's Contingency Theory. The results showed that the leadership behaviour of a site manager was influenced by the leader's domination, and three major situational variables including project size, the site manager's stress and the situational control. The results also emphasized the impact of various stressors on leadership behaviour and on-site effectiveness.

Apart from using Fiedler's Contingency Theory (1967), some researchers also administered tailor-made questionnaires to examine the relationship between leadership styles and managerial effectiveness. Enshassi and Burgess (1991) investigated the relationship of site managers' effectiveness and their managerial styles when managing multi-cultural work forces in the Middle East. The data was obtained from 79 site managers from six middle-eastern countries by means of mailed questionnaires through which site managers' styles and effectiveness were self-assessed. The results found that managerial effectiveness was related to the style of site managers. A successful site manager was one who recognized and understood cultural differences, personality and requirements of his subordinates. Leadership dimensions, task and employee orientation should be combined in order to achieve the optimal results at company and project level.

2.5 RESEARCH GAPS IN LEADERSHIP AND PROFESSIONALISM

The study of leadership research in professional groups of the construction industry has garnered relatively little theoretical and empirical attention. Review of relevant literature in the preceding section reveals that leadership research has been dominated by the use of a contingency approach, especially the Fiedler's Contingency Theory.

The literature review presented in this chapter has shown that our understanding on the relationship between professionalism and leadership for building professionals is somewhat limited. Therefore, the literature review on the model of leadership for building professionals presented indicates that research gaps exist within the field of construction research. This study differs from earlier work and contributes to the existing body of knowledge in construction research by identifying the research gaps in four major facets.

First, there is a lack of construction research on leadership styles of building professionals captured in a full range of leadership model. Second, previous work in leadership research has failed to systematically measure professionalism among building professionals, which should be operationalised as a multidimensional construct, using a well-established measurement tool. Third, there is no research to date focusing on the unique role of professionalism that moderates the relationship between leadership styles and subordinates' work outcomes in the context of the construction industry. Finally, since the constructs of professionalism and leadership styles were originally developed in the United States, the majority of studies have been conducted in Western countries. Rarely has this issue been conducted from a cross-national perspective in the context of the construction industry. All in all, there is definitely a need to fill the above research gaps.

This study presents a conceptual model of leadership for building professionals, and is detailed in Chapter Three, which signifies the role of professionalism among professional subordinates in leadership research. Among the key research gaps identified is the need for testing the moderating role of professionalism among professional subordinates. To bridge the research gap, the conceptual model is grounded on two major streams of theories, operationalised in the Bass and Avolio's Full Range of Leadership Model (1991) [built upon

Bass's Transformational Leadership (1985)] comprising transformational, transactional and laissez-faire leadership, and Hall's (1968) Professionalism Model, to build up the backbone of a model to answer the research questions posed. The literature reviewed above has led to two major assumptions upon which the conceptual model is based. First, building professionals have already undergone a series of professionalisation processes and socialized into professionals in the modern society. Second, professionalism among subordinates may interact with various leadership styles to influence leadership effectiveness.

The present study adopts the Full Range of Leadership Model developed by Bass and Avolio (1991) as opposed to other leadership models for several reasons:

- First, the model covers a wide range of leadership styles while other leadership models depict a single style of leadership behaviour;

- Second, the Full Range of Leadership Model has been widely researched in a variety of evaluative empirical investigations in commercial, educational, industrial, and military settings;

- Third, the Full Range of Leadership Model, with the use of the Multifactor Leadership Questionnaire, provides 360^{o} individual evaluations to leaders and subordinates with potential leadership. It also describes specific behaviour that facilitates leadership training and development, and recruitment and selection for organisations; and

- Finally, from a practical standpoint, more than a hundred leaders from a wide range of sectors including business, government, health care, military, and education have been

trained using the Full Range of Leadership Model (Bass & Avolio, 1994; Avolio, 2002).

2.6 SUMMARY OF THE CHAPTER

The review of literature in this chapter looked at different conceptualisations of professionalism and leadership theories with a view to arriving at a greater understanding of the constructs and to garner an appreciation of the nature of professionalism and leadership. This study is grounded on two representative models, the Hall's Professionalism Model (1968) and Bass and Avolio's Full Range of Leadership Model (1991), which shall be adopted to build up the backbone of a conceptual model of leadership for building professionals as described in Chapter Three.

CHAPTER THREE – CONCEPTUAL MODEL

3.0 INTRODUCTION

The purpose of this chapter is to introduce and develop in detail a conceptual model, which is derived from the critical analyses of the two theoretical models examined in Chapter Two – Bass and Avolio's Full Range of Leadership Model (1991) [built upon Bass's Transformational Leadership (1985)] and Hall's Professionalism Model (1968). The conceptual model underpinning the present study is described. Hypotheses are developed for testing the model. The influences of subordinates' professionalism on the relationships between leadership styles and subordinates' work outcomes are discussed, and the hypothesized relationships among them are analysed. The following sections include the research questions that this study addresses and the theoretical rationale upon which each hypothesized relationship is based.

3.1 CONCEPTUAL MODEL

Based on the theoretical and empirical foundations established in the preceding chapters, this chapter develops a conceptual model, which integrates the role of professionalism in the leader-outcome relationship in organizations in the context of the construction industry.

The literature discussed in Chapter Two identified two constructs that are considered to have interactive effects on professional subordinates' performance in organisations: Bass and Avolio's Full Range of Leadership Model (1991) and Hall's Professionalism Model (1968).

Research on the inter-relationships between these constructs has never been empirically tested, particularly not in the construction industry. Transformational, transactional and laissez-faire leadership have been extensively tested in numerous military, industrial and educational settings (Bass, 1998). However, rarely has this relationship been tested in the construction industry. Furthermore, professionalism, considered a hallmark of professional workers, has occasionally been included in prior studies as one of numerous factors that may influence the relationship between leadership styles and subordinates' outcomes. Both of them are well established to be multi-dimensional constructs but a combination of the two has seldom been tested empirically in the construction setting. Therefore, these inter-relationships in a built environment need to be established. The proposed conceptual model is depicted in Figure 5 and established in the next section.

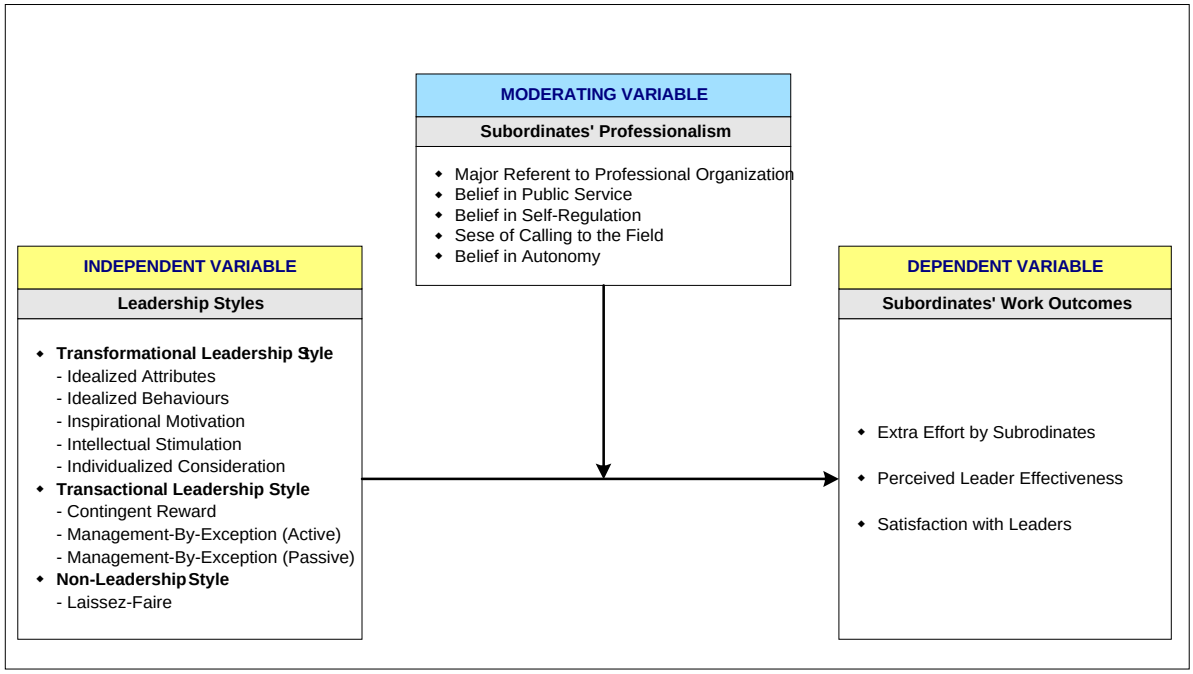

Figure 5 - Conceptual Model

As shown in the model, transformational, transactional and laissez-faire leadership exhibited by professional leaders have direct main effects on subordinates' work outcomes (extra effort,

perceived leader effectiveness and satisfaction with leaders). Subordinates' professionalism will interact with each of the three leadership styles to produce an effect, different from that of the leadership style alone, on subordinates' work outcomes.

The proposed framework contains a set of hypothesized relationships comprising two main hypotheses and nineteen sub-hypotheses that will be tested in a built environment. The hypothesized relationships are depicted in Figure 6.

3.2 HYPOTHESIZED RELATIONSHIPS

This section discusses the hypothesized effects of leadership styles on subordinates' work outcomes and the moderating effects of subordinates' professionalism on the leader-outcome relationship. Bass and Avolio's (1991) Full Range of Leadership Styles includes transformational, transactional and laissez-faire leadership. Leadership effectiveness is examined through three outcomes of subordinates (extra effort, perceived leader effectiveness and satisfaction with leaders) in response to leaders' styles.

Based on the preceding discussion in Chapter Two and evidence from past research, transformational and transactional leaders were generally expected to positively influence subordinates' work outcomes while laissez-faire leadership was negatively related to subordinates' work outcomes. Prior research also suggested that transformational leadership was more effective than transactional or laissez-faire leadership. Professionalism was expected to have different moderating effects on the relationships between each of the leadership styles and subordinates' work outcomes. Figure 6 graphically depicts the hypothesized relationships in this study.

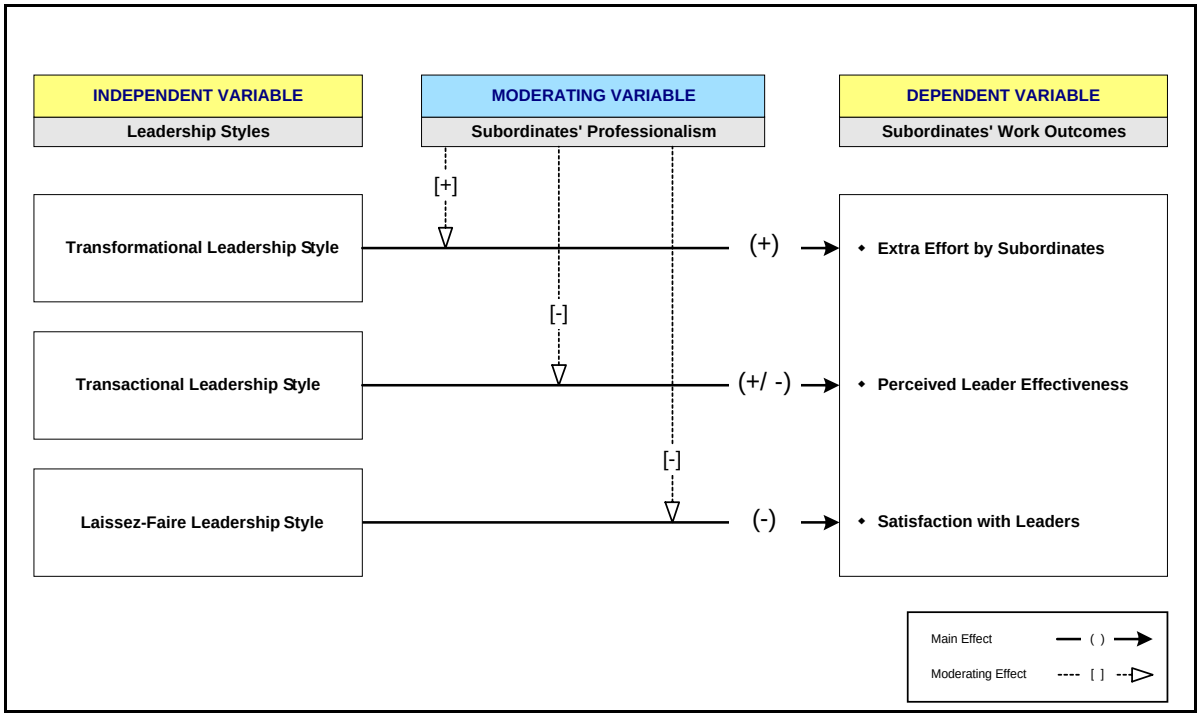

Figure 6 - Hypothesized Relationships in the Conceptual Model

Therefore, the specific hypothesis that this research aims to test is:

> Leaders' styles are related to professional subordinates' work outcomes. These relationships are dependent upon the level of professionalism exhibited by the subordinates that moderate it.

The hypotheses were classified into two sets of research issues. The first set addressed the main effect of leadership styles on subordinates' work outcomes. The second set dealt with subordinates' professionalism as a moderating variable. The research sought to test the following two main hypotheses and the corresponding sub-hypotheses. A summary of Hypotheses 1 and 2 are depicted in Table 2 and 3 respectively.

3.2.1 Main Hypothesis 1 – Leadership Styles and Subordinates' Work Outcomes

H1: There is a significant association between each of the three types of leadership styles (transformational, transactional and laissez-faire) and subordinates' work outcomes (extra effort, perceived leader effectiveness and satisfaction with leaders).

Sub-Hypotheses (1a-j)

Transformational Leadership and Subordinates' Work Outcomes

Transformational leaders recognize the needs of their subordinates, raise subordinates to a high level of need and develop their full potential through individualised consideration, intellectual stimulation and close-knit coaching (Avolio & Bass, 1987). Transformational leaders are therefore able to motivate subordinates to perform beyond their original expectations (Bass, 1985). It is evidenced that transformational leadership is positively related to how effective the leader is perceived by subordinates, how much effort subordinates will expend for the leader and how satisfied the subordinates are with the leader (Hater & Bass, 1988; Howell & Avolio, 1993; Keller, 1992). Given the empirical relationships between transformational leadership and subordinates' work outcomes, the following sub-hypotheses are offered:

SubH1-a: Transformational leadership is positively related to subordinates' extra effort.

SubH1-b: Transformational leadership is positively related to subordinates' perceived leader effectiveness.

SubH1-c: Transformational leadership is positively related to subordinates' satisfaction with leaders.

Transactional Leadership and Subordinates' Work Outcomes

Transactional leaders display a different style from transformational leaders. Transactional leaders are more concerned with the end rather than the means at work. They emphasize the ultimate preset outcomes through a set of explicit procedures. Dimensions of transactional leadership exhibit a rather different pattern of relationships with subordinates' work outcomes. Previous research consistently indicated that contingent reward and active management-by-exception were positively correlated to subordinates' work outcomes while passive management-by-exception show a negative relationship (Bass & Avolio, 2000; Lowe et al., 1995). These empirical studies further showed that contingent reward was positively related to subordinates' work outcomes but to a lesser extent than transformational leadership. Active management-by-exception was slightly positively related to subordinates' work outcomes. Given the empirical relationships between transactional leadership and subordinates' work outcomes, the following sub-hypotheses are offered:

SubH1-d(i): Contingent reward and management-by-exception (active) are positively related to subordinates' extra effort.

SubH1-d(ii): Management-by-exception (passive) is negatively related to subordinates' extra effort.

SubH1-e(i): Contingent reward and management-by-exception (active) are positively related to subordinates' perceived leader effectiveness.

SubH1-e(ii): Management-by-exception (passive) is negatively related to subordinates' perceived leader effectiveness.

SubH1-f(i): Contingent reward and management-by-exception (active) are positively related to subordinates' satisfaction with leaders.

SubH1-f(ii): Management-by-exception (passive) is negatively related to subordinates' satisfaction with leaders.

Laissez-Faire Leadership and Subordinates' Work Outcomes

Prior research has repeatedly reported that laissez-faire leadership is the least satisfying and least effective style of leadership (Bass, 1990). Laissez-faire leaders provide little sense of encouragement and accomplishment, virtually no support at all and seldom make decisions. Research indicated that strong negative correlations were present between laissez-faire leadership and subordinates' work outcomes (Avolio, Waldman & Einstein, 1988; Bass & Avolio, 2000; Hater & Bass, 1988). It is reasonable to expect that the more the leaders exhibit laissez-faire behaviour, the poorer the subordinates perform at work. Therefore, the following sub-hypotheses are posited:

SubH1-g: Laissez-faire leadership is negatively related to subordinates' extra effort.

SubH1-h: Laissez-faire leadership is negatively related to subordinates' perceived leader effectiveness.

SubH1-i: Laissez-faire leadership is negatively related to subordinates' satisfaction with leaders.

Augmentation Effect of Transformational Leadership on Transactional Leadership

Previous research indicated that transformational leadership was complementary to transactional leadership and it would augment transactional leadership in predicting subordinates' work outcomes (Avolio & Howell, 1992; Bass & Avolio, 2000; Hater & Bass 1988; Waldman, Bass, Yammarino, 1989). More importantly, the augmentation of both leadership styles would have a stronger relationship with work outcomes than either one in isolation. The findings of these studies consistently reported that transformational leadership did not replace transactional leadership. In fact, transformational leadership would produce an add-on effect on transactional leadership in achieving the goals of the leader, follower, group and organization. Transformational leadership builds on transactional leadership to produce an additive effect in motivating followers to perform beyond expectations. This relationship, nevertheless, is not reciprocal. Given this relationship, the following sub-hypothesis is offered:

SubH1-j: Transformational leadership augments transactional leadership to produce more effective subordinates' work outcomes.

3.2.2 Main Hypothesis 2 – Effect of Subordinates' Professionalism on Leadership Effectiveness

H2: The strength of association between each of the three types of leadership styles (transformational, transactional and laissez-faire) and subordinates' work outcomes (extra effort, perceived leader effectiveness and satisfaction with leaders) is contingent upon the levels of professionalism among subordinates.

Sub-Hypotheses (2a-i)

Moderating Effect of Professionalism on the Relationship between Transformational Leadership and Subordinates' Work Outcomes

Three hypotheses (2a-c) were generated to address the relationships posited in the conceptual model of leadership for building professionals. In general, the model predicted that professional subordinates who have a higher level of professionalism are more likely to have a higher level of work outcomes when their leaders display more transformational leadership in the workplace. This hypothesis is somewhat different from the traditional perception that professionalism is antithetic to leadership as it is often considered that professionals resist the control of their leaders because of their specialised knowledge, self-regulation and autonomy. However, transformational leadership may make a different case. Transformational leaders can promote coaching, encouragement, motivation, inspiration and stimulation for their subordinates. They motivate subordinates to do more than they originally intended, more than they thought possible, to transcend self-interest, and to focus on the goals of the group or

organization. In addition, transformational leaders cultivate an environment where they attempt to elevate subordinates to higher levels, try to develop subordinates into leaders, and bring about changes in the culture of organisations. This refers to what Bass (1985) called the four I's of transformational leadership including: Idealised Influence – Idealised Attributes (IA) and Idealised Behaviours (IB), Inspirational Motivation (IM) Intellectual Stimulation (IS) and Individualised Consideration (IC) (Avolio, Waldman, & Yammarino, 1991). Transformational leadership arouses transcendental interests in subordinates and elevates their need and aspiration levels, resulting in producing greater subordinates' satisfaction and effectiveness. Being professional, subordinates are in favour of a creative, stimulating and motivating environment conducive to an autonomous and self-regulating workplace. The greater they are motivated, the better they perform at work (Wayne, 2001). According to the motivation theory advocated by McGregor (1960), professionals should fall into the Theory Y category in which motivation originates from the intrinsic factors within people themselves, including self-regulation and self-direction. In terms of Maslow's Hierarchy of Needs (1954), professionals, who desire professional growth and advancement, are approaching self-actualisation to reach for self-fulfilment. Mintzberg (1999) considered that knowledge workers often respond to inspiration, not supervision. It follows that professional subordinates desire to be motivated. They will put in extra effort when needed without being asked to do so. Transformational leaders constantly inspire and motivate subordinates. The inspiration and motivation intellectually will transcend above and beyond the resistance from professional subordinates due to their specialized knowledge and strong belief in self-regulation and autonomy. This influence of transformational process may refer to what Thomas (2000) called "a self-reinforcing cycle", in which subordinates are instilled by leaders with intrinsic rewards (sense of choice, sense of competence, sense of meaningfulness and sense of progress) linking to self-management of subordinates themselves. Increase in

intrinsic rewards will tend to energise more self-management and finally will lead to greater commitment, innovation, job satisfaction and worker retention. Nelson (1996) also suggested that employees would not be motivated to do their jobs if their seniors do not acknowledge employees' performance. Praise, recognition, challenging work, and growth and development opportunities can boost employees' esteem and performance significantly and do motivate employees to outperform their jobs well. It follows that when professional subordinates are highly incorporated with professional value and are committed to their profession, he expects more respect and trust, and more challenging, inspiring and motivating work for self-fulfilment and self-advancement. Therefore it is expected that professional subordinates with a higher level of professionalism are more likely to have a higher level of work outcomes (extra effort, perceived leader effectiveness and satisfaction with leaders) when their leaders are displaying more transformational leadership. Figure 7 depicts the predicted relationship between transformational leadership and subordinates' work outcomes across low and high levels of professionalism among professional subordinates.

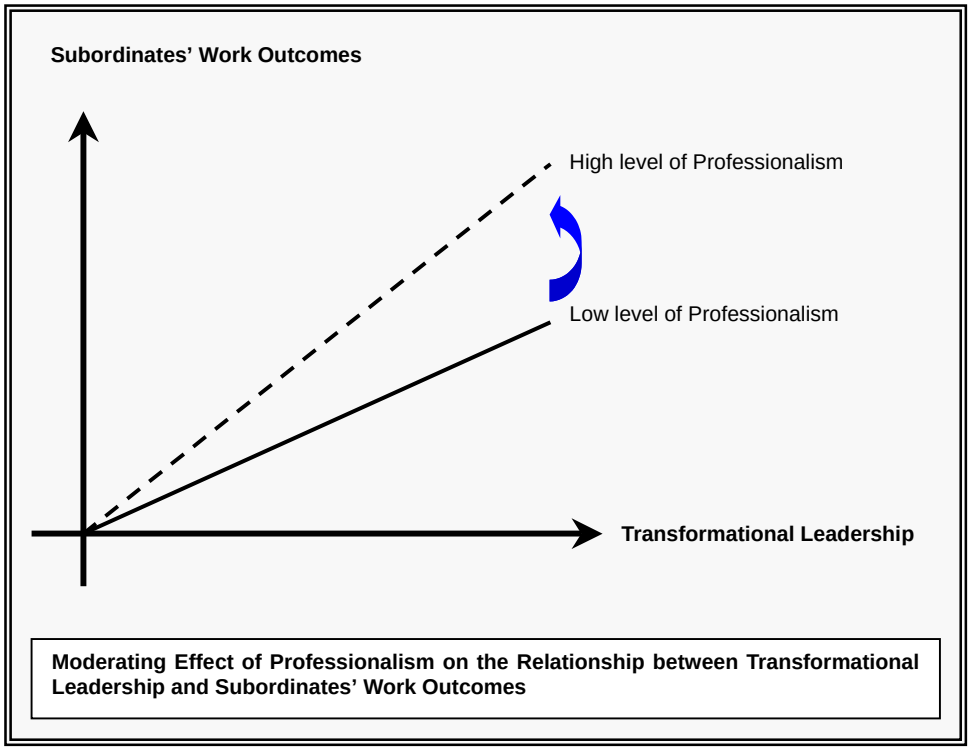

Figure 7 - Predicted Moderating Effect of Professionalism on Transformational Leadership Process

Given the impact of professionalism on the relationships between transformational leadership and subordinates' work outcomes, the following sub-hypotheses are offered:

SubH2-a: Subordinates' professionalism moderates the relationships between transformational leadership and subordinates' extra effort such that when professionalism increases, the effect of transformational leadership on extra effort will increase.

SubH2-b: Subordinates' professionalism moderates the relationships between transformational leadership and leader effectiveness perceived by subordinates such that when professionalism increases, the effect of transformational leadership on perceived leader effectiveness will increase.

SubH2-c: Subordinates' professionalism moderates the relationships between transformational leadership and subordinates' satisfaction with leaders such that when professionalism increases, the effect of transformational leadership on satisfaction with leaders will increase.

Moderating Effect of Professionalism on the Relationship between Transactional Leadership and Subordinates' Work Outcomes

Transactional leaders place emphasis on an exchange process between subordinates (Bass, 1985). The leaders prescribe a set of performance requirements and achievement guidelines for subordinates. The dimensions of transactional leadership include contingent reward,

active management-by-exception and passive management-by-exception.

When transactional leaders display contingent reward, subordinates are guaranteed rewards when they meet the agreed-upon requirements as if they have entered into contracts (explicitly or implicitly). In general, professionals desire organizational rewards and reasonable remuneration in exchange for professional services rendered. A recent report on knowledge workers revealed that extrinsic rewards including pay and promotion prospects were the top priority for professional workers (EIU, 1998). In addition, appropriate design of a reward system in an organisation is important for motivating and retaining professional employees, and thus any change of the system should be seriously considered taking into account professionals' desire for autonomy (Von Glinow, 1985). Von Glinow (1988, p.59) further noted that *"administration of traditional rewards, such as promotions, pay increases and status symbols, is consistently less effective in controlling the performance of professional high technology employees"*. Podsakoff et al. (1993) suggested that professional employees might be more indifferent to contingent rewards than are non-professionals. With respect to monetary reward, Nelson (1996) reported that many managers heavily relied on the use of cash rewards to motivate their employees. However, past research evidenced that in some cases cash rewards can have a demotivating consequence. Kohn (1996) shared the same view with Nelson (1996) that rewards undermine and fail to raise morale, promote motivation and improve productivity for employees. This could explain, to some extent, why professional workers are not easily motivated in the workforce.

All in all, contingent reward is predicted to have positive relationships with subordinates' performance and effectiveness. However, professional subordinates who display a high level of professionalism are usually highly satisfied intrinsically and look for higher level of needs

for self-improvement and professional development (Maslow, 1954). Therefore it is expected that a further increase in contingent reward may weaken the positive leadership-outcome relationship when the professional subordinates are incorporated with a higher level of professionalism.

When leaders are exercising active management-by-exception, they constantly monitor subordinates to avoid mistakes and actively take corrective action on committed errors and deviances before they occur or at least when they are occurring (Bass, 1990). The leader of this type will look for deviations from rules and standards. Therefore active management-by-exception may positively relate to subordinates' outcomes as leaders help subordinates correct wrong actions. However, as the leaders only offer help to these subordinates without appropriately providing sense of motivation and stimulation at work, this style is not able to satisfactorily inspire and motivate those professional subordinates who exhibit a high level of professionalism.

Whilst practising passive management-by-exception, leaders do not take any action until obvious deviances and mistakes occur, which is then followed by corrective action (Bass, 1990). Leaders of this type do not show any enthusiasm at work and cannot build up organisational loyalty in subordinates. They even do not attempt to motivate and inspire subordinates. In fact, subordinates do not welcome this type of style. Therefore it is expected that professional subordinates with a higher level of professionalism are more likely to have a lower level of work outcomes (extra effort, perceived leader effectiveness and satisfaction with leaders) when their leaders are increasingly using passive management-by-exception.

Putting it together, an increase in level of transactional leadership may not necessarily fulfil

neither subordinates' physical and psychological needs, nor increase subordinates' work outcomes. Therefore it is expected that professional subordinates exhibiting a higher level of professionalism, are more likely to have a lower level of work outcomes than those with a lower level of professionalism, when their leaders are displaying more transactional leadership in the workplace.

Figure 8 depicts the predicted relationship between transactional leadership and subordinates' work outcomes across low and high levels of professionalism among professional subordinates.

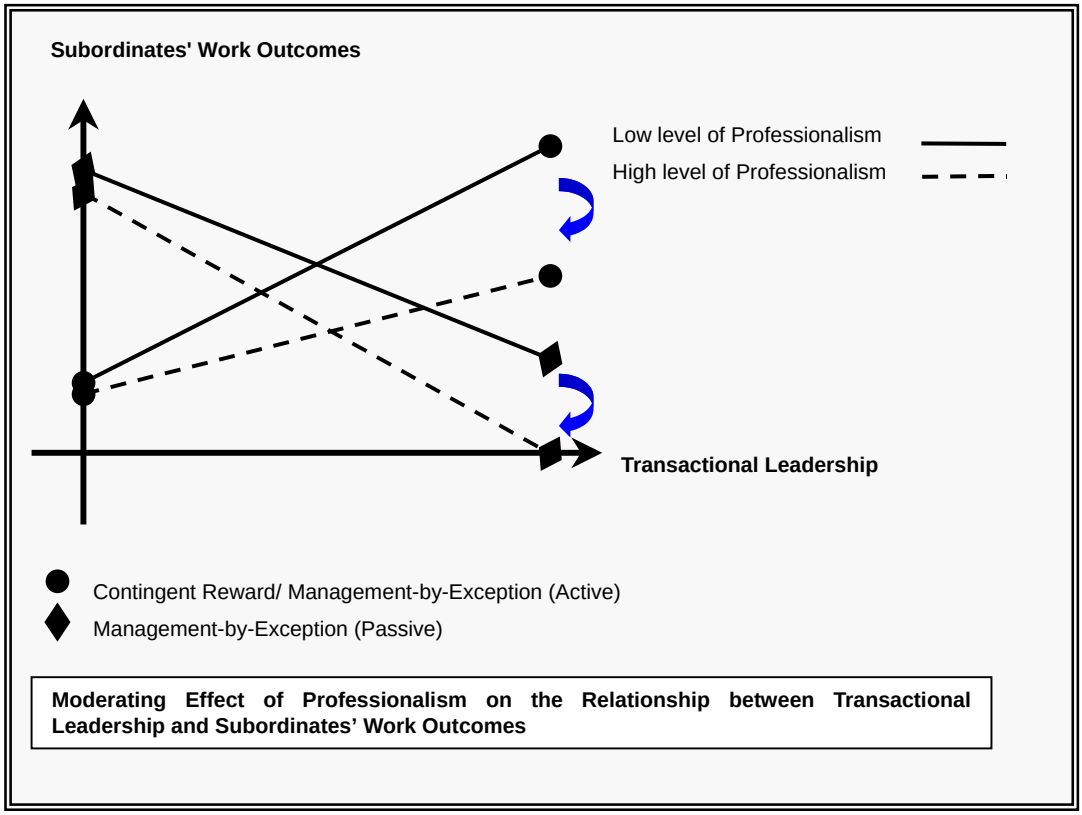

Figure 8 - Predicted Moderating Effect of Professionalism on Transactional Leadership Process

Given the impact of professionalism on the relationships between transactional leadership and subordinates' work outcomes, the following sub-hypotheses are offered:

SubH2-d(i): Subordinates' professionalism moderates the relationships between contingent reward/ management-by-exception (active) and subordinates' extra effort such that when professionalism increases, the effect of contingent reward/ management-by-exception (active) on extra effort will decrease.

SubH2-d(ii): Subordinates' professionalism moderates the relationships between management-by-exception (passive) and subordinates' extra effort such that when professionalism increases, the effect of management-by-exception (passive) on extra effort will decrease.

SubH2-e(i): Subordinates' professionalism moderates the relationships between contingent reward/ management-by-exception (active) and subordinates' perceived leader effectiveness such that when professionalism increases, the effect of contingent reward/ management-by-exception (active) on perceived leader effectiveness will decrease.

SubH2-e(ii): Subordinates' professionalism moderates the relationships between management-by-exception (passive) and subordinates' perceived leader effectiveness such that when professionalism increases, the effect of management-by-exception (passive) on perceived leader effectiveness will decrease.

SubH2-f(i): Subordinates' professionalism moderates the relationships between contingent reward/ management-by-exception (active) and subordinates' satisfaction with leaders such that when professionalism increases, the effect of contingent reward/ management-by-exception (active) on satisfaction with leaders will decrease.

SubH2-f(ii): Subordinates' professionalism moderates the relationships between management-by-exception (passive) and subordinates' satisfaction with leaders such that when professionalism increases, the effect of management-by-exception (passive) on satisfaction with leaders will decrease.

Moderating Effect of Professionalism on the Relationship between Laissez-Faire Leadership and Subordinates' Work Outcomes

Three hypotheses (2g-i) were generated to address the relationships in the model of leadership effectiveness. In general, the model predicted that professional subordinates who have a higher level of professionalism are more likely to have a lower level of work outcomes (than those with a lower level of professionalism) when their leaders display more laissez-faire leadership in the workplace.

Laissez-faire is often considered a form of non-leadership rather than an element of transactional leadership. Bass and Avolio (1994) considered laissez-faire leadership to represent non-transactional leadership and described it as an inactive and ineffective style in perception. Laissez-faire leaders do not show up when problems arise. They are also not productive and provide no support, feedback or rewards. Bass (1985) noted that this

behaviour would discourage subordinates to use initiative at work, accompanied by little sense of accomplishment, clarity or group unity (Bass, 1990).

Raelin (1985) once suggested that professional staff tend to appreciate the use of a laissez-faire leadership style by their leaders. Leaders using this style virtually leave them alone till the job is done. However, he further asserted that this style might only be appropriate for leaders who are non-professionals. Although professional subordinates are free to employ their expertise, they may suffer from such a laissez-faire style when their leader is one who provides no support, no encouragement and no feedback as described by Bass (1985). This laissez-faire leader as described by Bass may be more inferior to the one Raelin (1985) referred to. Furthermore, when leaders are also professionals (as is the case in this study), they may have already established a link with their professional subordinates via their built-in collegial maintenance and self-regulation. Laissez-faire leadership style is therefore considered undesirable for a professional leader to manage professional subordinates. Undoubtedly, professionalism tends to be strongly antithetic to this kind of leadership, as laissez-faire leadership provides neither motivation nor satisfaction and demotivates subordinates. An increase in the level of laissez-faire leadership is unable to fulfil subordinates' psychological needs. Moreover, a sense of dissatisfaction and disappointment may be generated. Therefore it is expected that professional subordinates exhibiting a higher level of professionalism, are more likely to have a lower level of work outcomes than those with a lower level of professionalism, when their leaders display more laissez-faire leadership in the workplace.

Figure 9 depicts the predicted relationship between laissez-faire leadership and subordinates' work outcomes across low and high levels of professionalism among professional

subordinates.

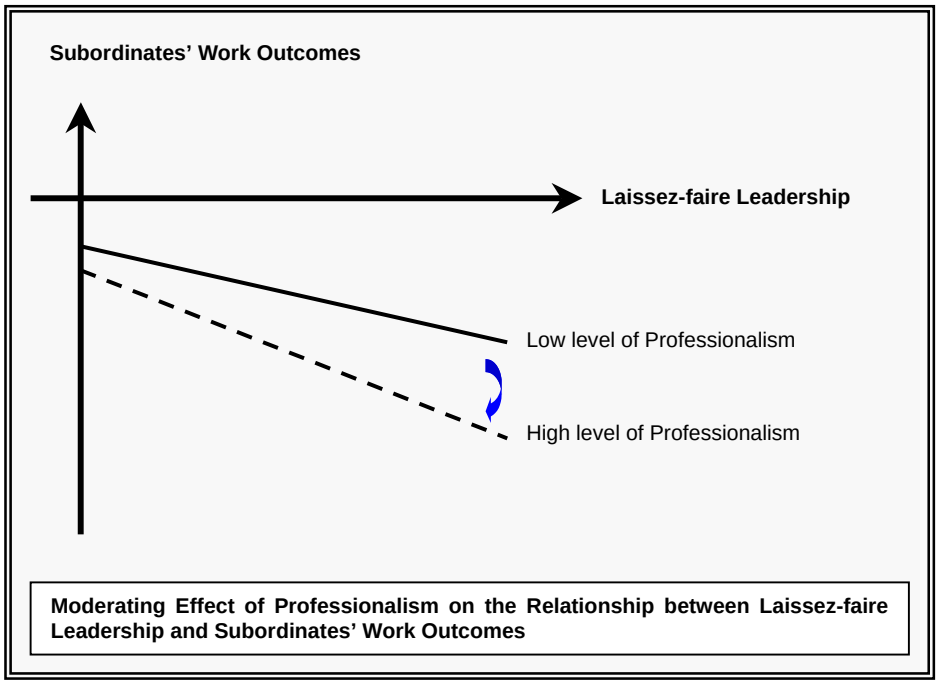

Figure 9 - Predicted Moderating Effect of Professionalism on Laissez-Faire Leadership Process

Given the impact of professionalism on the relationships between transactional leadership and subordinates' work outcomes, the following sub-hypotheses are offered:

SubH2-g: Subordinates' professionalism moderates the relationships between laissez-faire leadership and subordinates' extra effort such that when professionalism increases, the effect of laissez-faire leadership on extra effort will increase.

SubH2-h: Subordinates' professionalism moderates the relationships between laissez-faire leadership and leader effectiveness perceived by subordinates such that when professionalism increases, the effect of laissez-faire leadership on perceived leader effectiveness will increase.

SubH2-i: Subordinates' professionalism moderates the relationships between laissez-faire leadership and subordinates' satisfaction with leaders such that when professionalism increases, the effect of laissez-faire leadership on satisfaction with leaders will increase.

3.3 SUMMARY OF THE CHAPTER

This chapter describes the development of a conceptual model built upon the Bass and Avolio's Full Range of Leadership Model (1991) and Hall's (1968) Professionalism Model. The potential effects of subordinates' professionalism on the relationships between leadership styles and subordinates' work outcomes are discussed. The hypothesized relationships among them are discussed in light of previous research. A summary of Hypotheses 1 and 2 is depicted in Table 2 and 3 respectively.

Table 2 - Summary of Hypothesis 1

H1: There is a significant association between each of the three types of leadership styles (transformational, transactional and laissez-faire) and subordinates' work outcome (extra effort, perceived leader effectiveness and satisfaction with leaders).	
Transformational Leadership and Subordinates' Work Outcomes	
SubH1-a:	Transformational leadership is positively correlated with subordinates' extra effort.
SubH1-b:	Transformational leadership is positively correlated with subordinates' perceived leader effectiveness.
SubH1-c:	Transformational leadership is positively correlated with subordinates' satisfaction with leaders.
Transactional Leadership and Subordinates' Work Outcomes	
SubH1-d(i):	Contingent reward and management-by-exception (active) are positively correlated with subordinates' extra effort.
SubH1-d(ii):	Management-by-exception (passive) is negatively correlated with subordinates' extra effort.
SubH1-e(i):	Contingent reward and management-by-exception (active) are positively correlated with subordinates' perceived leader effectiveness.
SubH1-e(ii):	Management-by-exception (passive) is negatively correlated with subordinates' perceived leader effectiveness.
SubH1-f(i):	Contingent reward and management-by-exception (active) are positively correlated with subordinates' satisfaction with leaders.
SubH1-f(ii):	Management-by-exception (passive) is negatively correlated with subordinates' satisfaction with leaders.
Laissez-faire Leadership and Subordinates' Work Outcomes	
SubH1-g:	Laissez-faire leadership is negatively correlated with subordinates' extra effort.
SubH1-h:	Laissez-faire leadership is negatively correlated with subordinates' perceived leader effectiveness.
SubH1-i:	Laissez-faire leadership is negatively correlated with subordinates' satisfaction with leaders.
Augmentation Effect of Transformational Leadership on Transactional Leadership	
SubH1-j:	Transformational leadership augments transactional leadership to produce more effective subordinates' work outcomes.

Table 3 - Summary of Hypothesis 2

H2:	**The strength of association between each of the three types of leadership styles and subordinates' work outcomes (extra effort, perceived leader effectiveness and satisfaction with leaders) is contingent upon the level of professionalism among subordinates.**
Moderating Effect of Professionalism on the Relationship between Transformational Leadership and Subordinates' Work Outcomes	
SubH2-a:	Subordinates' professionalism moderates the relationships between transformational leadership and subordinates' extra effort such that when professionalism increases, the effect of transformational leadership on extra effort will increase.
SubH2-b:	Subordinates' professionalism moderates the relationships between transformational leadership and leader effectiveness perceived by subordinates such that when professionalism increases, the effect of transformational leadership on perceived leader effectiveness will increase.
SubH2-c:	Subordinates' professionalism moderates the relationships between transformational leadership and subordinates' satisfaction with leaders such that when professionalism increases, the effect of transformational leadership on satisfaction with leaders will increase.
Moderating Effect of Professionalism on the Relationship between Transactional Leadership and Subordinates' Work Outcomes	
SubH2-d(i):	Subordinates' professionalism moderates the relationships between contingent reward/ management-by-exception (active) and subordinates' extra effort such that when professionalism increases, the effect of contingent reward/ management-by-exception (active) on extra effort will decrease.
SubH2-d(ii):	Subordinates' professionalism moderates the relationships between management-by-exception (passive) and subordinates' extra effort such that when professionalism increases, the effect of management-by-exception (passive) on extra effort will decrease.
SubH2-e(i):	Subordinates' professionalism moderates the relationships between contingent reward/ management-by-exception (active) and subordinates' perceived leader effectiveness such that when professionalism increases, the effect of contingent reward/ management-by-exception (active) on perceived leader effectiveness will decrease.
SubH2-e(ii):	Subordinates' professionalism moderates the relationships between management-by-exception (passive) and subordinates' perceived leader effectiveness such that when professionalism increases, the effect of management-by-exception (passive) on perceived leader effectiveness will decrease.
SubH2-f(i):	Subordinates' professionalism moderates the relationships between contingent reward/ management-by-exception (active) and subordinates' satisfaction with leaders such that when professionalism increases, the effect of contingent reward/ management-by-exception (active) on satisfaction with leaders will decrease.
SubH2-f(ii):	Subordinates' professionalism moderates the relationships between management-by-exception (passive) and subordinates' satisfaction with leaders such that when professionalism increases, the effect of management-by-exception (passive) on satisfaction with leaders will decrease.
Moderating Effect of Professionalism on the Relationship between Laissez-faire Leadership and Subordinates' Work Outcomes	
SubH2-g:	Subordinates' professionalism moderates the relationships between laissez-faire leadership and subordinates' extra effort such that when professionalism increases, the effect of laissez-faire leadership on extra effort will increase.
SubH2-h:	Subordinates' professionalism moderates the relationships between laissez-faire leadership and leader effectiveness perceived by subordinates such that when professionalism increases, the effect of laissez-faire leadership on perceived leader effectiveness will increase.
SubH2-i:	Subordinates' professionalism moderates the relationships between laissez-faire leadership and subordinates' satisfaction with leaders such that when professionalism increases, the effect of laissez-faire leadership on satisfaction with leaders will increase.

CHAPTER FOUR – RESEARCH METHODOLOGY

4.0 INTRODUCTION

This chapter sets out to describe the research design and methodology upon which this investigation was built. To this end, the following sections provide a detailed description of the research design, sample and data collection procedures. Finally, the measurement of variables and the data analysis techniques used in this research are described.

4.1 RESEARCH DESIGN

Kerlinger (1978, p.300-301) defined a research design as *"the plan, structure and strategy of investigation purporting to answer research questions and control variance"*. It follows that the primary purpose of a research design is to answer the research questions or test the hypotheses posited, and to control and explain variance with a view to making research results more valid and reliable. There are many different types of research design such as experimental, longitudinal, cross-sectional and by case study. While justifications for particular types of research design are abundant, the main objective is to ensure that the results can be generalisable to a larger population, precision in measurement, control of the behavioural variables and realism of context (Scandura & Williams, 2000). Researchers believed that "trade-offs" are inevitably associated with use of any research designs, as they cannot be free from limitations (McGrath, 1982; Scandura & Williams, 2000). The present study employs a cross-sectional, correlational design in a quantitative approach. Although acknowledged to have inherent limitations, cross-sectional design has been reported to have

numerous merits, which are discussed below.

Cross-sectional research designs are the most widely used designs in social research and are characterised by analysing data at a single point of time (De Vaus, 2001) and having the ability to handle data on many variables from a large set of people (Judd, Smith, & Kidder, 1991; O'Sullivan & Rassel, 1989). It is also the most commonly used for assessing the determinants of behaviour (Davies, 1994). Correlational design attempts to examine the relationships between a number of variables within a specified environment. The aim of correlational design is to examine relationships and interrelationships between phenomena rather than inferring causes. Compared with experimental design and case study, correlational research also allows the use of various multivariate and factor analytical designs to identify the underlying patterns and relationships among variables, and to predict a phenomenon using a set of predictor variables (Brewerton & Millward, 2001). The results of correlational design are more readily to be generalized to a wider population as a result of stronger external validity (Kerlinger, 1978). Correlational research designs are also appropriate for the multivariate nature of behavioural research (Kerlinger, 1978). However, there are a number of potential drawbacks to using cross-sectional, correlational research designs such as the difficulty in establishing causal relationships among the variables under investigation and the possibility of committing common method variance.

4.2 DATA COLLECTION PROCEDURES

Design of data collection strategy constitutes one of the most critical steps in a research study. Data collection consists of a number of processes that aim to collect data in a reliable and valid manner. There are a number of data collection methods available such as survey

research, interviews and focus groups in quantitative research. Figure 10 depicts a flowchart showing the design of data collection procedures used in the present study.

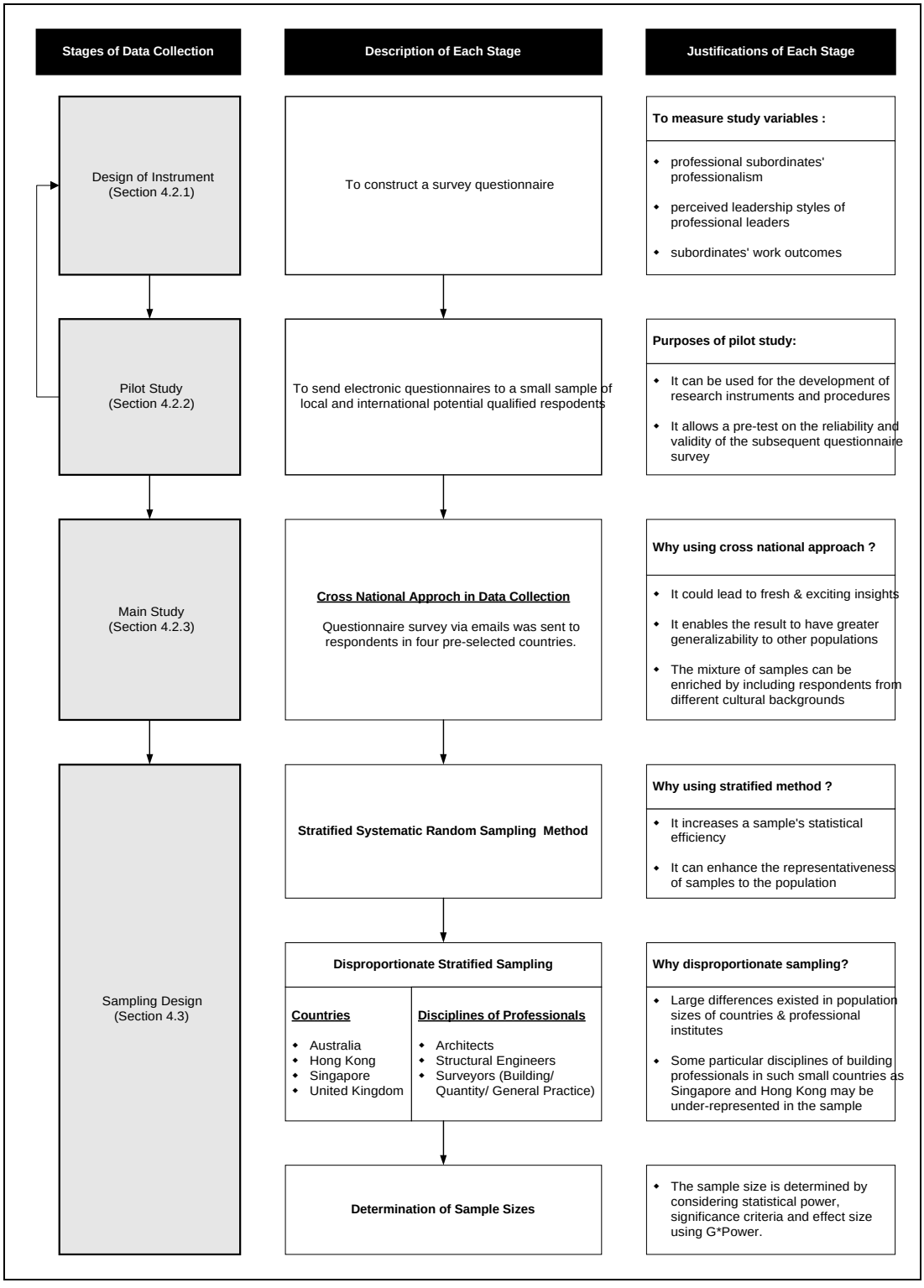

Figure 10 - Design of Data Collection Procedures

Survey research was chosen as the appropriate method to achieve the aims and objectives of this study because the main purpose of the present study is to examine the relationships existing in the population. A survey method is capable of efficiently gathering large amounts of data amenable to analysis using a wide variety of multivariate statistical techniques. Monette, Sullivan, and DeJong (1998) endorsed the flexibility offered by survey research and supported that this data collection technique can be used for exploratory, descriptive, explanatory and evaluative studies.

The traditional techniques of survey research in the social sciences mainly involve questionnaires and interviews. In summary, compared with interview techniques, questionnaire surveys offer distinctive features including coverage of a wider population, rapid collection of data and the ease of application in a variety of statistical analyses. Keillor, Deborah and Pettijohn (2001) considered that questionnaires are one of the most frequently used methods of data collection and construct measurement in survey research, particularly for gathering information related to such individual characteristics, attitudes and beliefs as that of the variables of interest in this study: professionalism and leadership styles among building professionals. Table 4 offers a simple yet comprehensive comparison of interviews and questionnaire surveys in a data collection strategy.

Table 4 - Comparison of Interviews and Questionnaire Survey

	Interviews	Questionnaire Surveys
Advantages	■ More interaction between Interviewer so that more information about the survey can be obtained. ■ Interviewer can pre-select respondent to match the population profile ■ In-depth information can be obtained ■ Ambiguities about the survey can be explained	■ Cover wide geographical locations without significant increase in costs ■ Rapid data collection process ■ Offer cheapest option ■ Allow respondents time to think about questions ■ Can ensure anonymity of the respondents
Disadvantages	■ Longer period needed in the field collecting data. ■ Follow-up is labour intensive. ■ Some respondents are unwilling to talk to strangers. ■ Questions may be altered or respondent coached by interviewers.	■ Low response rate in some modes. ■ No interviewer intervention available for probing or explanation (postage mail). ■ Cannot be too long or complex. ■ Directions/software instruction for progression through the instrument (computer delivered).

Source: adapted from Cooper & Schindler (1998)

Survey research serves as the method by which this study was conducted. It is a widely recognised and commonly used technique for collecting data. Serving as the primary data collection instrument in the present study, a questionnaire package was electronically mailed to the population under study to collect close-ended and readily measurable responses. The questionnaire that was developed tested the relationship between a number of independent variables, moderating variables and dependent variables. Details of the design and administration of the electronic questionnaire survey are described in the following section.

Because this is an exploratory study that assesses the moderating effects of subordinates' professionalism on the relationships between leadership styles and subordinates' work outcomes in a global context of the construction industry, a cross-national approach among others is considered the most suitable data collection method which makes the cross-sectional survey research design appropriate for the present study. The utilization of a survey enables

the results to be inferred for generalizations from the samples to a wider population of building professionals. In the main, it is the need to establish the presence of relationships prior to any investigation of causality among those relationships.

With particular reference to the construction industry, Table 5 depicts a comprehensive comparison of research methods adopted in previous leadership research.

Table 5 - Research Methods adopted in Previous Leadership Studies in the Construction Industry

Researchers	Leadership Theory adopted	Discipline(s) of Research Subject	Research Location	Main Research Method adopted
Bresnen et al. (1986 & 1987)	Situational Theory (Fiedler's Contingency Theory)	Site Manager	United Kingdom	Structured Interviews and Questionnaire Survey
Dulaimi (1991)	Situational Theory	Site Manager	United Kingdom	Questionnaire Survey
Enshassi and Burgess (1991)	Situational Theory	Site Manager	Six Middle Eastern countries: Saudi Arabia, Kuwait, Oman, Bahrain, Libya and United Arab Emirates	Questionnaire Survey
Rowlinson, Ho and Yuen (1993)	Situational Theory (Fiedler's Contingency Theory)	Design team leaders and construction site staff (civil engineers)	Hong Kong	Questionnaire Survey
Djebarni (1993)	Situational Theory (Fiedler's Contingency Theory)	Site Manager	Algeria	Structured Interviews
Chan (1994)	Behavioural Theory of Leadership (Blake and Mouton's Managerial Grid)	Project Manager of Government department, developers and project management consultants	Australia	Questionnaire Survey

Examination of these studies reveals that the questionnaire survey was the most preferable data collection strategy for leadership research in the context of the construction industry. This methodological disposition may be attributed to the characteristics and operation of the industry. The built environment is a rapidly changing industry in which transient organizations are commonplace. Movement of prominent knowledge workers such as architects, engineers and surveyors is frequent between organizations, especially those who

are attached to organizations on an individual project basis. The frequency of movement is also greatly linked to government policies as well as the local and global economy. Inevitably, this poses great challenges to human resources management in construction-related organizations. It seems that undertaking longitudinal research and performing research interviews in the construction industry is not an easy task, especially if it is cross-national research. Therefore, this research adopts a survey method by means of self-reported questionnaire as the primary data collection strategy.

The survey instrument for this research adopted the use of electronic mail distributed via the Internet. The reason is that it is common and is able to become rapidly widespread all over the world, and a significant portion of the target respondents is known to have their own electronic mail accounts. Therefore, the electronic delivery approach of questionnaires was considered an appropriate method in the present study. The electronic mail addresses were obtained from the internet websites (see Table 7 for details) and the membership/ practice directories of their professional institutes. One important feature of electronic mail over traditional mailed surveys is that people are more likely to leave questions unanswered when they are not sure of the questions or the answers provided. Returned electronic questionnaires can be easily and rapidly checked for unanswered questions/sections. A query email would then be sent to those respondents in question. Usually replies would be received within one or two days, depending on the availability of the respondents. In addition, electronic mail surveys may also allow the target respondents to ask questions before they participate in the survey, which may significantly increase the validity and reliability of the data collected.

Use of electronic mail survey has been increasingly adopted in recent years. It possesses a great deal of advantages over the traditional postage mailed survey (Krantz, Ballard & Scher,

1997; Mehta & Sivadas, 1995; Nesbary, 2000; Stanton, 1998; Yun & Craig, 2000). Table 6 depicts a simple table showing a direct comparison between traditional mail surveys and electronic questionnaire survey methods. This study can result in a significant increase in response rate because a respondent can complete an electronic questionnaire in a quick and convenient manner. Use of electronic surveys can also eliminate the expensive costs of the traditional methods and decrease turnaround time considerably. Dillman (2000, p.400) argues that "*no other method of collecting survey data* ... [internet survey] *offers so much potential for so little cost*".

Table 6 - Comparison of Traditional and Electronic Questionnaire Survey

	Traditional Mail Survey	Electronic Survey
Advantages	■ Usually higher response rate ■ Respondent may prefer to use paper survey traditionally	■ Gather a large volume of data very quickly and very cheap ■ Can reach a wide range of geographical locations within a short period of time ■ Rapid data collection process ■ Allow respondents to ask questions about the content of the questionnaires and researcher reply to respondents' queries can be done very quickly ■ Problems of missing values in returned questionnaires can be minimized as the questionnaires can be checked promptly once received ■ Follow-up can be done quickly
Disadvantages	■ Longer period needed in the data collection ■ High administration costs ■ Follow-up is labour intensive and time-consuming. ■ When queries arise, respondents cannot immediately raise questions.	■ Low response rate as respondents are not used to do Internet survey. ■ Cannot be too long or complex. ■ May not ensure anonymity of the respondents who need to return the questionnaire via email ■ May only cover those respondents who have Internet access

In order to increase the response rates, the following procedures were established. After two weeks the first electronic mail was sent to the respondents, a second email, with the subject field containing the words, 'Sincere Reminder', was sent to those who did not return the questionnaires. Three weeks later, a third email reminder was again sent to those who had not

replied yet.

4.2.1 Questionnaire Survey and Administration

Questionnaires were developed and sent to the target respondents incorporating the modified Hall's Professionalism Scale, Multifactor Leadership Questionnaire, and demographic and background data: Part 1 is concerned with the 25-item Professionalism Scale consisting of 5 items for each of the five dimensions in a Likert-type format; Part 2 described Multifactor Leadership Questionnaire Form 5X (MLQ-5X) containing various leadership factors and subordinates' work outcomes; and Part 3 detailed the demographic profile and background information including gender, age, level of formal education, professional affiliation, professional experience, type of organizational setting, level of management position, working experience with the relevant leader described and frequency of participation in continuing professional development events. A copy of the questionnaire is attached in Appendix D to F for reference.

With particular reference to the format, the questionnaire survey was cautiously constructed in the following user-friendly ways:

(1) A covering letter was attached in the email describing the importance of the subject issue, format of the questionnaire, deadline for the survey and the method of returning the completed questionnaire.

(2) The questionnaire was constructed in Microsoft Excel 2000 format. Easy-to-use check boxes were embedded in order that the respondents could easily select their desired

answers with just one click on the answer boxes;

(3) The file size of the questionnaire together with the covering letter were less than 250 kilobytes, which made administration and transmission easy through the Internet;

Though the number of questionnaires were more than 7,000 in total, each email was carefully entered with the name of each potential respondent as it appeared in their respective membership and/or practice directories, rather than just giving the general appellation such as Dear Sir/Madam/Fellow Professional, etc.. This method can not only enhance the sense of cordiality and show geniality with their names being called upon, but also minimises their perception of the survey being junk mail, and increases the response rates and the statistical validity as expected. A copy of the covering letter for the questionnaire is attached in Appendix C.

4.2.2 Pilot Study Development and Procedures

A pilot survey is particularly useful when carrying out a large-scale research study, surveying new populations or new topics. Walker (1997) considered that the use of pilot surveys could clarify the balance of the extent to which quantitative and qualitative approaches could be used in order that new and fresh explanations could emerge. After carrying out a pilot study, the research question/ hypothesis will become clearer and the research itself more focused.

The pilot survey has two main primary functions. The first is used for the development of research instruments and procedures; a few number of potential research samples were identified and selected according to the sampling method as described in the following

sections. The samples were sent a copy of the questionnaire exactly the same as the original questionnaire that would be sent to the whole selected research samples. Spaces were left in the questionnaires in order to allow the respondents to give comments on several aspects: ease of reading, sentences with vague/double-meaning, degree of difficulty in understanding and interest in the topic. Results of the returned questionnaires would be used for fine-tuning the final draft of the questionnaire survey. The second purpose is to allow a pre-test on the reliability and validity of the subsequent questionnaire survey. In addition, the pilot study was also to test the questionnaire for readability and clarity, and to identify any potential technical problems associated with the use of the Internet as the means for data collection.

In this study, much can be gained from consultation with overseas colleagues even if their role is advisory (Rainbird, 1996). During the stage of the pilot survey, overseas academics, friends, colleagues in the field, who met the qualifications of potential respondents, were sent the questionnaire surveys to pre-test the procedures and content of the questionnaires. Altogether thirty numbers of electronic questionnaires via email were sent out in the pilot stage. Fifteen potential respondents were willing to have interactive discussions via electronic mail messages on the Internet. The purpose of which was to check if the items in the questionnaire were appropriate to the practice of building professionals. Feedback was offered and minor wording was changed.

4.2.3 Main Study

Construction projects are becoming more and more globalised in the scope and the nature of works. Every large-scale project involves a great deal of skilled personnel with different professional or even cultural backgrounds. Hantrais and Mangen (1996) suggested that

cross-national research could lead to a fresh, exciting insight and a deeper understanding of issues that are of central concern in different countries. This kind of study may also point to possible directions that could be followed and about which the researcher may not be aware. To study more than one country enables the result to have greater generalizability to other populations. In addition, the mixture of samples can be enriched by including respondents from different cultural backgrounds. On the whole, cross-national approach can achieve a meaningful cross-sectional sample.

In view of this, a cross-national approach in data collection strategy was therefore adopted in order to enhance generalizability and sample variability of this study. Details of which are described in Section 4.3.

4.3 SAMPLING DESIGN

Sampling design can refer to how samples are selected from a sampling frame (Folz, 1996). The sampling frame operationally defines the target population from which the sample is randomly selected and to which the sample data will be generalized. Under the framework of sampling design, details of population, sampling frame, sampling criteria, unit of analysis, sampling method and desired sample sizes are discussed.

4.3.1 Populations and Samples

Research data was obtained from a cross-section of qualified building professionals from a cross-national perspective. In the present study the target population was the entire collection of all qualified members of the selected disciplines in four countries. The selected countries included Australia, Hong Kong (China), Singapore and the United Kingdom. The unit of

analysis was qualified building professionals comprising Architects, Structural Engineers and Surveyors (Building Surveyors, General Practice Surveyors and Quantity Surveyors) who are full members of their respective professional institutes. The sampling frame came from two sources: the online and the printed membership/ practice directories of the respective professional institutes. These professionals were responsible for the design, construction, and maintenance of buildings. Table 7 shows the profile of selected disciplines of building professionals according to the professional institutes with corresponding website addresses in their respective countries.

Table 7 - Profile of Target Building Professions and their Respective Local Professional Institutes

Country	Disciplines of Building Professions		
	Architects	**Structural Engineers**	**Surveyors**
Australia	**RAIA** (www.architecture.com.au)	**IEAust** (www.ieaust.org.au)	**AIBS** (www.aibs.com.au) **AIQS** (www.aiqs.com.au)
Hong Kong (China)	**HKIA** (www.hkia.org.hk)	**HKIE** (www.hkie.org.hk)	**HKIS** (www.hkis.org.hk)
Singapore	**SIA** (www.sia.org.sg)	**IES** (www.ies.org.sg)	**SISV** (www..sisv.org.sg)
UK	**RIBA** (www.architecture.com)	**IstructE** (www.ice.org.uk)	**RICS** (www.rics.org.uk)

4.3.2 Selection of Target Respondents

Architects, Structural Engineers and Surveyors were selected as target respondents because of their traditionally influential, well-established roles in the worldwide history of construction research and their being portrayed in literature as professionals (Child & Fulk, 1982; Huru 1992; NEDO 1976; Thompson 1990). Numerous researchers also include them as their primary research subjects (Becher, 1999; Loosemore & Tan, 2000; Simister, 1994;).

4.3.3 Selection of Research Locations

Australia, Hong Kong (China), Singapore and the United Kingdom were selected as the locations from which research samples were drawn for the current study. These locations were selected with great care and the rationale behind their selection was based upon the following observations:

- They are current or former English-speaking commonwealth industrialized countries;
- The construction industries are well-established;
- They have similar statutory frameworks in the construction industry;
- Most of the origins of the building professionals can be traced back to the United Kingdom;
- They have similar local disciplines of building professionals;
- The building professionals enjoy a similar levels of social status in their own nation;
- They have their own professional institutes representing each discipline of building professionals and enforcing their own code of ethics/ conduct;
- They have well a established professional registration systems through self-regulation of professional institutes sanctioned by local government authorities; and
- According to Hofstede's cultural model (1980), these four regions represent two cultural dyads: Australia-the United Kingdom representing individualistic cultures whereas Hong Kong-Singapore representing collectivistic cultures. Selection of research subjects with different geographical locations and cultural backgrounds could increase the variability of samples, and in turn definitely enhance the quality of the results.

4.3.4 Sampling Method

In order that the samples of building professionals are taken from each discipline and country in a representative manner, a stratified systematic random sampling method was adopted for selecting the research samples. Numerous researchers have endorsed the use of this sampling method compared to other methods (Cooper & Schindler, 1998; Earl, 1990; Zikmund, 2003). The primary reasons for choosing this method are based on the fact that stratified sampling can increase a sample's statistical efficiency and assure that the sample will adequately represent the population on the basis of the criteria used for stratification. In addition, it can not only enable different research methods and procedures to be used in different strata, but also organize the population into homogenous subsets (with heterogeneity between subsets) and to select the appropriate number of samples from each subset. In the main, the stratified sampling can enhance the representativeness of samples in the population of building professionals and in the context of the international construction industry.

The stratified random sampling ensures various groups of building professionals within the four countries will be included. First all building professionals in the population are stratified according to their professional disciplines [i.e. Architects, Structural Engineers and Surveyors (Building Surveyors, General Practice Surveyors and Quantity Surveyors)] and countries [i.e. Australia, Hong Kong (China), Singapore and the United Kingdom]. Then, the building professionals are sampled randomly from within these two strata. Details of the two strata are depicted in Table 8.

Table 8 - Profile of Target Populations of Building Professions by Geographic Locations and Professional Disciplines

Country	Target Population of Building Professionals					Population Size	Weighted Scale
	Architect	Structural Engineer	Surveyor				
			Building	Quantity	General Practice		
Australia	5,100	1,628	2,000	1,483	5,034	15,245	16.9%
Hong Kong (China)	1,782	1,785	623	1,324	1,301	6,815	7.5%
Singapore	833	1768	-	408	474	3,483	3.8%
United Kingdom	18,305	13,367	8,566	19,846	4,881	64,965	71.8%
Total	26,020	18,548	11,189	23,061	11,690	90,508	
Weighted Scale	28.7%	20.5%		50.8%			100%

Notes:
(1) As the number of qualified building surveyors in Singapore is very small and inaccessible, no survey was carried out with this discipline.
(2) The above qualified membership profile of qualified members was updated as of 31 December 2002.

There are large differences existing in sizes of national population, and in turn the members of professional institutes within the four countries selected, therefore, some particular disciplines of building professionals in such small countries as Singapore and Hong Kong may not be adequately represented in the sample. In this regard, disproportionate stratified sampling is adopted to solve this problem. In disproportionate stratified sampling, the samples are drawn from each stratum disproportionate to the stratum's share of the total population. However, a weighted scale needs to be utilised because the sizes of strata do not reflect their relative proportions in the population (see Tables 8 & 9 for details). Figure 11 depicts the disproportionate stratified sampling used in the present study.

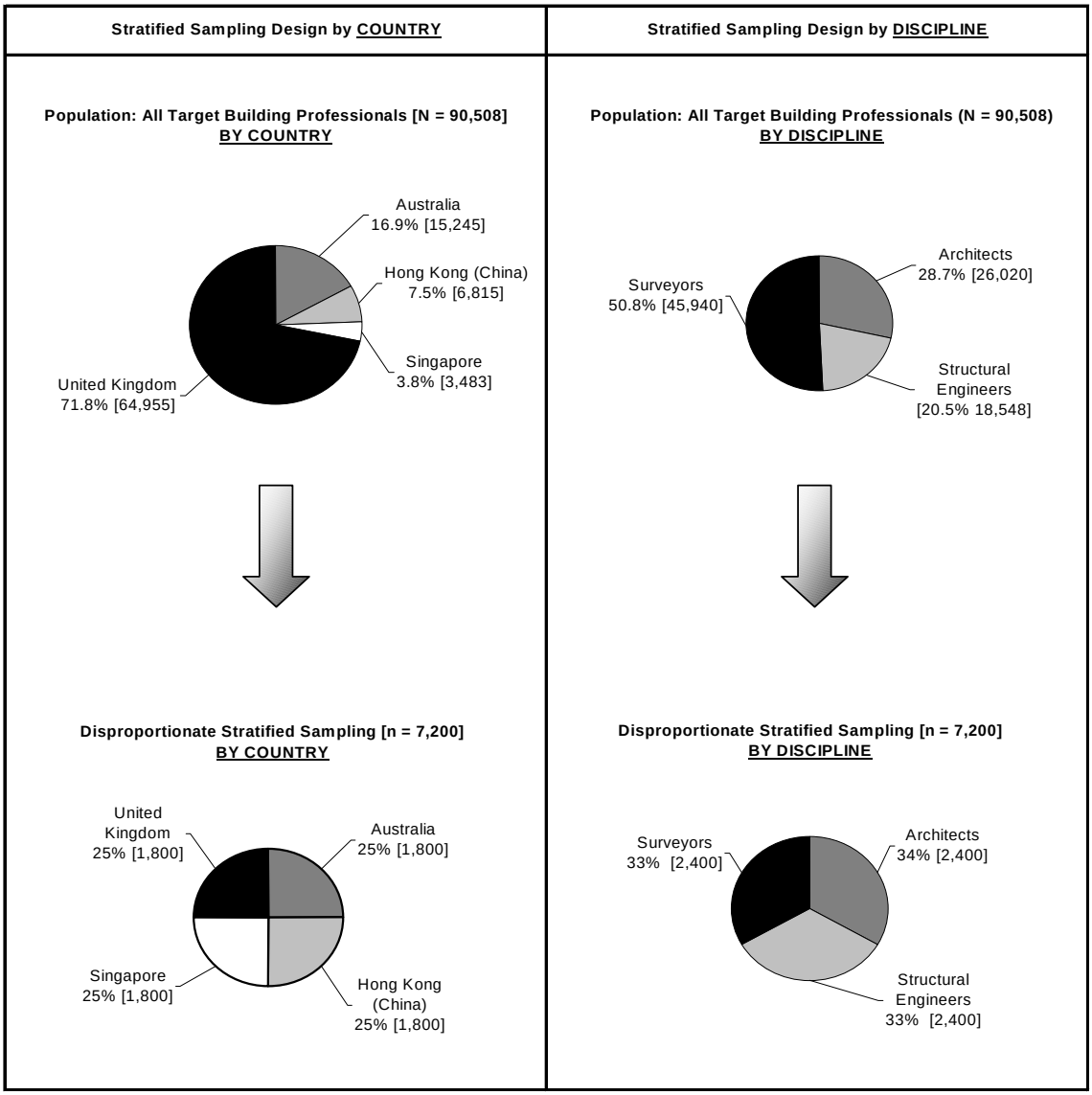

Figure 11 – Disproportionate Stratified Sampling

4.3.5 Desired Sample Size

A sufficient sample size with adequate statistical power is essential for any quantitative research study. To determine a minimum acceptable sample size, power analysis is appropriate. According to Aiken and West (1991, p.156), *"the power of a statistical test is the probability that the test will detect an effect in a sample when, in fact, a true effect exists in a population"*. Cohen (1992) also stated that statistical power is a function of the relationships among sample size (N), significance criteria (α), and population effect size (ES).

Through the analysis of the power of a statistical test, the sample size (N) necessary to have a specified power for a given α and ES can be calculated. Cohen and Cohen (1983) stated that the effect size of an independent variable on a dependent variable found in similar studies could be used to guide subsequent research. According to Evan (1991), the effect size in moderated regression analysis can be represented by the differences between coefficients of determination – (ΔR^2) obtained from the two equations (1) and (2) as stated in Section 4.5.6.

Review of field studies suggested that interaction effects typically account for less than 2% of variance (ΔR^2) explained above and beyond the proportion of variance explained by the main effect. Some Monte Carlo and field studies also endorsed this approach to examine interaction effects (Champoux & Peters, 1987; Evans, 1985). Therefore in the present study, it is considered that the interaction effect (effect size) will account for 2% of the variance.

According to Cohen (1988), 0.8 is a desirable yardstick for the minimum power necessary for carrying out research studies. All other things being equal, the larger the sample size, the greater the statistical power. Following the procedures outlined by Cohen (1988), the calculations, based on 10 predictor variables, for the sample size needed for the present study were conducted and calculated using G*Power for DOS version 2.0 (Erdfelder, Faul & Buchner , 1996). The results of a priori power analysis shows that for a small effect size of 0.02, with a desired power level of 0.6-0.8 and a significance level of 0.05, usable responses in the range of 567 to 822 should be collected. However, the method of choosing an appropriate level of statistical power and sample size is very much dependent on the theoretical context of the research, previous related research results and cost-benefit considerations in applied research (Erdfelder, Buchner & Faul, 1997).

In this study, a sample size of 7,200 building professionals was determined in order to obtain a large enough yet practical, effective sample to be representative of the population at the level of country and professional disciplines to allow reasonable statistical accuracy. The sample was stratified into four geographic regions. The number of selected building professionals according to each geographic location and professional discipline is shown in Table 9. Assuming that 70% of the email addresses are valid and that 15-20% of the target building professionals will respond to the survey, the effective sample size should be in the range of 504 to 756 [7,200 x 70% x (10% to 15%)]. In the present study, 510 valid responses were returned. The actual response rate was just a bit lower than the sample sizes calculated using the above statistical power analysis, however, it was within the range of response rates (504<510<756) under the assumption of this study.

Table 9 - Sample by Geographic Locations and Professional Disciplines

Country	Sample Size of Target Building Professionals					Total Sample Size
	Architect	Structural Engineer	Surveyor			
			Building	Quantity	General Practice	
Australia	600	600	200	200	200	1,800
Hong Kong (China)	600	600	200	200	200	1,800
Singapore	600	600	-	300	300	1,800
United Kingdom	600	600	200	200	200	1,800
Total	2,400	2,400	600	900	900	**7,200**

Note: As the number of qualified building surveyors in Singapore is very small and not accessible, no survey was carried out with this discipline.

4.3.6 Coding and Data Entry

The questionnaire was comprised of a set of questions contained in a Microsoft Excel format document. A codebook was developed for each question. Data was entered into a database created in SPSS for Windows version 11.5, which was also employed for the subsequent data analysis. All data entry was independently verified so as to ensure its accuracy.

4.4 MEASUREMENT OF VARIABLES

Two multidimensional scales were used in this study to measure the constructs of interest. They included a measure of professionalism among professional subordinates using Snizek's modified Hall's Professionalism Scale (1968), measures of transformational, transactional and laissez-faire leadership styles and subordinates' work outcomes including extra effort, perceived leader effectiveness and satisfaction with leaders using a Multifactor Leadership Questionnaire (Form 5X). Measures designed to collect demographic and background information about the subjects were also used including gender, age, education level, professional affiliation, professional experience, country, serving organization type and position.

4.4.1 Measurement of Demographic Variables

Previous research suggested that it was important to control for the effects of demographic factors in the assessment of leadership processes and work-related attitudes (Walumbwa & Lawler, 2003). Berson, Avolio and Popper (2003, p.1101) further emphasised that "*failure to address or control these variables may lead to potential specification errors in models used to predict leadership processes*". In addition, some of the demographic and background factors may affect the relationships between independent and dependent variables in the research results. Therefore in this study a number of these variables was measured and controlled, which included gender (Bass, Avolio & Atwater, 1996; Manning, 2002), age (Bass, 1990), highest level of formal education (Esser & Stother, 1962; Schiller, 1993), professional affiliation (Bass, 1990), professional experience (Bass, 1990), country (Bass, 1990), type of serving organisation (Grendstad & Strand, 1999) and position in the serving organisation

(Al-Anazi, 1993).

4.4.2 Measurement of Leadership Styles

The theoretical basis adopted for the leadership style rests on Bass's (1985) transformational leadership model as reviewed and discussed in Chapter Two. A leader's style as perceived by their subordinates can be assessed through the use of the Multifactor Leadership Questionnaire (MLQ) in nine dimensions: idealised attributes, idealised behaviours, inspirational motivation, intellectual stimulation, individualised consideration, contingent reward, management-by-exception (active), management-by-exception (passive), and laissez-faire. The version of the Multifactor Leadership Questionnaire to be used in this study is the MLQ (Form 5X) (Rater Form). A person who scores high on transformational factors is most likely to have strong transformational leadership. Respondents were asked to rate how frequently their leaders, in their same profession, engage in specific behaviours. Each dimension is represented by four items and is rated on a 5-point scale ranging from 'not at all' (0) to 'frequently, if not always' (4). The scores for each leadership factor in the MLQ were calculated by averaging item scores. Means for each factors were at the midpoint (2.0 on a 0 to 4 scale). For reasons of copyright, only selected sample items of the MLQ (Form 5X) (Rater Form) are included in Appendix E for reference.

4.4.3 Measurement of Professionalism Scale

The instrument of this research adopted a professionalism inventory scale developed by Hall (1968) which was subsequently further modified by Snizek (1972). Hall developed a Professionalism Scale to measure the five-attitudinal dimensions of professionalism (a

detailed description appears in Chapter Two). In this study, professionalism is measured by using the 25-item Snizek's modified Hall's Professionalism Scale, with 5 items representing each of the five attitudinal dimensions: (i) use of professional organization as a major referent, (ii) a belief in public service, (iii) a belief in self-regulation by colleagues, (iv) a sense of calling to this field, and (v) a desire for autonomy relative to decisions involving one's work. These five dimensions were viewed as professionalism subscales. Examples of statements evaluated in this measure are 'I systematically read the professional journals' and 'Other professions are actually more vital to society than mine'. Respondents were asked to evaluate how well each statement corresponded to the way they felt and behaved. Response options ranged from 1 to 5, with 1 indicating very well and 5 indicating very poorly; the highest possible score for each dimension is 25 while the overall scale is 125. Some questions corresponding to a 'very well' response were required to be interpreted as negative for professionalism. Some items with negative wordings required reverse coding in order to preserve the overall measure of professionalism. The resultant measure was reverse coded such that a higher score represented a higher level of professionalism.

The modified Hall's Professionalism Scale was adopted for analysing individual professionalism among building professionals. Individual professionalism was operationalised as scores obtained by the respondents on the overall scale and on each of the five subscales. Each dimension of the scale was then re-evaluated by examining the underlying factor structure in order to check if it suited the present research sample of building professionals in Australia, Hong Kong (China), Singapore and the United Kingdom. A copy of the modified Hall's Professionalism Scale is attached in Appendix D.

4.4.4 Measurement of Subordinates' Work Outcomes

Transformational leadership raises the aspiration of subordinates and enhances their performance and effectiveness through the interaction of various transformational and transactional leadership factors. As mentioned in the preceding chapter, subordinates' work outcomes were measured by three factors, namely, 'extra effort' exerted by subordinates beyond original expectations, 'leader effectiveness' perceived by subordinates and subordinates' satisfaction with leaders, which are represented by three, four and two items respectively, and are rated on a 5-point scale ranging from 'not at all' (0) to 'frequently, if not always' (4). The scores for each outcome factor in the MLQ were also calculated by averaging item scores. Means for each factors were at the midpoint (2.0 on a 0 to 4 scale).

4.5 TECHNIQUES OF DATA ANALYSIS

The statistical techniques employed in this research for the purpose of analysis of collected raw data included reliability analysis, correlation and regression analysis, exploratory and confirmatory factor analysis, moderated regression analysis and assessment of common method bias. The data analysis employed the Statistical Package for Social Science (SPSS) version 11.5 and AMOS 4.0, for the analysis of raw data. Prior to performing statistical analyses, scores for the negatively phrased items in the modified Hall's Professionalism Scale were reversed. Figure 12 depicts a flowchart upon which the stages of data analysis in the present study are based.

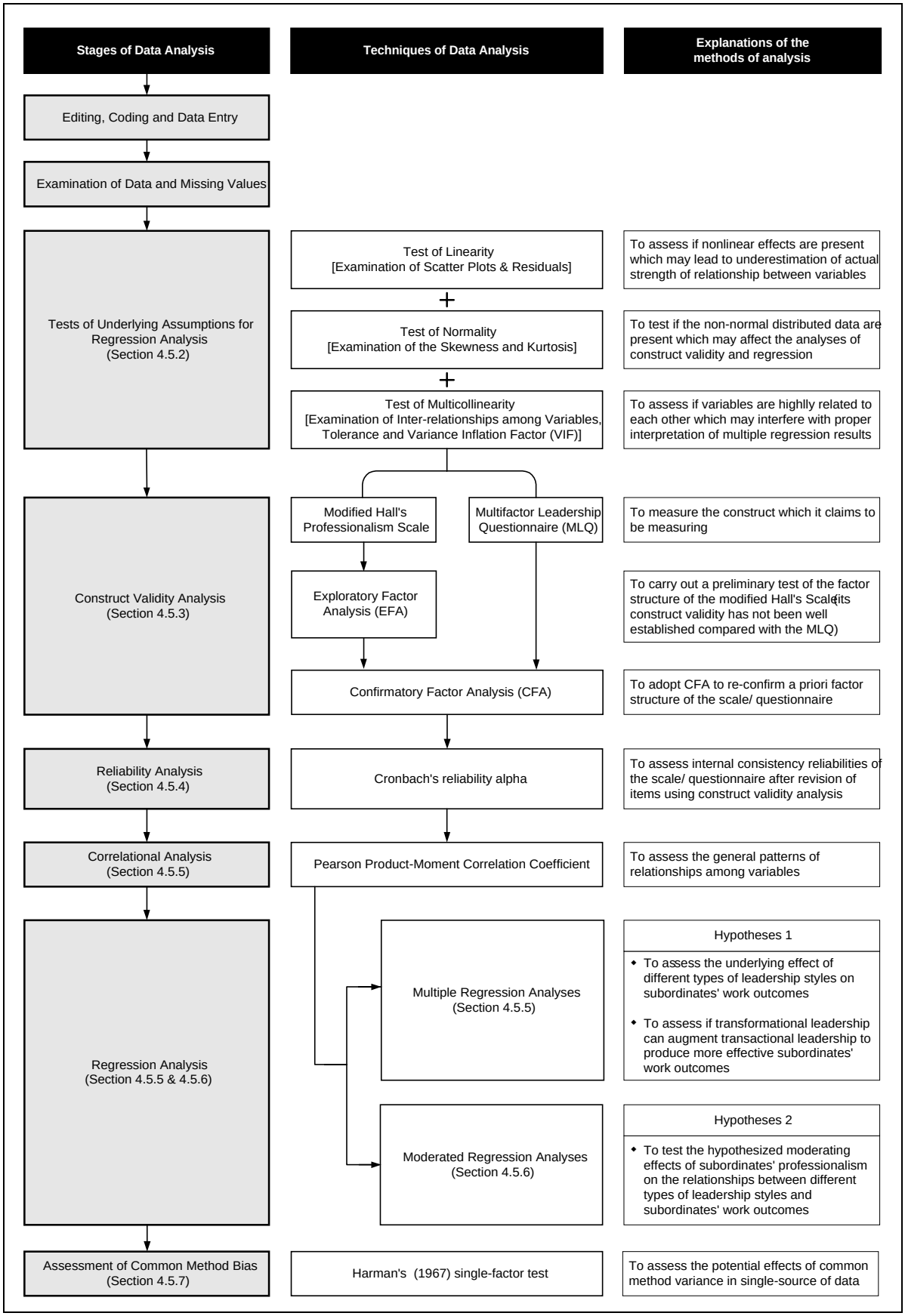

Figure 12 - Stages of Data Analysis

4.5.1 Descriptive Analysis

Descriptive analysis of the study variables was computed including gender, age, education level, professional affiliation, professional experience, country, serving organization type and position. The demographic and background information of the sample will be discussed in Chapter Five and a summary will also be presented in Table 11.

4.5.2 Tests of Underlying Assumptions for Regression Analysis

The main method of data analysis in the present study was multiple regression analysis. Prior to conducting regression analysis, the two main instruments of data collection, the modified Hall's Professionalism Scale and the Multifactor Leadership Questionnaire, were subject to a series of factor analyses for tests of construct validity. Therefore the raw data collected was tested to scrutinize if they met the underlying assumptions for regression analysis, including linearity, normality and multicollinearity (Hair, Tatham, Anderson & Black, 1998).

4.5.2.1 Test of Linearity

Multivariate techniques are built upon the assumption of linearity among the variables under investigation. Hair et al. (1998) considered that nonlinear effects might lead to underestimation of the actual strength of the relationships among the variables. Examination of scatter plots of the variables and residuals in simple regression analysis can reveal if the variables in this study reflect a linear pattern.

4.5.2.2 Test of Normality

The statistical test for normality is a test of the null hypothesis that the distribution is normal. Glass et al. (1972) considered that incorrect conclusions might be reached when the normality assumption was not valid, especially when one-tail tests were employed or the sample size or significance level was very small. Hopkins and Weeks (1990) also called into question the effects of highly non-normal data on hypothesis testing of variances. Therefore an examination of the skewness and kurtosis is an important component of exploratory data analysis. Tests were performed to check for normality under the fundamental assumption underlying multivariate analysis for the subsequent analysis of structural equation modelling (confirmatory factor analysis) and multiple regression analysis. The independent, moderating and dependent variables were checked for normality by examining the univariate distribution histogram and statistical tests including skewness (sloping position in a distribution) and kurtosis values (peakedness of a distribution). Hair et al. (1998) considered that the z value of skewness and kurtosis exceeding ±2.58 could lead to a rejection of the assumption about the normality of distribution at the 0.01 probability level. Statistical tests were performed using SPSS version 11.5 to obtain the z value of skewness and kurtosis.

4.5.2.3 Test of Multicollinearity

Multicollinearity is a condition where the independent variables are related to each other. It is *"a condition of high or near perfect correlation among independent variables"* (Bohrnstedt & Knoke, 1994, p.527). The absence of multicollinearity is essential to a multiple regression model as multicollinearity can interfere with the proper interpretation of multiple regression results (Nunnally & Bernstein, 1994). Two different statistical measures: Tolerance and

Variance Inflation Factors (VIF), were used as a guide in identifying multicollinearity. Tolerance is a reciprocal of the Variance Inflation Factor and is also defined as *"the proportion of variability in an independent variable not explained by the other independent variables"* (Norusis, 2002). In simple terms, the higher the value of tolerance, the less is the degree of multicollinearity. Generally, tolerance of 0.6 or higher is acceptable. VIF is another diagnostic test that is defined as *"the ratio of a variable's total variance in standardised terms to its unique variance"* (Kline, 1998, p.78). The usual rule of thumb is that any variable with a VIF greater than 10 indicates a high degree of multicollinearity (Field, 2000). A mean value of VIF much greater than 1 also indicates higher multicollinearity.

4.5.3 Construct Validity Analysis

Construct validity can be defined as *"the degree to which a test measures what it claims, or purports, to be measuring"* (Brown, 1996, p.231). Analysis of construct validity can be carried out using exploratory and confirmatory factor analysis. In this study, exploratory and confirmatory factor analysis will be employed to test the modified Hall's Professionalism Scale and the Multifactor Leadership Questionnaire (Form 5X). After the analysis of construct validity, these two instruments will be further subjected to reliability analysis after revision of items (if any) with a view to confirming their internal consistencies.

4.5.3.1 Snizek's Modified Hall's Professionalism Scale

For the Snizek's modified Hall's Professionalism Scale, its construct validity has been called into question in recent studies (Kennedy & Ramsey, 1995; Rupp & Segal, 1989; Swailes, 2003). Appropriate statistical methods of testing were warranted to investigate the construct

validity in order to confirm the factor structure of the scale. For a measure of a multidimensional construct such as professionalism, factor analysis provides an empirical way of establishing construct validity. Factor analysis is used to examine the internal structure of a measure and confirm the grouping of items by construct. It was considered to be a powerful and indispensable method of construct validation (Kerlinger & Lee, 2000).

Following Kline's (1998) procedures in testing multidimensional constructs, a series of exploratory and confirmatory factor analyses was performed on the Hall's Professionalism Scale using SPSS 11.5 and AMOS 4.0.

An exploratory factor analysis is a statistical method of discovering the number and nature of latent variables that explain the variation and co-variation in a set of measured variables for a particular construct. Prior to conducting the confirmatory factor analysis, an exploratory factor analysis was employed as a preliminary investigation into the internal structure of the Hall's (1968) Professionalism Scale. The purpose of this was to ensure that the primary factor structure of the scale was evident in the samples of building professionals. The same procedure, using a principal axis factor analysis with varimax (orthogonal) rotation (Fox & Vonk, 1973), originally used in Snizek's (1972) modification of Hall's (1968) Professionalism Scale was performed. A five-factor solution was specified and an acceptable factor solution was based on the following criteria: (1) minimum eigenvalues of 1.00, (2) exclusion of factor loading below 0.4 and (3) conceptual coherency of each individual factor. The modified 25 items relating to dimensions of professionalism were factor analyzed using well-known statistical software SPSS (version 11.5). A principal axis factor analysis with a varimax rotation was used to generate factor loadings for the number of factors to be extracted. Individual items were evaluated for suitability to be included in the subsequent confirmatory

factor model based on the magnitude of the factor loading, the interpretability of the factor and a demonstration of simple structure (Kim & Mueller, 1978).

In a confirmatory factor analysis, the modified Hall's (1968) Professionalism Scale was tested by examining the consistency of actual data with the hypothesized relationships between all of the unobserved latent factors and the observed measured variables. Confirmatory factor analysis can allow researchers to test hypotheses that a priori relationship between the observed variables and their underlying latent construct(s) may exist (Kline, 1994). Built upon theoretical knowledge and previous empirical research support, the confirmatory factor analysis seeks to determine and establish if the number of factors and the factor loadings of measured variables on them are consistent with expectations. Indicator variables are posited in advance concerning which variables are associated with which factors based on a theoretical foundation, and factor analysis is used to see if they load as predicted on the number of factors as expected. Each retained item resulting from preceding exploratory factor analysis was assigned to a single factor based on its highest loading. The fit of the model was evaluated using a set of fit indexes including the comparative fit index (CFI) (Bentler, 1990) and the root mean square error of approximation (RMSEA) (Browne & Cudeck, 1993). The confirmatory factor analysis was conducted by AMOS 4.0 software to confirm the factor structure of the modified Hall's Professionalism Scale.

4.5.3.2 Multifactor Leadership Questionnaire (Form 5X)

The psychometric properties of the MLQ Form 5X has been well established in the literature (Bass & Avolio, 2000). Since the publication of the MLQ, it has been extensively employed in more than a hundred studies including research reports, doctoral dissertations and

cross-national/cultural studies. Results of this research supported the reliability and validity of the MLQ. It is therefore asserted that the construct validity of the MLQ has been well established. Bearing this in mind, confirmatory factor analysis is considered appropriate for a well-established scale with a priori factor structure (Long, 1980). However, rarely has the MLQ been applied in the construction industry; therefore the MLQ was then subjected to confirmatory factor analysis using AMOS 4.0 in order to confirm if a priori factor structure could be replicated in the present samples.

4.5.4 Reliability Analysis

Analyses were performed to examine the reliability of the two multidimensional scales: the modified Hall's Professionalism Scale and the MLQ Form 5X (Rater Form). Reliability is concerned with the degree to which scores on a scale can be replicated. Internal consistency reliability measures the interrelatedness of an item set. A single dimension of a multidimensional scale should consist of a set of items that correlate well with each other. Items included in the modified Hall's Professionalism Scale and the MLQ should all be closely related to professionalism and leadership styles respectively and to each other. Numerous procedures are often used to estimate reliability (Carmines & Zeller, 1979; Crocker & Algina, 1986), with Cronbach's coefficient alpha (Cronbach, 1951) being the most common method of internal consistency testing. Therefore, Cronbach's reliability alpha (α) coefficient was adopted in this study to determine the reliability of the survey instrument.

4.5.5 Correlation and Regression Analysis

Correlation is a statistical tool that is used to measure the magnitude and direction of the linear relationship between two variables. Pearson product-moment correlation coefficients were computed to assess the general patterns of relationships among the variables under study. It can also help to identify the presence of multicollinearity.

To test the Main Hypothesis 1 in this study, i.e., the relationship between independent variables (dimensions of leadership styles) and dependent variables (professional subordinates' work outcomes), the data was analysed using a multiple hierarchical regression technique. Multiple regression allows evaluation of the simultaneous effects of multiple independent variables while partialling out inter-correlations among the variables that may inflate the degree of predictability (Cohen, Cohen, West & Aiken, 2003). The contribution of the various dimensions of leadership styles to subordinates' outcomes was assessed by means of a series of multiple hierarchical regression analyses. Also, to assess the augmentation effect of transformational leadership on transactional leadership, a hierarchical regression analysis recommended by Waldman, Bass and Einstein (1987) and Hater and Bass (1988) was adopted. Detailed procedures of moderated regression analysis are described in the following section.

4.5.6 Moderated Regression Analysis

With a view to testing for the hypothesized moderating effects of subordinates' professionalism on the relationships between leadership styles and subordinates' work outcomes (Main Hypothesis 2), moderated hierarchical multiple regression analyses were

employed. Hierarchical regression analysis is useful as a test if a set of variables may add a significant contribution to variance already explained by a prior set of variables. Separate analyses were conducted for each of the three subordinates' work outcome variables, namely: extra effort, perceived leader effectiveness and satisfaction with leaders. The conceptual model was tested using a hierarchical entry of the predictor variables to determine if the relation between one predictor variable and a criterion variable was influenced by a third (moderating) variable (Aiken & West, 1991; Nunnally & Bernstein, 1994; Jaccard & Turrisi, 2003). In general, the moderation constitutes three basic effect terms including a predictor variable, a moderating variable, and the interaction of these variables altogether contributing to an outcome variable. By interaction, Cohen et al. (2003) meant that it was *"an interplay among predictors that produces an effect on the outcome that is different from the sum of the effects of the individual predictors"*.

In applying moderated regression analysis, the following two regression equations suggested by Jaccard and Turrisi (2003) and Cohen et al. (2003) were formed to test for the hypotheses posited in the present study:

$Z = b_0 + b_1X + e$ ……..…….…….…….…….. (1)

$Z = b_0 + b_1X + b_2Y + b_3(XY) + e$ ……..…….…….. (2)

Where Z = Subordinates' work outcomes (extra effort, perceived leader effectiveness and satisfaction with leaders)

X = Dimensions of leadership styles [Idealised Attributes, Idealised Behaviours, Inspirational Motivation, Intellectual Stimulation, Individualised Consideration, Contingent Reward, Management-by-Exception (Active), Management-by-Exception (Passive) and Laissez-faire]

Y = Dimensions of professionalism (Major Referent to Professional Organisation, Belief in Self-Regulation, Belief in Public Service, Sense of Calling to the field, and Belief in Autonomy)

XY = Interaction terms of dimensions of leadership styles and dimensions of professionalism

b = Regression coefficient

e = Error term

In equation (1) above, it represents the main effects of leadership styles on subordinates' work outcomes.

In equation (2), it represents the inclusion of the moderating effects of dimensions of professionalism on the relationships between dimensions of leadership styles and subordinates' work outcomes.

In this study, moderated hierarchical regression analysis was performed following the procedures as outlined in Cohen et al. (2003), Aiken and West (1991), Nunally and Bernstein (1994), Jaccard and Turrisi (2003), and Aguinis (2004). To account for all potential contributors to the prediction of subordinates' work outcomes and to determine the relative contribution of the interaction terms with other variables, hierarchical regression analyses were therefore conducted to test for the significance of each interaction term beyond the main effects (Cohen et al. 2003). Significant regression coefficients for the interaction terms and significant increases in the explanatory power of the model through inclusion of the interaction terms support the moderating hypotheses. In addition, T-tests were adopted to evaluate the significance of regression coefficients and F-tests to assess the significance of the increase in the explanatory power of the models. The demographic variables of gender, age, education level, professional affiliation, professional experience, country, serving organizational type and position were statistically controlled in the moderated regression analyses so as to remove their possible effects in the model. Prior to performing moderated hierarchical regression analyses, the presence of multicollinearity was tested because of its acknowledged potential effects on the regression analyses involving multiple interaction terms (Cohen et al. 2003, Nunally & Bernstein, 1994; Jaccard & Turrisi, 2003). To mitigate

the potential effects of multicollinearity, the procedure of centering variables recommended by Aiken and West (1991) and Cohen et al. (2003) was followed: the raw (original) scores of the predictors (leadership styles) and moderating variables (professionalism), were transformed into centered scores (standardized: z-scored) by subtracting the respective means from each score. Multiplicative interaction terms were formed by using these standardized variables. By doing so, it eases the interpretation and probing of significant observed interactions.

In moderated regression analysis, the regression equations were formed by entering the variables in a step-by-step hierarchical manner. Nine separate sets of regression analysis were performed for each of the three leadership styles (transformational, transactional and laissez-faire) and three subordinates' work outcomes (extra effort, perceived leader effectiveness and satisfaction with leaders). Using a four-step hierarchical linear regression analysis, the predictors were entered into the regression equation in the following sequence: Step one - contextual and demographic variables; Step two - dimensions of transformational leadership, transactional leadership and laissez-faire leadership (separately entered in nine individual regression analyses); Step three - five dimensions of professionalism: Major Referent to Professional Organization, Belief in Public Service, Belief in Self-Regulation, Sense of Calling and Belief in Autonomy; and Step four - the two-way interaction effects among various leadership styles and dimensions of professionalism.

With particular reference to the multi two-way interactions contained in step 4, Jaccard and Turris's (2003) procedures were followed to include all the two-way interaction terms as a *"chunk"*. The presence of significance in the model will reveal that at least one interaction term is worth retaining. If this is the case, a hierarchical backward elimination strategy is

further adopted to compare the fit of two models (one includes all interaction terms versus one dropping a particular term of interest). The presence of a non-trivial difference in the fit between the two models suggested that the interaction term of interest should be retained (Jaccard & Turris, 2003). In addition, Cohen et al. (2003) and Aguinis (2004) suggested plotting significant interaction terms to examine the nature of the interaction. They recommend plotting the regression of dependent variable (Y) on independent variable (X) at three values of moderating variable (Z): the mean of Z plus a low and a high value of Z; that is the mean of Z, one standard deviation above the mean, and one standard deviation below the mean. However, the present study employs a user-friendly Windows-based program called ITALASSI Version 1.1b (Interaction Viewer) to portray interaction plots across various levels of moderating variables (level of professionalism). The software is able to compute several regression slopes relating one of the independent variables to the dependent variable at different values of the moderating variable. ITALASSI is a freeware program that is developed to facilitate interpretation of regression models involving interactions. ITALASSI enables researchers to display the estimated moderating effect of a moderating variable on the relationship between one independent variable and one dependent variable using either a 2D line graph or a 3D surface graph. Regression equations can easily be formed by introducing appropriate values of intercept and unstandardized coefficients are obtained in the final stage of the moderated regression analysis. Changes in the regression slope relating a predictor to the dependent variable can be observed at the desired value of the moderating variable.

4.5.7 Assessment of Common Method Bias

It is acknowledged that studies that employ a single source of data may be subject to potential effects of the common method bias (Podsakoff & Organ 1986). Such effects may inflate the

relationships between all the variables in the present study. Bass and Avolio (1993) remarked that the correlations between transformational leadership factors and effectiveness, and satisfaction measures typically range from 0.60 to 0.80, nevertheless, the values still may have been inflated by a single-source variance. Doty and Glick (1998) performed a series of structural equation modeling and meta-analysis on past research. They concluded that common methods variance raised a concern in self-report studies but it did not invalidate many research findings. The data in this study was primarily collected using an electronic survey, which poses the potential problem of common method variance. This means that correlations among the variables could have been artificially inflated or otherwise affected by some type of systematic bias of the respondents.

In order to understand the possible potential effects of the common method bias on the results of this study, the procedures outlined by Podsakoff and Organ (1986) were followed. The potential effect of common method variance was tested using Harman's (1967) single-factor test. By using the statistical techniques of factor analysis of all questionnaire items, the common method variance can be said to be present in the data if one single factor emerges from the factor analysis or one general factor that explains most of the variance.

4.6 SUMMARY OF THE CHAPTER

This chapter has described the research design and methodology, measurement and validation of the constructs, characteristics of respondents and statistical techniques that were employed to test the research hypotheses offered in this study. Chapter Five will provide the detailed results of the data analysis described in the chapter.

CHAPTER FIVE – DATA ANALYSIS

5.0 INTRODUCTION

This chapter presents the results of the data analysis beginning with the descriptive analyses of contextual and demographic variables of the respondents. Means, standard deviations and Cronbach's alpha reliabilities of all variables were calculated. Pearson product-moment correlation analysis was performed to evaluate relationships between the variables in the study. Exploratory and confirmatory factor analysis was conducted to validate the internal factor structure of the modified Hall's Professionalism Scale and the Multifactor Leadership Questionnaire (MLQ). A series of hierarchical regression analyses was conducted to examine the effects of leadership styles on subordinates' work outcomes. Moderated regression analysis was employed to examine the potential effects of subordinates' professionalism on the relationship between leadership styles and subordinates' work outcomes. Statistical results for each research hypothesis will be described.

5.1 DESCRIPTIVE ANALYSIS

5.1.1 Background of Respondents

The questionnaires were distributed via electronic mail messages to 7,200 qualified building professionals including Architects, Structural Engineers and Surveyors throughout Australia, Hong Kong (China), Singapore and the United Kingdom. Altogether 605 questionnaires were returned but only 510 were usable, accounting for a response rate of 7.1%. The response

rates in this study are presented in Table 10. The target respondents are those building professionals (Architects, Structural Engineers and Surveyors) who have leaders in the same profession.

Of the responses received according to country of origin, a greater part of the respondents were from United Kingdom (11.9%), followed by Hong Kong (7.8%), Australia (5%) and Singapore (3.4%). The response rates ranged from 3.4 to 11.9, which were good enough for the analysis of the overall responses. Nevertheless, the sample size of this study was too small to apply statistical tests to make intra-country and inter-countries comparisons.

According to the professional disciplines, Surveyors had the highest response rates (7.4%), followed by Structural Engineers (7.3%) and Architects (6.5%). The response rates ranged from 6.5 to 7.4, which was quite even. Of particular note was that no survey was carried out with building surveying profession in Singapore because they had only a few members and they were not accessible by email. The sample size of this study was also too small to apply statistical tests to make intra- and inter-disciplinary comparisons.

Table 10 - Response Rates by Geographic Locations and Professional Disciplines

Discipline	Country				No. of Response by Disciplines	Response Rates by Disciplines
	Australia	Hong Kong	Singapore	United Kingdom		
Architect	**11**	**27**	**22**	**97**	**157**	**6.5**
Structural Engineer	**24**	**44**	**13**	**94**	**175**	**7.3**
Surveyor	**59**	**70**	**26**	**23**	**178**	**7.4**
Building Surveyor	30	41	0	8	79	13.7
Quantity Surveyor	17	11	12	6	46	5.1
General Practice Surveyor	12	18	14	9	53	6.0
No. of Response by Country	**94**	**141**	**61**	**214**	**510 (Total no. of response)**	
Response Rates by Country (%)	**5**	**7.8**	**3.4**	**11.9**	**7.1 (Overall response rate)**	

Note: As the number of qualified building surveyors in Singapore is very small and inaccessible, no survey was carried out with this discipline.

In this study, response rates might be impeded by a number of factors:

(i) A majority of the respondents in the unusable responses were self-employed or retired (who are life fellow members);

(ii) Some of the respondents' leaders were of a different profession, such as a respondent who is a Building Surveyor with a leader in the architectural profession); and

(iii) Some of the respondents did not have Windows based software to open the files.

Of those responding 84.1% were male and 15.9% were female, indicating that the majority of professionals in the construction are masculine. The disciplines of building professionals were evenly distributed, of which Architects accounted for 30.8%, Structural Engineers 33.9%, and Surveyors 35.3% (15.7% were Building Surveyors, 9.6 % Quantity Surveyor, and 10% General Practice Surveyor). The mean age range was 30-49 years. More than half (52.7%) were from 40 to 60 and above. About 90% obtained a bachelor's degree or above. More than 65% of respondents had more than 10 years of professional experience after qualification. More than 90% of them held middle to top management positions in their serving organizations. Of particular note was that well over half (61.4%) of the respondents had more than three years of working experience with the leaders whom they described in the questionnaires. In other words, the respondents should well understand the styles of their leaders. In addition, over half (51.2%) of the respondents had attended continuing professional development events one or more times per month. Table 11 presents the demographic profile of the respondents in this study.

Table 11- Demographic Profile of the Respondents (N=510)

	Number	%
Gender		
Male	429	84.1
Female	81	15.9
Age		
20-29	48	9.4
30-39	193	37.8
40-49	166	32.5
50-59	86	16.9
60 or above	17	3.3
Level of Education Attainment		
Certificate or Diploma	53	10.4
Bachelor Degree	270	52.9
Postgraduate Diploma	7	1.4
Master Degree	166	32.5
Doctorate Degree	14	2.7
Professional Affiliation		
Architect	157	30.8
Structural Engineer	173	33.9
Building Surveyor	80	15.7
Quantity Surveyor	49	9.6
General Practice Surveyor/ Valuer	51	10.0
Professional Tenure		
Less than 5 years	89	17.5
5-9 years	87	17.1
10-14 years	104	20.4
15-19 years	77	15.1
More than 20 years	153	30.0
Country		
Australia	95	18.6
Hong Kong	144	28.2
Singapore	60	11.8
United Kingdom	211	41.4
Type of Serving Organisation		
Public	130	25.5
Developer	58	11.4
Consultant	296	58.0
Contractor	26	5.1
Level of Job Position		
Top	131	25.7
Middle	330	64.7
Junior	49	9.6
Frequency of Attending CPD Events		
No	13	2.5
Only occasionally	218	42.7
Once per month	151	29.6
More than once per month	110	21.6
Yearly	18	3.5
Experience with Leaders		
Less than 1 years	57	11.2
1-2 years	140	27.5
3-5 years	153	30.0
6-10 years	84	16.5
More than 10 years	76	14.9

5.1.2 Descriptive Statistics and Internal Consistencies

Table 12 reports the means, standard deviations, and internal consistencies (coefficient alpha), degree of linearity, normality and collinearity among the factors of the modified Hall's Professionalism Scale and the MLQ scales. These values were obtained after a series of construct validations as described in Section 5.3.

Table 12 - Descriptive Statistics and Reliabilities of the Factors of the Hall's Professionalism Scale, the MLQ and Subordinates' Work Outcomes (N=510)

Variables	Means	S.D.	Alpha	Skewness[a] (z Value)	Kurtosis[a] (z Value)	Collinearity Statistics	
						Tolerance	VIF[b]
Professionalism	3.32 (3.30)	0.67 (0.60)	0.66 (0.71)				
(1) Referent to Professional Organisation	3.43 (3.35)	0.67 (0.60)	0.60 (0.57)	-1.081	-2.061	.950	1.053
(2) Belief in Public Service	3.26 (3.22)	0.64 (0.64)	0.51 (0.63)	-1.354	-0.403	.862	1.160
(3) Belief in Self-Regulation	3.39 (3.43)	0.76 (0.64)	0.73 (0.74)	**-3.071**	0.346	.842	1.188
(4) Sense of Calling to the Field	3.13	0.65	0.74	**-3.034**	0.539	.921	1.086
(5) Belief in Autonomy	3.38	0.66	0.70	-0.035	-0.518	.904	1.107
Transformational Leadership	2.17	0.75	0.94				
(6) Idealised Attributes	2.20	0.87	0.79	-1.337	-2.221	.233	4.296
(7) Idealised Behaviours	2.15	0.86	0.79	-1.855	-1.423	.297	3.372
(8) Inspirational Motivation	2.33	0.87	0.83	**-2.615**	-1.670	.341	2.935
(9) Intellectual Stimulation	2.16	0.80	0.77	-2.462	-1.228	.313	3.199
(10) Individualised Consideration	2.03	0.86	0.76	-0.922	-1.553	.291	3.436
Transactional Leadership	1.77	0.46	0.70				
(11) Contingent Reward	2.14	0.85	0.76	-0.783	-2.130	.279	3.584
(12) Management-By-Exception (Active)	1.77	0.77	0.69	0.029	-1.087	.832	1.202
(13) Management-By-Exception (Passive)	1.40	0.82	0.71	**4.827**	0.708	.537	1.861
Non-Leadership							
(14) Laissez-Faire	1.16	0.86	0.77	**5.739**	-0.794	.485	2.064
Subordinates' Work Outcomes							
(15) Extra Effort	2.12	0.94	0.81	-1.790	-2.162	_	_
(16) Leader Effectiveness	2.25	0.93	0.87	**-2.782**	-2.316	_	_
(17) Satisfaction with Leaders	2.25	0.99	0.82	**-3.834**	-2.104	_	_

Note:
[a] Significance at the .01 level.
[b] Variance Inflation Factor.
- Numbers in parentheses refer to those values that have been changed after item deletion during analyses of construct validity.
- Seven variables (in bold and underlined) display non-normality.

Reliability (coefficient alpha) for each variable was computed. For the MLQ scale, reliabilities of all leadership dimensions range from 0.69 to 0.83. The subordinates' work outcome variables, namely extra effort, perceived leader effectiveness, and satisfaction with leaders, also have a sufficient internal consistency, ranging from 0.81 0to 0.87. The overall reliabilities of transformational, transactional, and laissez-faire leadership are 0.94, 0.70 and 0.77 respectively. All of these results in the MLQ are in general consistent with those reported by Bass and Avolio (2000). For each professionalism scale, they range from 0.57 to 0.74, and the overall professionalism scale is 0.71. They are generally above the acceptable minimum of 0.70 suggested by Kline (1986), with the exception of 'Major Referent to Professional Organization' (0.57) and 'Belief in Public Service' (0.63).

As can be seen in Table 12, for the dimensions of transformational leadership, 'Inspirational Motivation' (2.33) was the prominent leadership style of building professional leaders identified in this study, followed by 'Idealised Attributes' (2.20), 'Intellectual Stimulation' (2.16), 'Idealised Behaviours' (2.15) while 'Individualised Consideration' records the lowest scores. For dimensions of transactional leadership, 'Contingent Reward' obtains the highest score of 2.14, followed by 'Management-by-Exception (Active)' (1.77) and 'Management-by-Exception (Passive)' (1.40). Laissez-faire leadership receives the lowest score of 1.16.

For the professionalism scale, the higher the scores, the higher the level of professionalism. As depicted in Table 12, the score of overall professionalism is 3.32, which is above the mean value of 3.0. On the whole, scores of all dimensions of professionalism are above average. The most professional dimension displayed by professional subordinates is 'Major Referent

to Professional Organization' (3.43), followed by 'Belief in Self-Regulation' (3.39), 'Belief in Autonomy' (3.38), and 'Belief in Public Service' (3.26). The least professional dimension is 'Sense of Calling to the Field' (3.13).

5.1.3 Tests of Underlying Assumptions for Regression Analyses

5.1.3.1 Test of Linearity

Examination of scatter plots of the variables and residuals in simple regression analysis using statistical software SPSS version 11.5 suggested that the variables in the present study reflect a linear pattern.

5.1.3.2 Test of Normality

The independent, moderating and dependent variables were checked for normality by examining the univariate distribution histograms. The statistical tests including skewness (sloping position in a distribution) and kurtosis values (peakedness of a distribution) were used. Hair et al. (1998) considered that the z value of skewness and kurtosis exceeding ±2.58 could lead to a rejection of the assumption about the normality of distribution at the 0.01 probability level. Statistical tests were performed using SPSS version 11.5 to obtain the z value of skewness and kurtosis. Table 12 shows that seven variables (in bold) displayed non-normality. Glass et al. (1972) suggested that many parametric tests were not seriously affected by violation of assumptions, nevertheless, the remedies, such as deletion of variables or data transformation, might adversely affect the results. Therefore, univariate histograms and normality plots were further examined using statistical software SPSS version 11.5, and

confirmed that only two variables, Management by Expectation (Passive) and Laissez-faire, displayed positive skewing problems. To correct skewness of the two variables, square root transformation was performed. Post hoc tests were then conducted and revealed that the two transformed variables became normally distributed.

5.1.3.3 Test of Multicollinearity

Multicollinearity was tested using two different statistical measures, Tolerance and Variance inflation factor (VIF). To reiterate, the higher the value of tolerance, the less is the degree of multicollinearity. Generally, tolerance of 0.6 or higher is acceptable. Table 12 indicates that each variable in this study measures between 0.842 and 0.95, indicating little chance of multicollinearity. For variance inflation factor (VIF), the usual rule of thumb is that any variable with a VIF greater than 10 indicates a high degree of multicollinearity (Field, 2000). A mean value of VIF much greater than 1 also indicates higher multicollinearity. Each variable as shown in Table 12 measures between 1.053 and 1.188. Given the results of these statistical measures, multicollinearity was not a problem.

5.2 CORRELATIONAL ANALYSIS

Table 13 (in Appendix A) presents Pearson's correlations among all independent, moderating and dependent variables in this study. As noted in the preceding chapter, correlational analyses help to determine the general relationships among variables as well as to identify if multicollinearity poses a problem. The intercorrelations among the variables in this study ranged from -0.36 to 0.86, which suggested that severe multicollinearity did not exist among the variables (i.e., $r > 0.80$) (Hair et al., 1998), except one item for the intercorrelation of

perceived leader effectiveness and satisfaction with leaders (0.86).

5.2.1 Correlation between Dimensions of Professionalism and other Model Variables

Major referent to professional organisation was positively related to sense of calling ($r = 0.15$, $p < 0.01$). Belief in public service was positively related to belief in self-regulation ($r = 0.35$, $p < 0.01$) and contingent reward ($r = 0.09$, $p < 0.05$). Belief in self-regulation was positively related to belief in autonomy ($r = 0.14$, $p < 0.01$), idealised attributes ($r = 0.12$, $p < 0.01$), individualised consideration ($r = 0.09$, $p < 0.05$) and perceived leader effectiveness ($r = 0.35$, $p < 0.01$), and negatively to management-by-exception (passive) ($r = -0.11$, $p < 0.05$) and laissez-faire ($r = -0.10$, $p < 0.05$). Sense of calling was positively related to all dimensions of transformational leadership ($r = 0.13$ to 0.22, $p < 0.01$), contingent reward ($r = 0.15$, $p < 0.01$) and all subordinates' work outcomes ($r = 0.10$ to 0.17, $p < 0.01$). Belief in autonomy was negatively correlated to management-by-exception (active) ($r = -0.18$, $p < 0.01$), and positively to perceived leader effectiveness ($r = 0.10$, $p < 0.05$) and satisfaction with leaders ($r = 0.09$, $p < 0.05$).

In general, dimensions of professionalism are positively related to dimension of transformational leadership, contingent reward and management-by-exception (active) of transactional leadership but negatively related to management-by-exception (passive) of transactional leadership and laissez-faire.

5.2.2 Correlation between Dimensions of Transformational Leadership and other Model Variables

All dimensions of transformational leadership were positively related to one another ($r = 0.63$ to 0.79, $p < 0.01$), contingent reward ($r = 0.69$ to 0.80, $p < 0.01$), management-by-exception (active) ($r = 0.17$ to 0.31, $p < 0.01$) and all subordinates' work outcomes ($r = 0.64$ to 0.80, $p < 0.01$). They also show negative relationships with management-by-exception (passive) ($r = -0.29$ to -0.35, $p < 0.01$) and laissez-faire ($r = -0.32$ to -0.46, $p < 0.01$).

5.2.3 Correlation between Dimensions of Transactional Leadership and other Model Variables

Contingent reward was positively related to management-by-exception (active) ($r = 0.26$, $p < 0.01$) and all subordinates' work outcomes ($r = 0.71$ to 0.77, $p < 0.01$) while negatively related to management-by-exception (passive) ($r = -0.33$, $p < 0.01$) and laissez-faire ($r = -0.42$, $p < 0.01$). Management-by-exception (active) was positively related to all subordinates' work outcomes ($r = 0.16$ to 0.24, $p < 0.01$). Management-by-exception (passive) was positively related to laissez-faire ($r = 0.66$, $p < 0.01$) while negatively related to all subordinates' work outcomes ($r = -0.29$ to -0.42, $p < 0.01$).

5.2.4 Correlation between Laissez-Faire Leadership and other Model Variables

Laissez-faire was negatively related to all subordinates' work outcomes ($r = -0.38$ to -0.54, $p <$

0.01).

In conclusion, the above discussion indicates that all correlations were in the predicted direction as posited in sub-hypotheses 1a-i in Chapter Three. The data did not indicate the presence of any severe multicollinearity among the variables in the conceptual model mentioned in Chapter Three.

5.3 CONSTRUCT VALIDITY ANALYSIS

5.3.1 Factor Structure of the Modified Hall's Professionalism Scale

With more than 500 samples collected in this study, Comrey and Lee (1992) considered that this was a very good criterion to perform factor analysis. Following Kline's (1998) procedures, the following steps of scale validation were employed to test the internal factor structure of the modified Hall's Professionalism Scale. First, because the Professionalism Scale was intended to measure five separate dimensions of an individual's degree of professionalism, the values of coefficient alpha were computed among those test items that measure each of the five dimensions (Cronbach, 1960). Churchill (1979, p.68-69) put forward a salient recommendation in his purification process of measures that "*Coefficient alpha absolutely should be the first measure one calculates to assess the quality of the instrument . . . Some analysts like to perform a factor analysis on the data before doing anything else . . . [but] theoretical arguments support the iterative process of the calculation of coefficient alpha, the elimination of items, and the subsequent calculation of alpha until a satisfactory coefficient is achieved. Factor analysis can then be used to confirm whether the number of dimensions conceptualized can be verified empirically*".

Cronbach's coefficient alpha (Cronbach, 1951) and item-total correlations are used to estimate the internal consistency reliability and are performed on each item of the Professionalism Scale. Item performance is measured by item-total correlation. The corrected item-total correlations and Cronbach's alpha scores for each item analyzed are displayed in Table 14 (in Appendix A). Nunnally (1978) noted that an item-total scale correlation should fall between 0.30 to 0.70 for inclusion in a survey test. Norusis (1997) further stated that items displaying item-total correlations in the range from 0.30 to 0.50, indicated a good degree of congruity on the scale. It is computed for the total scale and for each of the five subscales: (a) Major Referent to Professional Organisation (REF), (b) Belief in Public Service (PUB), (c) Belief in Self-Regulation (REG), (d) Sense of Calling to the field (CAL), and (e) Belief in Autonomy (AUT). When interpreting the results of internal consistency, the number of items and their nature were taken into consideration.

As can be seen in Table 14 (in Appendix A), item-total correlations (within the group that loaded on the same factor) were computed for each item, and all, except the fourth item of sub-scale 'Major Referent to Professional Organisation' (Ref 4)**,** are high enough to suggest that the theoretical construct is represented within a comfort level. The 25 items generally have item-total correlations above 0.3 with the exception of item (Ref 4) having 0.167. Strong item-total score correlations indicate that the items are good indicators of the overall construct. Individual items with item-total correlation coefficients over 0.3 are considered to be strong items recommended by Nunnally and Bernstein (1994). A Cronbach's coefficient alpha of 0.573, 0.625, 0.744, 0.743 and 0.700 are computed for the REF, PUB, REG, CAL and AUT scales respectively. The scale reliability for the overall 25-item professionalism is 0.711 with item (Ref 4) versus 0.710 without item (Ref 4). As Pett, Lackey and Sullivan (2003,

p.196) noted, *"If Cronbach's alpha … would be higher without the item and the item does not help to increase the interpretability of the factor, then the item should be eliminated completely from the instrument"*. Although there is a slight reduction in reliability of overall scale, it can significantly improve the reliability coefficient of the factor (REF) by 5% (0.601-0.573/0.573) and improve the clarity of the instrument by removing 'garbage' items. Therefore item (Ref 4) is eliminated from subsequent factor analyses. The total score of Cronbach's alpha coefficient of the modified Hall's Professionalism Scale indicates evidence of reliability for the instrument and indication of a represented theoretical construct via the items on the modified Hall's Professionalism Scale. As the alpha values for all the constructs in this study are generally greater than the guideline of 0.70 [except item (Ref 4) having an alpha of 0.601] as specified by Nunnally (1978), it was decided the scales could be applied for the analysis with acceptable reliability.

Exploratory Factor Analysis

Second, all items except item (Ref 4) pertaining to the same dimension were submitted to an exploratory factor analysis. Exploratory factor analysis was conducted to discover the internal factor structure of the modified Hall's Professionalism Scale and to examine its internal reliability. Using survey data from 510 building professionals, a principal axis factor analysis with varimax rotation specified with five-factor solution was conducted to confirm the scale's dimensionality. Principal axis factoring is a form of factor analysis that seeks the least number of factors, accounting for the common variance of a set of variables. Pett et al. (2003) considered that there were three basic solutions determining the number of initial factors that tend to represent the dimensions of the construct being measured: (1) eigenvalues greater than 1.0, (2) cumulative percentage of variance extracted by successive factors and (3)

examination of extracted factors by means of a scree plot. An examination of the magnitude of the eigenvalues, using Kaiser's eigenvalue rule (Nunnally, 1978) and scree plot (Cattell, 1966) can determine the number of factors extracted. Kaiser's rule simply stated that the number of factors are equal to the number of factors with eigenvalues greater than 1.0. Eigenvalues are produced by factor analysis and represent the variance accounted for by each underlying factor. They are not represented by percentages but scores that total to the number of items. The total of all the eigenvalues will be 25 if there are 25 items; therefore some factors would have smaller eigenvalues. However, this approach has sometimes been criticized in that it can produce many factors. Comrey and Lee (1992) argued that using the eigenvalue criterion might over- or underestimate the correct number of factors.

In this regard, another method of deciding the number of factors was to generate a scree plot. Cattell's (1966) scree test was performed and the eigenvalues obtained were plotted in Figure 13 (in Appendix B). An inflection point of the resulting curve (scree) is determined by visual inspection. The location of the inflection points indicates the number of factors to be extracted. From the scree plot in Figure 13, the first five factors account for most of the variance, so the remaining factors all have small eigenvalues. The scree plot shows a clear break after the fifth component and reveals that there are five underlying factors. The remaining factors are just error variation.

Table 15 (in Appendix A) displays the items and loadings. Comrey and Lee (1992) suggested that loadings above 0.45 could be considered fair, those in excess of 0.55 good, those of 0.63 very good, and those of 0.71 excellent. All item loadings for these five factors are generally greater than 0.4. However, in the cases of Belief in Public Service (PUB), one item (Pub 4) is found with cross loading (>0.3) on other factors. Cross loadings suggest items that may

potentially measure more than one factor. The aim of extraction is to extract the number of factors that gave the 'cleanest' and most 'interpretable' factor loadings - i.e. items that have high primary loadings (>0.3) and low secondary loadings (<0.3), and that appear to measure the same content as other items loading on the same factor. For Belief in Self-Regulation (REG), two items do not load on the factor. Accordingly, three items (Pub 4, Reg 1 and Reg 5) are further eliminated from the instrument, resulting in 21 items being retained in the original scale.

Altogether, after the analyses of item-total correlation and exploratory factor analyses, four items are eliminated from the original 25-item modified Hall's Professionalism Scale. A summary of changes in the contents of the modified Hall's Professionalism Scale is shown in Table 16 (in Appendix A).

The determinant of the exploratory factor analysis is 0.001 that is greater than the necessary value of 0.00001. Therefore one can confidently say that multicollinearity is not a problem for this data. The KMO statistic calculated was 0.665, which is considered mediocre yet acceptable (Kaiser, 1970). After checking the overall KMO statistic, the diagonal elements of the anti-image correlation matrix were also examined and all the values are well above 0.5. In addition, the Bartlett's measure, which tests the null hypothesis that the original correlation matrix is an identity matrix, is also scrutinized and found to be significant ($p<0.001$). This series of analyses shows that factor analysis is appropriate.

This analysis produces five factors representing the constructs of Major Referent to Professional Organisation (REF), Belief in Public Service (PUB), Belief in Self-Regulation (REG), Sense of Calling to the field (CAL), and Belief in Autonomy (AUT), each having

eigenvalues above 1.0 and together accounting for 37.5 percent of variance in the data. As Pett et al. (2003) noted that such considerably lower cumulative percentage of variance extracted by successive factors as in this study (5 factors) is reasonable when applying principal axis factor analysis as it only addresses common variance.

All in all, together with the graphical representation of a scree plot, the combined result of these analyses establishes the discriminant validity and serves as a strong support that the modified Hall's Professionalism Scale can be considered as a five-dimensional construct. However, Noerager (1979) questioned the relevance of such an analysis and its ability to reasonably depict the true and underlying structure of a measure. Given that the scale is based upon an *a priori* theoretical framework and has been regarded as a multi-dimensional construct in the literature, the use of confirmatory factor analysis is also conducted in order to further interpret the dimensionality of the modified Hall's Professionalism Scale.

Confirmatory Factor Analysis

Third, confirmatory factor analysis is then conducted in order to test the construct validity and dimensionality of the modified Hall's Professionalism Scale. Resulting from the preceding exploratory factor analysis, a model is constructed using the five factors consisting of 21 retained items. Confirmatory factor analysis accomplished through the method of structural equation modeling is conducted to determine the goodness-of-fit of the proposed factor structure for each of the five dimensions of the scale. The analysis of the scale is built upon the maximum likelihood estimation of the Analysis of Moment Structures (AMOS, version 4.0) (Arbuckle & Wothke, 1999; Byrne, 2001). Each item is constrained to its respective dimensions of professionalism in the model. In each factor, the loading of one variable is

fixed to be constant (1.0), which serves to scale the loadings of all other variables in the same factor.

Before the goodness-of-it of the model is assessed, the results of the model are first inspected for offending estimates including error variances, standardized coefficient and standard errors. Hair et al. (1998) considered that these offending estimates, if found, had to be first resolved as they might have profound effects on the subsequent analysis. Following the recommendations of Arbuckle and Wothke (1999), several goodness-of-fit measures are then used to test the factor structure including the chi-square (χ^2), Normed Chi-square (CMIN/DF), Goodness-of-Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI), Normed Fit Index (NFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and the Root Mean Square of Error Approximation (RMSEA).

An initial inspection of the results reveals that no offending estimates are present. Therefore, the overall model fit is then assessed with a series of goodness-of-fit measures. A chi-square test is often considered as the one of the most common model fit measures, however, Tabachnick and Fidell (1996) recommended its use only in studies with moderate samples (e.g. 100 to 200). For those studies with large samples such as the present study with 510 respondents, the significance test for the chi-square test may become less reliable. Normed Chi-square (CMIN/DF) is the minimum sample discrepancy divided by its degrees of freedom. It is suggested that its value should be in the range of 1.0 to 3.0, indicative of an acceptable fit model (Joreskog, 1969; Marsch & Hocevar, 1985; Wheaton et al., 1977). The Goodness of Fit Index (GFI) analyses the overall degree of model fit without adjusting for the degrees of freedom. It usually varies between 0 and 1, and a result of 0.90 or above indicates an adequately fitting model (Kaplan, 1995). The Adjusted Goodness of Fit Index (AGFI) is a

measure of the relative amount of variance accounted for by the model, corrected for the degrees of freedom in the model relative to the number of variables (Joreskog & Sorbom, 1993; Kaplan, 1995). Byrne (2001) considered that AGFI values > 0.80 were appropriate. The Normed Fit Index (NFI) is used to assess the global model fit. It represents a relative comparison of the proposed model to the null model. This index is commonly ranged from 0 to 1.0. The acceptance level is a value exceeding 0.90 or above (Bentler & Bonett, 1980). The Comparative Fit Index (CFI) is one of the incremental measures representing comparisons of a restricted model with that of a null model in the determination of goodness-of-fit. A commonly recommended value is 0.90 or above (Bentler, 1990). The Tucker-Lewis Index (TLI), also called non-normed fit index, is a relative measure of covariation explained by the hypothesized model that is specifically developed to assess factor models (Tucker & Lewis, 1973). Its recommended acceptance level is 0.90 or greater. A Root Mean Square Error of Approximation (RMSEA) below 0.08 is considered acceptable with values below 0.5 indicating a close fit of the model (Browne & Cudeck, 1993; Hair et al., 1998).

The modified Hall's Professionalism Scale is tested using structural equation modeling techniques with AMOS 4.0. Table 17 (in Appendix A) shows the above model fit assessment indexes along with reported guidelines used to test the model fit. The Chi-square statistic of the model is 3.79 with 179 degrees of freedom ($p < 0.001$), which indicated a poor fit of the model. Nevertheless, this value is less reliable because this test is very sensitive when large sample sizes (510 respondents in this study) are employed. The GFI (0.86), AGFI (0.86), NFI (0.74), CFI (0.79), TLI (0.75) and RMSEA (0.07) do not satisfactorily achieve the perfect model fit.

Overall the finalized 21-item modified Hall's Professionalism Model produces an acceptable Cronbach's alpha reliabilities of 0.71 and that of sub-scales achieved: Ref = 0.57 (4-item); Pub = 0.63 (4-item); Reg = 0.74 (3-item); Pub = 0.74 (5-item); Aut = 0.70 (5-item). These values are also presented in Table 12.

In view of the unsatisfactory model fit, taking into account the theoretical consideration, attempts are made to look for possible improvement in the model. AMOS can provide two types of information for detecting possible model misspecification: standardized residual covariances and modification indexes (Byrne, 2001). First, an examination of the standardized residual value reveals that eleven items, ranging from -3.392 to 5.899, exceed the cut-off value of ±2.58 recommended by Joreskog & Sorbom (1988). Table 19 (in Appendix A) contains the standardized residual convariances from the final model (Model 2). There are 11 potentially significant residuals of which their values exceed ±2.58. However, this number does not exceed the threshold value of 5% of the total covariances [i.e. 5% of 210 covariances (=10.5) as shown in Table 19] recommended by Hair et al. (1998). One consistent pattern among the residuals indicates that item Reg 2 of sub-scale 'Belief in Self-Regulation' is connected with a majority of the residuals exceeding ±2.58. The observation suggests that elimination of this single variable may substantially improve in the model fit. The Model-1 is trial run without the item Reg2. Nevertheless, results in Table 17 (in Appendix A) suggest that it produces an unsatisfactory model fit though it achieved a GFI of 0.91.

Second, a review of the modification indices for the regression weights (i.e. factor loadings) suggests one parameter with signs of cross-loadings. This parameter represents the cross-loading of variables Reg2 and Pub2 (MI= 88.594; EPC= 0.334), which accounts for a

substantial misspecification of the hypothesized factor loading. This means that Reg2, in addition to measuring Belief in Self-Regulation, also measures Belief in Public Service. Based on this observation, adding a covariance relationship between the two terms may be suggested. In doing so, the Chi-square was reduced by 126.148, an 18.6% decrease, with a marginally acceptable CMIN/DF ratio of 3.099. The Model-2 is also reported with other goodness-of-fit measures within barely acceptable values: GFI (0.91), AGFI (0.88), NFI (0.78), CFI (0.84), TLI (0.81) and RMSEA (0.06). Figure 14 (in Appendix B) shows the standardized estimation of the final model (Model-2) as produced by AMOS. Hair et al. (1998) considered that model modifications should only be done if the relationship made sense. Only paths that could be justified theoretically should be included in the model. As noted by Rupp and Segal (1989), although each dimension of the modified Hall's Professionalism Scale was conceptually distinct and independent of each other, there are some overlaps between dimensions of professionalism because the factors are conceptually similar and have prima facie similarities in item content with these factors. Therefore the re-specifications are theoretically meaningful and a priori. All in all, the above findings of scale validation are consistent with the results of past research (Schack & Hepler, 1979; Crank, 1987; Swailes, 2003) in that the Snizek's modified Hall's Professionalism Scale is a five-factor dimension multidimensional scale with a certain scale refinement.

5.3.2 Factor Structure of the Multifactor Leadership Questionnaire

Following the same procedures adopted for validating the modified Hall's Professionalism Scale, the Multifactor Leadership Questionnaire (MLQ) Form 5X was subject to confirmatory factor analysis using AMOS 4.0 (Arbuckle & Wothke, 1999; Byrne, 2001) in order to test its construct validity and dimensionality of the a priori nine-factor model

represented by three different leadership styles, namely: transformational, transactional and laissez-faire.

Again, each item is constrained to its respective dimensions of leadership styles in the model. In each factor, the loading of one variable is fixed to be constant (1.0), which serves to scale the loadings of all other variables in the same factor. In addition, before the goodness-of-it of the model is assessed, the results of the model are first inspected for offending estimates including error variances, standardized coefficient and standard errors. An examination of the results reveals that no offending estimates are present. Therefore, the overall model fit is then assessed with a series of goodness-of-fit measures including a chi-square test, Normed chi-square (CMIN/DF), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI) Normed Fit Index (NFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA).

The Multifactor Leadership Questionnaire is then tested using structural equation modeling techniques with AMOS 4.0. Table 18 (in Appendix A) shows the above model fit assessment indexes along with reported guidelines used to test the model fit. The Chi-square statistic of the default model is 2.923 with 558 degrees of freedom ($p< 0.001$), which indicated a barely acceptable fit of the model. However, this value is less reliable because this test is very sensitive when large sample sizes (510 respondents in this study) are employed. The GFI (0.84), AGFI (0.81), NFI (0.83), CFI (0.88), TLI (0.87) and RMSEA (0.06) do not satisfactorily achieve the perfect model fit.

Because of the barely acceptable model fit (default model), taking into account the theoretical rationale, attempts are made to look for possible improvement in the model. As noted

previously, AMOS can provide two types of information for detecting possible model misspecification: standardized residual covariances and modification indexes (Byrne, 2001). First, an examination of the standardized residual value reveals that 31 items, ranging from -3.878 to 5.509, exceed the cut-off value of ±2.58 recommended by Joreskog and Sorbom (1988). Table 20 (in Appendix A) contains the standardized residual convariances from the final model (Model 2). There are 31 potentially significant residuals the values of which exceed ±2.58. However, this number marginally meets the threshold value 5% of the total covariances [i.e. 5% of 630 covariances (= 31.5) as shown in Table 20] recommended by Hair et al. (1998). The residual covariances show a consistent pattern in the item 'mbea1' of 'Management-by-Exception (Active) [MBEA]', which is linked with the largest number of residuals exceeding ±2.58. It is thus suggested that elimination of this single variable may substantially improve the model fit. The MLQ is initially tested without the item 'mbea1' in Model-1. The results in Table 18 (in Appendix A) suggest a slight improvement in fit indices of the default model.

Second, a review of the modification indices for the regression weights (i.e. factor loadings) suggests that the model can be improved by adding new constraints on two pairs of parameters. These parameters represent the variables of contingent reward and management-by-exception (active). Based on this observation, adding a covariance relationship between the two pairs of variables may be suggested. In this way, the Chi-square as shown in Model-2 was reduced by 92.986, a 5.7% decrease, with an acceptable CMIN/DF ratio of 2.836. Model-2 is also reported with other goodness-of-fit measures within barely acceptable values of GFI (0.86), AGFI (0.82), NFI (0.84), CFI (0.89), TLI (0.87) and RMSEA (0.06). Figure 15 (in Appendix B) shows the standardised estimation of the final model (Model-2) as produced by AMOS. Hair et al. (1998) considered that model modifications

should only be done if the relationship made sense. Only paths that could be justified theoretically should be included in the model. It is therefore considered that Model-2 is more preferable than Model-1 as the fit indices of the latter are obtained at the expense of an item of the original variable 'management-by-exception (active)' and it would not change the original substantive model (Bass & Avolio, 2000).

On the whole, the re-specifications are theoretically meaningful and the a priori nine-factor model has the strongest indicators of fit. All indicators loading on each construct were significant. All in all, the above findings of scale validation are consistent with the results of prior research (Bass & Avolio, 1991; Bycio, Hackett, & Allen, 1995; Howell & Avolio, 1994; Keller, 1992) that the Multifactor Leadership Questionnaire is a nine-factor multidimensional scale.

5.4 TESTS OF HYPOTHESES

5.4.1 Relationship between Transformational Leadership and Subordinates' Work Outcomes

Sub-hypothesis 1a: Transformational leadership is positively related to subordinates' extra effort.

This sub-hypothesis predicted a positive relationship between transformational leadership and extra effort exerted by subordinates, and was tested using hierarchical regression analysis. The results are presented in Table 21 (in Appendix A). In a two-step hierarchical regression (Models 1 & 2), eight control variables (gender, age, education level, professional affiliation,

professional experience, country, organization type and position) were entered in step 1, followed by five dimensions of transformational leadership - idealised attribute (IA), idealised behaviours (IB), inspirational motivation (IM), intellectual stimulation (IS) and individualised consideration (IC) in Step 2. The beta coefficients for all dimensions of transformational leadership were positive (IA= 0.398, $p< 0.01$; IB= 0.098, $p< 0.1$; IM= 0.138, $p< 0.01$; IS= 0.222, $p< 0.01$; IC= 0.141, $p< 0.01$). Furthermore, transformational leadership accounted for a significant change in model variance ($R^2= 0.611$, $p< 0.01$). These results provide support for sub-hypothesis 1a.

Sub-hypothesis 1b: Transformational leadership is positively related to subordinates' perceived leader effectiveness.

This sub-hypothesis predicted a positive relationship between transformational leadership and perceived leader effectiveness, and was tested using hierarchical regression analysis. The results are presented in Table 22 (in Appendix A). In a two-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by five dimensions of transformational leadership - idealised attributes (IA), idealised behaviours (IB), inspirational motivation (IM), intellectual stimulation (IS) and individualised consideration (IC) in Step 2. The beta coefficients for all dimensions of transformational leadership were positive (IA= 0.431, $p< 0.01$; IM= 0.139, $p< 0.01$; IS= 0.204, $p< 0.01$; IC= 0.249, $p< 0.01$) with the exception of IB (β= -0.024, n.s.). The results indicate that the beta coefficient for idealised behaviours is not significant, which suggests that idealised behaviours may have no influence on perceived leader effectiveness. All in all, transformational leadership accounted for a significant change in model variance ($R^2= 0.643$,

$p < 0.01$). In general, these results provide support for sub-hypothesis 1b.

Sub-hypothesis 1c: Transformational leadership is positively related to subordinates' satisfaction with leaders.

This sub-hypothesis predicted a positive relationship between transformational leadership and satisfaction with leaders, and was tested using hierarchical regression analysis. The results are presented in Table 23 (in Appendix A). In a two-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by five dimensions of transformational leadership - idealised attributes (IA), idealised behaviours (IB), inspirational motivation (IM), intellectual stimulation (IS) and individualised consideration (IC) in Step 2. The beta coefficients for all dimensions of transformational leadership were positive (IA= 0.567, $p < 0.01$; IM= 0.107, $p < 0.01$; IS= 0.213, $p < 0.01$; IC= 0.232, $p < 0.01$) with the exception of IB (β= -0.064, n.s.). The results indicate that the beta coefficient for idealised behaviours is not significant, which suggests that idealised behaviours may have no impact on satisfaction with leaders. On the whole, transformational leadership accounted for a significant change in model variance (R^2= 0.657, $p < 0.01$). In general, these results provide support for sub-hypothesis 1c.

5.4.2 Relationship between Transactional Leadership and Subordinates' Work Outcomes

Sub-hypothesis 1d(i): Contingent reward and management-by-exception (active) are positively related to subordinates' extra effort.

Sub-hypothesis 1d(ii): Management-by-exception (passive) is negatively related to subordinates' extra effort.

The two sub-hypotheses predicted positive relationships between contingent reward and management-by-exception (active) of transactional leadership and extra effort exerted by subordinates while there is a negative relationship with management-by-exception (passive). The sub-hypotheses were tested using hierarchical regression analysis.

The results are presented in Table 24 (in Appendix A). In a two-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by three dimensions of transactional leadership - contingent reward (CR), management-by-exception (active) [MBEA] and management-by-exception (passive) [MBEP] in Step 2.

The beta coefficients for CR and MBEA were positive (CR= 0.725, $p< 0.01$; MBEA= 0.095, $p< 0.05$) while MBEP was negative (β= -0.079, $p< 0.05$). All in all, transactional leadership accounted for a significant change in model variance (R^2= 0.480, $p< 0.01$). In general, these results provide support for sub-hypotheses 1d(i) & (ii) that CR and MBEA are positively related to extra effort while MBEP is in a negative direction.

Sub-hypothesis 1e(i): Contingent reward and management-by-exception (active) are positively related to subordinates' perceived leader effectiveness.

Sub-hypothesis 1e(ii): Management-by-exception (passive) is negatively

related to subordinates' perceived leader effectiveness.

The two sub-hypotheses predicted positive relationships between contingent reward and management-by-exception (active) of transactional leadership and perceived leader satisfaction while there is a negative relationship with management-by-exception (passive). The sub-hypotheses were tested using hierarchical regression analysis.

The results are presented in Table 25 (in Appendix A). In a two-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by three dimensions of transactional leadership - contingent reward (CR), management-by-exception (active) [MBEA] and management-by-exception (passive) [MBEP] in Step 2.

The beta coefficients for CR and MBEA were positive (CR= 0.728, $p< 0.01$; MBEA= 0.076, $p< 0.05$) while the exception of MBEP was negative (β=- 0.0230, $p< 0.01$). On the whole, transactional leadership accounted for a significant change in model variance (R^2= 0.581, $p< 0.01$). In general, these results provide support for sub-hypotheses 1e(i) &(ii) that CR and MBEA are positively related to perceived leader effectiveness while MBEP is in a negative direction.

Sub-hypothesis 1f(i): Contingent reward and management-by-exception (active) are positively related to subordinates' satisfaction with leaders.

Sub-hypothesis 1f(ii): Management-by-exception (passive) is negatively related to subordinates' satisfaction with leaders.

The two sub-hypotheses predicted positive relationships between contingent reward and management-by-exception (active) of transactional leadership and subordinates' satisfaction with leaders while there is a negative relationship with management-by-exception (passive). The sub-hypotheses were tested using hierarchical regression analysis.

The results are presented in Table 26 (in Appendix A). In a two-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by three dimensions of transactional leadership - contingent reward (CR), management-by-exception (active) [MBEA] and management-by-exception (passive) [MBEP] in Step 2.

The beta coefficient for contingent reward was positive (CR= 0.808, $p< 0.01$) while that for MBEP was negative (β= -0.218, $p< 0.01$). The results further indicate that the beta coefficient for management-by-exception (active) [MBEA] is not significant (β= -0.017, n.s.), which suggest that MBEA may have no impact on satisfaction with leaders. On the whole, transactional leadership accounted for a significant change in model variance (R^2= 0.577, $p< 0.01$). In general, these results for sub-hypotheses 1f(i) & (ii) partially supported that CR is positively related to satisfaction with leaders while MBEP is in a negative direction.

5.4.3 Relationship between Laissez-Faire Leadership and Subordinates' Work Outcomes

Hypothesis 1g: Laissez-faire leadership is negatively related to subordinates' extra effort.

This sub-hypothesis predicted a negative relationship between laissez-faire leadership and extra effort exerted by subordinates and was tested using hierarchical regression analysis. The results are presented in Table 27 (in Appendix A). In a two-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by laissez-faire leadership in Step 2.

The beta coefficient for laissez-faire leadership was negative (β=-0.398, p<0.01). All in all, laissez-faire leadership accounted for a significant change in model variance (R^2=0.129, p<0.01). In general, these results provide support for sub-hypothesis 1g that laissez-faire leadership is negatively related to subordinates' extra effort.

Sub-hypothesis 1h: Laissez-faire leadership is negatively related to subordinates' perceived leader effectiveness.

This sub-hypothesis predicted a negative relationship between laissez-faire leadership and perceived leader effectiveness and was tested using hierarchical regression analysis. The results are presented in Table 28 (in Appendix A). In a two-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by laissez-faire leadership in Step 2.

The beta coefficient for laissez-faire leadership was negative (β= -0.567, p< 0.01). All in all, laissez-faire leadership accounted for a significant change in model variance (R^2= 0.270, p<

0.01). In general, these results provide support for sub-hypothesis 1h that laissez-faire leadership is negatively related to subordinates' perceived leader effectiveness.

Sub-hypothesis 1i: Laissez-faire leadership is negatively related to subordinates' satisfaction with leaders.

This sub-hypothesis predicted a negative relationship between laissez-faire leadership and satisfaction with leader and was tested using hierarchical regression analysis. The results are presented in Table 29 (in Appendix A). In a two-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by laissez-faire leadership in Step 2.

The beta coefficient for laissez-faire leadership was negative (β= -0.592, p< 0.01). All in all, laissez-faire leadership accounted for a significant change in model variance (R^2= 0.260, p< 0.01). In general, these results provide support for sub-hypothesis 1i that laissez-faire leadership is negatively related to subordinates' satisfaction with leaders.

5.4.4 Augmentation Effect of Transformational Leadership on Transactional Leadership

Hypothesis 1j: Transformational leadership augments transactional leadership to produce more effective subordinates' work outcomes.

This sub-hypothesis predicted transformational leadership will augment transactional

leadership to produce more effective subordinates' work outcomes, and it was tested using hierarchical regression analysis. The results are presented in Table 30 (in Appendix A). To assess the augmentation effect, a hierarchical regression analysis recommended by Waldman et al. (1987) and Hater and Bass (1988) was adopted. Transactional leadership factors were first entered into the regression model to determine if transformational leadership significantly augmented the power of transactional leadership alone in predicting extra effort by subordinates, perceived leader effectiveness and satisfaction with leaders. As can be seen in Table 29, there was a significant change in the R^2 after the addition of transformational leadership factors. The R^2 for transactional leadership factors was 0.527 ($p< 0.001$) for extra effort, 0.613 ($p< 0.001$) for perceived leader effectiveness and 0.608 ($p< 0.001$) for satisfaction with leaders. Of particular note was when transformational leadership factors were added in to transactional leadership in Scenario 1, where the R^2 was significantly increased to 0.663 ($p< 0.001$) for extra effort, 0.709 ($p< 0.001$) for perceived leader effectiveness and 0.718 ($p< 0.001$) for satisfaction with leaders. From these results, it was evident that transformational leadership can augment transactional leadership to produce a greater effect on the performance and satisfaction of employees. However, it failed to do so vice versa as shown in Scenario 2. The findings of these results further supported that the augmentation of both transformational leadership and transactional leadership would have a stronger positive relationship with subordinates' work outcomes than either one in isolation.

5.4.5 Moderating Effect of Professionalism on Leadership Effectiveness

Sub-Hypothesis 2a: Moderating Effects of Professionalism on the Relationship between Transformational Leadership and Extra Effort

Sub-hypothesis 2a predicted that subordinates' professionalism moderates the relationships between transformational leadership and subordinates' extra effort such that when professionalism increases, the effect of transformational leadership on extra effort will increase.

In a four-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by dimensions of transformational leadership in step 2. The dimensions of professionalism were entered as moderating variables in step 3. The 25 interaction terms (five dimensions of transformational leadership by five dimensions of professionalism) were entered in step 4 to test for the moderating effect of professionalism in a multidimensional fashion. The results of this regression are shown in Table 21 (in Appendix A).

The four-step regression resulted in a model in which 68.7% of the variance was accounted for by all included variables ($R^2 = 0.687$, $p < 0.05$). The addition of the interaction terms in step 4 accounted for a 2.7% ($\Delta R^2 = 0.027$, $p < 0.05$) change in the variance in extra effort, and 10 out of 25 interaction terms were statistically significant.

Post hoc Analysis

Following Jaccard and Turisi's (2003) procedures described in Chapter Four, a backward elimination strategy was employed and five interaction terms were finally retained [IBxREF ($\beta = 0.061$, $p < 0.05$); IMxREF ($\beta = 0.214$, $p < 0.01$); IMxAUT ($\beta = 0.073$, $p < 0.01$); ISxREG ($\beta = 0.035$, $p < 0.05$); ICxAUT ($\beta = 0.03$, $p < 0.01$)]. The remaining five significant interactions

were plotted to determine whether the hypothesized direction of the interactions were supported. The interaction plots are shown in Figures 16 - 20 (in Appendix B).

The graphical presentation of the five interaction plots displayed a similar pattern of relationship among the variables. In general, as predicted, the level of subordinates' extra effort rises as the levels of transformational leadership exhibited by leaders increases. However, when the level of professionalism is taken into consideration, it can be seen that professional subordinates with a higher level of professionalism would have a higher level of extra effort than those with a lower level of professionalism.

Overall, the complete model is significant ($p < 0.05$) for sub-hypothesis 2a. However**,** the above results provided partial support that only several of the dimensions of professionalism [Referent to Professional Organization (REF), Belief in Self-Regulation (REG) and Belief in Autonomy (AUT)] moderate the relationship between transformational leadership and subordinates' extra effort.

Sub-hypothesis 2b: Moderating Effects of Professionalism on the Relationship between Transformational Leadership and Perceived Leader Effectiveness

Sub-hypothesis 2b predicted that subordinates' professionalism moderates the relationships between transformational leadership and leader effectiveness perceived by subordinates such that when professionalism increases, the effect of transformational leadership on perceived leader effectiveness will increase.

In a four-step hierarchical regression, eight control variables (gender, age, education level,

professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by dimensions of transformational leadership in step 2. The dimensions of professionalism were entered as moderating variables in step 3. The 25 interaction terms (five dimensions of transformational leadership by five dimensions of professionalism) were entered in step 4 to test for the moderating effect of professionalism in a multidimensional fashion. The results of this regression are shown in Table 22 (in Appendix A).

The four-step regression resulted in a model in which 70.3% of the variance was accounted for by all included variables ($R^2 = 0.703$, $p < 0.05$). The addition of the interaction terms in step 4 accounted for a 2.2% ($\Delta R^2 = 0.022$, $p < 0.05$) change in the variance in perceived leader effectiveness, and 8 out of 25 interaction terms were statistically significant.

Post hoc Analysis

Following Jaccard and Turisi's (2003) procedures described in Chapter Four, a backward elimination strategy was employed and five interaction terms were finally retained [IAxAUT ($\beta = 0.222$, $p < 0.01$); IMxREG ($\beta = 0.043$, $p < 0.01$); IMxAUT ($\beta = 0.080$, $p < 0.05$); ISxAUT ($\beta = .184$, $p < 0.05$); ICxREG ($\beta = 0.048$, $p < 0.01$)]. The remaining five significant interactions were plotted to determine whether the hypothesized direction of the interactions were supported. The interaction plots are shown in Figures 21 - 25 (in Appendix B).

The graphical presentation of the five interaction plots displayed a similar pattern of relationship among the variables. In general, the level of subordinates' perceived leader effectiveness rises as the levels of transformational leadership exhibited by leaders increases.

However, when the level of professionalism is taken into consideration, it can be seen that professional subordinates with a high level of professionalism would have a higher level of perceived leader effectiveness than those with a low level of professionalism.

Overall, the complete model is significant ($p < 0.05$) for sub-hypothesis 2b. However, the above results provided partial support that only several of the dimensions of professionalism [Belief in Self-Regulation (REG) and Belief in Autonomy (AUT)] moderate the relationship between transformational leadership and subordinates' perceived leader effectiveness.

Sub-hypothesis 2c: Moderating Effects of Professionalism on the Relationship between Transformational Leadership and Satisfaction with Leaders

Sub-hypothesis 2c predicted that subordinates' professionalism moderates the relationships between transformational leadership and subordinates' satisfaction with leaders such that when professionalism increases, the effect of transformational leadership on satisfaction with leaders will increase.

In a four-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by dimensions of transformational leadership in step 2. The dimensions of professionalism were entered as moderating variables in step 3. The 25 interaction terms (five dimensions of transformational leadership by five dimensions of professionalism) were entered in step 4 to test for the moderating effect of professionalism in a multidimensional fashion. The results of this regression are shown in Table 23 (in Appendix A).

The four-step regression resulted in a model in which 71.2% of the variance was accounted for by all included variables ($R^2 = 0.712$, $p < 0.05$). The addition of the interaction terms in step 4 accounted for a 3.0% ($\Delta R^2 = 0.030$, $p < 0.05$) change in the variance in perceived satisfaction with leaders, and 7 out of 25 interaction terms were statistically significant.

Post hoc Analysis

Following Jaccard & Turisi's (2003) procedures described in Chapter Four, a backward elimination strategy was employed and four interaction terms were finally retained [IBxREG ($\beta = 0.166$, $p < 0.05$); IMxAUT ($\beta = 0.076$, $p < 0.05$); ISxREG ($\beta = 0.171$, $p < 0.05$); ICxAUT ($\beta = .190$, $p < 0.05$)]. The remaining four significant interactions were plotted to determine whether the hypothesized direction of the interactions was supported. The interaction plots are shown in Figures 26 - 29 (in Appendix B).

The graphical presentation of the four interaction plots displayed a similar pattern of relationship among the variables. In general, the level of subordinates' perceived satisfaction with leader rises as the levels of transformational leadership exhibited by leaders increases. However, when the level of professionalism is taken into consideration, it can be seen that professional subordinates with a high level of professionalism would have a higher level of perceived satisfaction with leader than those with a low level of professionalism.

Overall, the complete model is significant ($p < 0.05$) for sub-hypothesis 2c. However, the above results did provide partial support that several of the dimensions of professionalism [Belief in Self-Regulation (REG) and Belief in Autonomy (AUT)] moderate the relationship

between transformational leadership and subordinates' satisfaction with leaders.

Sub-hypothesis 2d: Moderating Effects of Professionalism on the Relationship between Transactional Leadership and Extra Effort

Sub-hypothesis 2d(i) predicted that subordinates' professionalism moderates the relationships between contingent reward/ management-by-exception (active) and subordinates' extra effort such that when professionalism increases, the effect of contingent reward/ management-by-exception (active) on extra effort will decrease, whereas sub-hypothesis 2d(ii) predicted that subordinates' professionalism moderates the relationships between management-by-exception (passive) and subordinates' extra effort such that when professionalism increases, the effect of management-by-exception (passive) on extra effort will decrease.

In a four-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by dimensions of transactional leadership in step 2. The dimensions of professionalism were entered as moderating variables in step 3. The 15 interaction terms (three dimensions of transactional leadership by five dimensions of professionalism) were entered in step 4 to test for the moderating effect of professionalism in a multidimensional fashion. The results of this regression are shown in Table 24 (in Appendix A).

The four-step regression resulted in a model in which 55.6% of the variance was accounted for by all included variables ($R^2 = 0.556$, $p < 0.05$). The addition of the interaction terms in

step 4 accounted for a 2.4% (ΔR^2= 0.024, p< 0.05) change in the variance in extra effort, and 5 out of 15 interaction terms were statistically significant.

Post hoc Analysis

Following Jaccard and Turisi's (2003) procedures described in Chapter Four, a backward elimination strategy was employed and three interaction terms were finally retained [CRxAUT (β= -0.060, p< 0.01); MBEAxREG (β= -0.032, p< 0.10); MBEPxAUT (β= -0.106, p< 0.05)]. The remaining three significant interactions were plotted to determine whether the hypothesized direction of the interactions was supported. The interaction plots are shown in Figure 30 - 32 (in Appendix B).

The graphical presentation of the three interaction plots displayed a similar pattern of relationship among the variables. In general, the level of subordinates' extra effort decreases as levels of contingent reward and management-by-exception (active) used by leaders increases. However, when level of professionalism is taken into consideration, it can be seen that professional subordinates with a high level of professionalism [Belief in Self-Regulation (REG) and Belief in Autonomy (AUT)] would have a lower level of extra effort than those with a low level of professionalism.

Overall, the complete model is significant (p< 0.05) for sub-hypotheses 2d(i) & (ii). However, the above results did provide partial support that several of the dimensions of professionalism [Belief in Self-Regulation (REG) and Belief in Autonomy (AUT)] moderate the relationship between transactional leadership and subordinates' extra effort.

Sub-hypothesis 2e: Moderating Effects of Professionalism on the Relationship between Transactional Leadership and Perceived Leader Effectiveness

Sub-hypothesis 2e(i) predicted that subordinates' professionalism moderates the relationships between contingent reward/ management-by-exception (active) and subordinates' perceived leader effectiveness such that when professionalism increases, the effect of contingent reward/ management-by-exception (active) on perceived leader effectiveness will decrease, whereas sub-hypothesis 2e(ii) predicted that subordinates' professionalism moderates the relationships between management-by-exception (passive) and subordinates' perceived leader effectiveness such that when professionalism increases, the effect of management-by-exception (passive) on perceived leader effectiveness will decrease.

In a four-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by dimensions of transactional leadership in step 2. The dimensions of professionalism were entered as moderating variables in step 3. The 15 interaction terms (three dimensions of transactional leadership by five dimensions of professionalism) were entered in step 4 to test for the moderating effect of professionalism in a multidimensional fashion. The results of this regression are shown in Table 25 (in Appendix A).

The four-step regression resulted in a model in which 66.9% of the variance was accounted for by all included variables ($R^2 = 0.669$, $p<0.01$). The addition of the interaction terms in step 4 accounted for a 4.6% ($\Delta R^2 = 0.046$, $p<0.01$) change in the variance in perceived leader

effectiveness, and 4 out of 15 interaction terms were statistically significant.

Post hoc Analysis

Following Jaccard and Turisi's (2003) procedures described in Chapter Four, a backward elimination strategy was employed and all the four interaction terms were finally retained [CRxREG (β= -0.097, p< 0.05); CRxAUT (β= -0.082, p< 0.05); MBEPxCAL (β= -0.090, p< 0.10); MBEPxAUT (β= -0.087, p< 0.10)]. All significant interactions were plotted to determine whether the hypothesized direction of the interactions was supported. The interaction plots are shown in Figures 33 - 36 (in Appendix B).

The graphical presentation of the four interaction plots displayed two different patterns of relationship among the variables.

(i) For sub-hypothesis e(i), the level of leader effectiveness perceived by subordinates decreases as levels of contingent reward used by leaders increases. However, when level of professionalism is taken into consideration, it can be seen that professional subordinates with a high level of professionalism [Belief in Self-Regulation (REG) and Belief in Autonomy (AUT)] would have a lower level of perceived leader effectiveness than those with a low level of professionalism.

(ii) For sub-hypothesis e(ii), the level of leader effectiveness perceived by subordinates decreases as levels of management-by-exception (passive) used by leaders increases. However, when level of professionalism is taken into consideration, it can be seen that professional subordinates with a high level of professionalism [Sense of Calling (CAL) and

Belief in Autonomy (AUT)] would have a lower level of perceived leader effectiveness than those with low level of professionalism.

Overall, the complete model is significant ($p < 0.01$) for sub-hypothesis 2e(i) & (ii). However, the above results did provide partial support that several of the dimensions of professionalism [Belief in Self-Regulation (REG), Sense of Calling (CAL) and Belief in Autonomy (AUT)] moderate the relationship between transactional leadership and subordinates' perceived leader effectiveness.

Sub-hypothesis 2f: Moderating Effects of Professionalism on the Relationship between Transactional Leadership and Satisfaction with Leaders

Sub-hypothesis 2f(i) predicted that subordinates' professionalism moderates the relationships between contingent reward/ management-by-exception (active) and subordinates' satisfaction with leaders such that when professionalism increases, the effect of contingent reward/ management-by-exception (active) on satisfaction with leaders will decrease, whereas sub-hypothesis 2f(ii) predicted that subordinates' professionalism moderates the relationships between management-by-exception (passive) and subordinates' satisfaction with leaders such that when professionalism increases, the effect of management-by-exception (passive) on satisfaction with leaders will decrease.

In a four-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by dimensions of transactional leadership in step 2. The dimensions of professionalism were entered as moderating variables in step 3. The 15

interaction terms (three dimensions of transactional leadership by five dimensions of professionalism) were entered in step 4 to test for the moderating effect of professionalism in a multidimensional fashion. The results of this regression are shown in Table 26 (in Appendix A).

The four-step regression resulted in a model in which 64.0% of the variance was accounted for by all included variables ($R^2 = 0.640$, $p < 0.05$). The addition of the interaction terms in step 4 accounted for a 2.4% ($\Delta R^2 = 0.024$, $p < 0.05$) change in the variance in perceived satisfaction with leaders, and 3 out of 15 interaction terms were statistically significant.

Post hoc Analysis

Following Jaccard and Turisi's (2003) procedures described in Chapter Four, a backward elimination strategy was employed and all significant interaction terms were finally retained [CRxREG ($\beta = -0.140$, $p < 0.01$); CRxAUT ($\beta = -0.091$, $p < 0.10$); MBEPxAUT ($\beta = -0.113$, $p < 0.05$)]. All significant interactions were plotted to determine whether the hypothesized direction of the interactions was supported. The interaction plots are shown in Figures 37 - 39 (in Appendix B).

The graphical presentation of the three interaction plots displayed two different patterns of relationship among the variables.

(i) For sub-hypothesis 2f(i), the level of leader effectiveness perceived by subordinates decreases as levels of contingent reward used by leaders increases. However, when level of professionalism is taken into consideration, it can be seen that professional subordinates with

a high level of professionalism [Belief in Self-Regulation (REG) and Belief in Autonomy (AUT)] would have a lower level of perceived leader effectiveness than those with a low level of professionalism.

(ii) For sub-hypothesis f(ii), the level of leader effectiveness perceived by subordinates decreases as levels of management-by-exception (passive) used by leaders increases. However, when level of professionalism is taken into consideration, it can be seen that professional subordinates with a high level of professionalism [Belief in Autonomy (AUT)] would have a lower level of perceived leader effectiveness than those with a low level of professionalism.

Overall, the complete model is significant ($p < 0.05$) for sub-hypotheses 2f(i) & (ii). However, the above results did provide partial support that several of the dimensions of professionalism [Belief in Self-Regulation (REG) and Belief in Autonomy (AUT)] would moderate the relationship between contingent reward and management-by-exception (passive) of transactional leadership and subordinates' satisfaction with leaders.

Sub-hypothesis 2g: Moderating Effects of Professionalism on the Relationship between Laissez-faire Leadership and Extra Effort

Sub-hypothesis 2g predicted that subordinates' professionalism moderates the relationships between laissez-faire leadership and subordinates' extra effort such that when professionalism increases, the effect of laissez-faire leadership on extra effort will increase.

In a four-step hierarchical regression, eight control variables (gender, age, education level,

professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by laissez-faire leadership in step 2. The dimensions of professionalism were entered as moderating variables in step 3. The 5 interaction terms (laissez-faire leadership by five dimensions of professionalism) were entered in step 4 to test for the moderating effect of professionalism in a multidimensional fashion. The results of this regression are shown in Table 27 (in Appendix A).

The four-step regression resulted in a model in which 22.1% of the variance was accounted for by all included variables ($R^2 = 0.221$, $p < 0.05$). The addition of the interaction terms in step 4 accounted for a 2.4% ($\Delta R^2 = 0.024$, $p < 0.05$) change in the variance in extra effort, and 3 out of 5 interaction terms were statistically significant.

Post hoc Analysis

Following Jaccard and Turisi's (2003) procedures described in Chapter Four, a backward elimination strategy was employed and two interaction terms were finally retained [LFxREG ($\beta = -0.071$, $p < 0.05$) and LFxAUT ($\beta = -0.121$, $p < 0.01$)]. The remaining two significant interactions were plotted to determine whether the hypothesized direction of the interactions was supported. The interaction plots are shown in Figures 40 - 41 (in Appendix B).

The graphical presentation of the two interaction plots displayed a similar pattern of relationship among the variables. In general, the level of subordinates' extra effort decreases as levels of laissez-faire leadership exhibited by leaders increases. However, when level of professionalism is taken into consideration, it can be seen that professional subordinates with a high level of professionalism would have a lower level of extra effort than those with a low

level of professionalism.

Overall, the complete model is significant ($p < 0.05$) for sub-hypothesis 2g. The above results did provide partial support that several of the dimensions of professionalism [Belief in Self-Regulation (REG) and Belief in Autonomy (AUT)] moderate the relationship between laissez-faire leadership and subordinates' extra effort.

Sub-hypothesis 2h: Moderating Effects of Professionalism on the Relationship between Laissez-faire Leadership and Perceived Leader Effectiveness

Sub-hypothesis 2h predicted that subordinates' professionalism moderates the relationships between laissez-faire leadership and leader effectiveness perceived by subordinates such that when professionalism increases, the effect of laissez-faire leadership on perceived leader effectiveness will increase.

In a four-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by laissez-faire leadership in step 2. The dimensions of professionalism were entered as moderating variables in step 3. The 5 interaction terms (laissez-faire leadership by five dimensions of professionalism) were entered in step 4 to test for the moderating effect of professionalism in a multidimensional fashion. The results of this regression are shown in Table 28 (in Appendix A).

The four-step regression resulted in a model in which 35.1% of the variance was accounted for by all included variables ($R^2 = 0.351$, $p < 0.05$). The addition of the interaction terms in

step 4 accounted for a 2.9% (ΔR^2= 0.029, p< 0.05) change in the variance in perceived leader effectiveness, and 4 out of 5 interaction terms were statistically significant.

Post hoc Analysis

Following Jaccard and Turisi's (2003) procedures described in Chapter Four, a backward elimination strategy was employed and three interaction terms were finally retained [LFxREF (β= -0.177, p< 0.01); LFxREG (β= -0.096, p< 0.10) and LFxAUT (β= -0.050, p< 0.01)]. The remaining three significant interactions were plotted to determine whether the hypothesized direction of the interactions was supported. The interaction plots are shown in Figures 42 - 44 (in Appendix B).

The graphical presentation of the three interaction plots displayed a similar pattern of relationship among the variables. In general, the level of perceived leader effectiveness decreases as levels of laissez-faire leadership exhibited by leaders increases. However, when level of professionalism is taken into consideration, it can be seen that professional subordinates with a high level of professionalism would have a lower level of perceived leader effectiveness than those with a low level of professionalism.

Overall, the complete model is significant (p< 0.05) for sub-hypothesis 2h. The above results did provide partial support that several of the dimensions of professionalism [Referent to Professional Organisation (REF), Belief in Self-Regulation (REG) and Belief in Autonomy (AUT)] moderate the relationship between laissez-faire leadership and perceived leader effectiveness.

Sub-hypothesis 2i: Moderating Effects of Professionalism on the Relationship between Laissez-faire Leadership and Satisfaction with Leaders

Sub-hypothesis 2i predicted that subordinates' professionalism moderates the relationships between laissez-faire leadership and subordinates' satisfaction with leaders such that when professionalism increases, the effect of laissez-faire leadership on satisfaction with leaders will increase.

In a four-step hierarchical regression, eight control variables (gender, age, education level, professional affiliation, professional experience, country, organization type and position) were entered in step 1, followed by laissez-faire leadership in step 2. The dimensions of professionalism were entered as moderating variables in step 3. The 5 interaction terms (laissez-faire leadership by dimensions of professionalism) were entered in step 4 to test for the moderating effect of professionalism in a multidimensional fashion. The results of this regression are shown in Table 29 (in Appendix A).

The four-step regression resulted in a model in which 32.2% of the variance was accounted for by all included variables ($R^2 = 0.322$, $p < 0.05$). The addition of the interaction terms in step 4 accounted for a 2.0% ($\Delta R^2 = 0.020$, $p < 0.05$) change in the variance in perceived satisfaction with leaders, and 1 out of 5 interaction terms were statistically significant.

Post hoc Analysis

Following Jaccard and Turisi's (2003) procedures described in Chapter Four, a backward

elimination strategy was employed and one interaction term was finally retained LFxAUT (β= -0.139, p< 0.05)]. The significant interaction was plotted to determine whether the hypothesized direction of the interactions was supported. The interaction plot is shown in Figure 45 (in Appendix B).

The graphical presentation of the interaction plot displayed that the level of subordinates' satisfaction with leaders decreases as levels of laissez-faire leadership exhibited by leaders increases. However, when level of professionalism is taken into consideration, it can be seen that professional subordinates with a high level of professionalism would have a lower level of satisfaction with leaders than those with a low level of professionalism.

Overall, the complete model is significant (p< 0.05) for sub-hypothesis 2i. The above results did provide partial support that only Belief in Autonomy (AUT)] would moderate the relationship between laissez-faire leadership and subordinates' satisfaction with leaders.

5.5 ASSESSMENT OF COMMON METHOD BIAS

As previously discussed in Chapter Four, following the procedures outlined by Podsakoff and Organ (1986), the potential effects of common method variance was tested using Harman's (1967) single-factor test in order to examine if common method bias exists in the present study. This statistical procedure has also been adopted by a number of researchers to address this problem (Blum, Fields & Goodman, 1994; Konrad & Linnehan, 1995). All model variables and demographic variables including gender, age, education level, professional affiliation, professional experience, country, organization type and position were entered into the analysis. The factor analysis using unrotated factor solution extracted eight components

with eigenvalues greater than 1.0. The four factors accounted for 70.7% of the variance among the 25 variables. The first factor accounted for 29.9% of the variance. Since multiple factors emerged and the first factor accounted for less than half of the variance, common method variance does not appear to be present in the current study.

5.6 SUMMARY OF RESULTS OF HYPOTHESES

In this study, two main hypotheses and a number of corresponding sub-hypotheses were generated to address the relationships posited in the model of leadership for building professionals. The results of hypotheses 1 and 2 are summarised and depicted in Tables 32 and 33 respectively.

Table 32 - Summary of Results of Hypothesis 1

Hypothesis 1		Findings
H1:	**There is a significant association between each of the three types of leadership styles (transformational, transactional and laissez-faire) and subordinates' work outcome (extra effort, effectiveness and satisfaction with leaders).**	**Supported;** all hypotheses are resulted in predicted directions and corroborate the results of previous research findings.
Transformational Leadership and Subordinates' Work Outcomes		
SubH1-a:	Transformational leadership is positively related to subordinates' extra effort.	**Supported**
SubH1-b:	Transformational leadership is positively related to subordinates' perceived leader effectiveness.	**Supported**
SubH1-c:	Transformational leadership is positively related to subordinates' satisfaction with leaders.	**Supported**
Transactional Leadership and Subordinates' Work Outcomes		
SubH1-d(i):	Contingent reward and management-by-exception (active) are positively related to subordinates' extra effort.	**Supported**
SubH1-d(ii):	Management-by-exception (passive) is negatively related to subordinates' extra effort.	**Supported**
SubH1-e(i):	Contingent reward and management-by-exception (active) are positively related to subordinates' perceived leader effectiveness.	**Supported**
SubH1-e(ii):	Management-by-exception (passive) is negatively related to subordinates' perceived leader effectiveness.	**Supported**
SubH1-f(i):	Contingent reward and management-by-exception (active) are positively related to subordinates' satisfaction with leader.	**Supported**
SubH1-f(ii):	Management-by-exception (passive) is negatively related to subordinates' satisfaction with leaders.	**Supported**
Laissez-faire Leadership and Subordinates' Work Outcomes		
SubH1-g:	Laissez-faire leadership is negatively related to subordinates' extra effort.	**Supported**
SubH1-h:	Laissez-faire leadership is negatively related to subordinates' perceived leader effectiveness.	**Supported**
SubH1-i:	Laissez-faire leadership is negatively related to subordinates' satisfaction with leader.	**Supported**
Augmentation Effect of Transformational Leadership on Transactional Leadership		
SubH1-j:	Transformational leadership augments transactional leadership to produce more effective subordinates' work outcomes.	**Supported**

Table 33 - Summary of Results of Hypothesis 2

Hypothesis 2		Findings
H2:	**The strength of association between each of the three types of leadership styles and subordinates' work outcomes is contingent upon the level of professionalism among subordinates.**	**Partially supported;** all hypotheses are resulted in predicted directions yet only several dimensions of professionalism would moderate the relationships between leadership styles and subordinates' work outcomes. **The most influential dimensions are Belief in Self-Regulation and Belief in Autonomy.**
Moderating Effect of Professionalism on the Relationship between Transformational Leadership and Subordinates' Work Outcomes		
SubH2-a:	Subordinates' professionalism moderates the relationships between transformational leadership and subordinates' extra effort such that when professionalism increases, the effect of transformational leadership on extra effort will increase.	**Partially supported;** yet only Referent to Professional Organisation, Belief in Self-Regulation and Belief in Autonomy would moderate the relationships.
SubH2-b:	Subordinates' professionalism moderates the relationships between transformational leadership and leader effectiveness perceived by subordinates such that when professionalism increases, the effect of transformational leadership on perceived leader effectiveness will increase.	**Partially supported;** yet only Belief in Self-Regulation and Belief in Autonomy would moderate the relationships.
SubH2-c:	Subordinates' professionalism moderates the relationships between transformational leadership and subordinates' satisfaction with leaders such that when professionalism increases, the effect of transformational leadership on satisfaction with leaders will increase.	**Partially supported;** yet only Belief in Self-Regulation and Belief in Autonomy would moderate the relationships.

Table 33 - Summary of Results of Hypothesis 2 (continued)

Hypothesis 2		Findings
Moderating Effect of Professionalism on the Relationship between Transactional Leadership and Subordinates' Work Outcomes		
SubH2-d(i):	Subordinates' professionalism moderates the relationships between contingent reward/ management-by-exception (active) and subordinates' extra effort such that when professionalism increases, the effect of contingent reward/ management-by-exception (active) on extra effort will decrease.	**Partially supported;** yet only Belief in Self-Regulation and Belief in Autonomy would moderate the relationships.
SubH2-d(ii):	Subordinates' professionalism moderates the relationships between management-by-exception (passive) and subordinates' extra effort such that when professionalism increases, the effect of management-by-exception (passive) on extra effort will decrease.	**Partially supported;** yet only Belief in Autonomy would moderate the relationships.
SubH2-e(i):	Subordinates' professionalism moderates the relationships between contingent reward/ management-by-exception (active) and subordinates' perceived leader effectiveness such that when professionalism increases, the effect of contingent reward/ management-by-exception (active) on perceived leader effectiveness will decrease.	**Partially supported;** yet only Belief in Self-Regulation and Belief in Autonomy would moderate the relationships.
SubH2-e(ii):	Subordinates' professionalism moderates the relationships between management-by-exception (passive) and subordinates' perceived leader effectiveness such that when professionalism increases, the effect of management-by-exception (passive) on perceived leader effectiveness will decrease.	**Partially supported;** yet only Sense of Calling and Belief in Autonomy would moderate the relationships.
SubH2-f(i):	Subordinates' professionalism moderates the relationships between contingent reward/ management-by-exception (active) and subordinates' satisfaction with leaders such that when professionalism increases, the effect of contingent reward/ management-by-exception (active) on satisfaction with leaders will decrease.	**Partially supported;** yet only Belief in Self-Regulation and Belief in Autonomy would moderate the relationships.
SubH2-f(ii):	Subordinates' professionalism moderates the relationships between management-by-exception (passive) and subordinates' satisfaction with leaders such that when professionalism increases, the effect of management-by-exception (passive) on satisfaction with leaders will decrease.	**Partially supported;** yet only Belief in Autonomy would moderate the relationships.
Moderating Effect of Professionalism on the Relationship between Laissez-faire Leadership and Subordinates' Work Outcomes		
SubH2-g:	Subordinates' professionalism moderates the relationships between laissez-faire leadership and subordinates' extra effort such that when professionalism increases, the effect of laissez-faire leadership on extra effort will increase.	**Partially supported;** yet only Belief in Self-Regulation and Belief in Autonomy would moderate the relationships.
SubH2-h:	Subordinates' professionalism moderates the relationships between laissez-faire leadership and leader effectiveness perceived by subordinates such that when professionalism increases, the effect of laissez-faire leadership on perceived leader effectiveness will increase.	**Partially supported;** yet only Major Referent to Professional Organisation, Belief in Self-Regulation and Belief in Autonomy would moderate the relationships.
SubH2-i:	Subordinates' professionalism moderates the relationships between laissez-faire leadership and subordinates' satisfaction with leaders such that when professionalism increases, the effect of laissez-faire leadership on satisfaction with leaders will increase.	**Partially supported;** yet only Belief in Autonomy would moderate the relationships.

5.7 SUMMARY OF THE CHAPTER

In summary, Chapter Five described the results of the correlation and multiple/moderated regression analyses conducted in this study. The moderated regression analyses revealed that the results support most of the hypotheses. A summary of the results in the present study is shown in Tables 32 and 33. In general, the hierarchical multiple regression hypotheses are supported while moderated regression hypotheses are partially supported that only a few of the dimensions of professionalism (Major Referent to Professional Organisation, Sense of Calling to the Field, Belief in Self-Regulation and Belief in Autonomy) would interact with dimensions of various leadership styles to influence subordinates' work outcomes. Of the most influential dimensions of professionalism are Belief in Self-Regulation and Belief in Autonomy. The potential effect of common method variance is also assessed and the results reveal that common method error does not appear to be present in the study. Following the analysis of the data, Chapter Six is a detailed discussion of the results of this study, the potential contributions, limitations of this study and suggested directions for future research in this area.

CHAPTER SIX – DISCUSSION AND CONCLUSIONS

6.0 INTRODUCTION

Chapter Six begins with a brief review of the aims and objectives of this study, and the research questions that it seeks to address. A summary of major findings is then presented in light of the model of leadership for professionals, followed by a discussion of the theoretical and practical implications of the research. The methodological limitations of this study are also identified and directions for future research are suggested.

The primary purpose of the present study is to examine the impact of professionalism displayed among professional subordinates upon the relationships between leadership styles and subordinates' work outcomes. The theoretical foundations of this study have been based on Bass and Avolio's Full Range of Leadership Model (1991) and Hall's Professionalism Model (1968). The objectives are to determine the extent to which professionalism displayed among professional subordinates and leadership styles exhibited by professional leaders. In addition, the relationships between leadership styles and subordinates' work outcomes were investigated. Finally, the present study analyses the moderating effect of subordinates' professionalism on the relationships between perceived transformational, transactional and laissez-faire leadership styles and subordinates' work outcomes. The research questions for this study are as follows:

- What are the relationships between leadership styles and subordinates' work outcomes?
- How are these relationships moderated by the professionalism of subordinates in the

context of the construction industry?

6.1 DISCUSSION OF FINDINGS

6.1.1 Summary of Major Findings

The preceding chapter presents an analysis of the data relating to leadership styles as they are perceived by subordinates, subordinates' professionalism and subordinates' work outcomes among building professionals. This analysis has contributed a number of important findings, which can be summarized as follows:

6.1.1.1 Leadership Styles of Building Professionals

- The findings of this study support the view that the Multifactor Leadership Questionnaire (MLQ) is suitable for use in the construction industry, and for the three disciplines of building professionals, namely architects, structural engineers and surveyors, in the four countries selected for this research.

- Transformational and transactional leadership are exhibited in the same individual building professionals, but to different degrees and intensities. Building professionals use transformational leadership more frequently than transactional leadership in their work.

- Laissez-faire leadership style is seldom used by building professionals.

- Under transformational leadership, the most prominent behaviour used is inspirational motivation, followed by idealised attributes, intellectual stimulation, idealised behaviours, and individualised consideration.

- Under transactional leadership, the most prominent behaviour used is contingent reward, followed by management-by-exception (active), and management-by-exception (passive).

6.1.1.2 Professionalism among Building Professionals

- The findings of this study provide some support for the view that the modified Hall's Professionalism Scale is suitable for use in the construction industry, and for the three disciplines of building professionals: architects, structural engineers, and surveyors, in the four countries selected.

- 'Major Referent to Professional Organisation' receives the highest ratings among the five dimensions of professionalism, followed by 'Belief in Self-Regulation' and 'Belief in Autonomy'.

- 'Sense of Calling to the Field' records the lowest ratings among the five dimensions of professionalism, but it is still above the mean score of the scale.

- In terms of Hall's Professionalism Scale, building professional subordinates have a high level of professionalism. They tend to strongly support and endorse the views of their professional organisations. Self-regulation and autonomy among building professionals

are respected in the workplace. As well as being strongly committed to their own profession, building professionals appear to believe that they are essential to society and are obliged to provide altruistic service to the public at large.

6.1.1.3 Relationship between Leadership Styles and Subordinates' Work Outcomes

- Transformational leadership is positively correlated with subordinates' work outcomes. The dimensions of transformational leadership (idealised attributes, idealised behaviours, inspirational motivation, intellectual stimulation and individualised consideration) are positively correlated with subordinates' extra effort, perceived leader effectiveness, and subordinates' satisfaction with leaders.

- The dimensions of transactional leadership are differently correlated with subordinates' work outcomes.

  – Contingent reward and management-by-exception (active) are positively correlated with subordinates' extra effort, perceived leader effectiveness, and subordinates' satisfaction with leaders.

  – Management-by-exception (passive) is negatively correlated with subordinates' extra effort, perceived leader effectiveness, and subordinates' satisfaction with leaders.

- Laissez-faire leadership is negatively correlated with subordinates' extra effort,

perceived leader effectiveness, and subordinates' satisfaction with leaders.

- Transformational leadership and transactional leadership are complementary to each other. Transformational leadership can augment transactional leadership to produce greater synergistic effects on the subordinates' work outcomes than either transformational or transactional leadership in isolation. However transactional leadership cannot augment transformational leadership to the same extent.

6.1.1.4 Impact of Subordinates' Professionalism on Leadership Effectiveness

- The most important finding from the moderator hypotheses is that subordinates' professionalism appears to have different moderating effects dependent upon the type of leadership styles and the type of subordinates' work outcomes investigated.

- Subordinates' professionalism moderates the relationships between transformational leadership and subordinates' work outcomes (extra effort, perceived leader effectiveness, and satisfaction with leaders) such that when professionalism increases, the effect of transformational leadership on subordinates' work outcomes will increase. [see Figures 16 to 29 for details].

- Subordinates' professionalism differently moderates the relationships between dimensions of transactional leadership and subordinates' work outcomes:

  – Subordinates' professionalism moderates the relationships between contingent reward/ management-by-exception (active) and subordinates' work outcomes

(extra effort, perceived leader effectiveness, and satisfaction with leaders) such that when professionalism increases, the effect of contingent reward/ management-by-exception (active) on subordinates' work outcomes will decrease. [see Figures 30-31, 33-34 and 37-38 for details].

– Subordinates' professionalism moderates the relationships between management-by-exception (passive) and subordinates' work outcomes (extra effort, perceived leader effectiveness, and satisfaction with leaders) such that when professionalism increases, the effect of management-by-exception (passive) on subordinates' work outcomes will decrease. [see Figures 32 and 35-36 for details].

- Subordinates' professionalism moderates the relationships between laissez-faire leadership and subordinates' work outcomes (extra effort, perceived leader effectiveness, and satisfaction with leaders) such that when professionalism increases, the effect of laissez-faire leadership on subordinates' work outcomes will increase. [see Figures 40 to 45 for details].

- Two of the dimensions of professionalism: belief in self-regulation and belief in autonomy, stand out from the professionalism construct, and contribute the greatest moderating effect on the relationships between leadership styles and subordinates' work outcomes [see Table 30 for details].

6.1.2 Leadership Styles in the Construction Industry

Bass and Avolio's (1991) Full Range of Leadership Model is considered as the most

comprehensive model available, embracing a wide range of leadership styles for empirical and practical research. The results of scale validation in this study reveal that the factor structure of transformational, transactional, and laissez-faire leadership as described in the Multifactor Leadership Questionnaire (MLQ) is consistent with previous research findings (Bass & Avolio, 1997). The findings of the present study support the view that the MLQ is suitable for use in the construction industry, and for the three disciplines of building professionals in the four countries selected.

This study addresses an important issue: that leaders in building profession are perceived to use inspirational motivation, idealised influence, intellectual stimulation, and contingent reward more often to lead, motivate, and inspire their professional subordinates in their daily work. On the other hand, active management-by-exception and passive management-by-exception as found in transactional leadership styles are perceived to be used infrequently, while the laissez-faire style of leadership is considered to be used hardly at all. Of particular interest is the fact that leaders in the construction industry are less inclined to show individualised consideration to their subordinates. This may be due to particular characteristics of the professional subordinates in the construction industry, who often have a strong belief in self-regulation and autonomy. Furthermore, some leaders pay particular attention to their subordinates, however this caring behaviour may not be sincerely recognised or acknowledged by their subordinates because their subordinates usually work autonomously and require less direction and supervision. Bass (1985) noted that transformational leadership flourishes in times of change. Hence, this study argues that in the rapidly changing built environment, while the use of contingent reward is important for maintaining business operations, managing building professional workers should place more emphasis on using inspirational motivation and intellectual stimulation.

The results of this study reflect the view that today's challenging and dynamic construction industry is more conducive to the advancement of transformational leadership; hence most building professional leaders are inclined to hold a vision of the future and have positive self-confidence.

This study further suggests that transformational and transactional leadership can be found in the same individual building professionals, because these leadership styles are complementary to each other, and together they have a concerted effect on the subordinates' work outcomes.

6.1.3 Professionalism in the Construction Industry

In this study, professionalism refers to the attitudes and commitment of a professional towards his own profession. Professionalism has been assessed using Snizek's (1972) modification of Hall's Professionalism Scale (1968), which consists of five distinct dimensions. The results of scale validation in the present study support the factor structure of the modified Hall's Professionalism Scale, albeit with some further refinement. The results of this study are also consistent with previous research findings (Haywood-Farmer & Ian Stuart, 1990; Schack & Hepler, 1979; Shafer, Park & Liao, 2002; Swailes, 2003), and support the view that the modified Hall's Professionalism Scale is suitable for use in the construction industry and for the three disciplines of building professionals in the four countries selected for this research.

'Major Referent to Professional Organisation' receives the highest ratings among the five dimensions of professionalism. This may be due to the respondents' formal/ informal

meetings with peer professionals, and frequent participation in meetings or seminars organised by their respective professional organisation. In addition, today's society is highly competitive. Having a professional title is a source of pride, and more importantly a source of higher income for people working in the construction industry. An item in the questionnaire that addresses their frequent attendance at continuing professional development events, indirectly reflects this aspect of the respondents' behaviour. Professionals in the construction industry also highly endorse the views and support the stance of their professional organisations on various issues related to their fields.

The measures of 'Belief in Self-Regulation' and 'Belief in Autonomy' are also given high ratings, which suggest that the respondents are working in environments where they are free to use their own judgement and make autonomous decisions. They can also perform their jobs without being greatly influenced by their clients or their employers. In general, their peers, colleagues, and fellow professionals provide the main source of their ideas and beliefs. Their strong desire for self-regulation and autonomy at work seem to be highly regarded in the workplace.

The respondents in this study also believe that the building profession is indispensable to the welfare of society. They consider their role is important to the very functioning of society as well as the construction industry generally, and they feel obliged to provide altruistic service in return for the trust and respect granted to them by the public at large.

'Sense of Calling to the Field' records the lowest ratings among the five dimensions of professionalism, nevertheless its score is still above average. This dimension refers to a professional's dedication to his own profession. Professionals in the construction industry

would probably want to stay in their line of work even if fewer extrinsic rewards were available, hence the relatively low ratings may be due to the rise of commercialism in recent decades. In this study, most of the building professionals who responded are working in private organisations. As mentioned in Chapter Two, the recent excessive wave of commercialism in the private sector has driven professional workers to favour economic benefits more than peer and altruistic considerations, hence the respondents may appear to be less dedicated to their work.

All in all, building professional subordinates have a high level of professionalism. They tend to strongly support and endorse the views of their professional organisations. They also value self-regulation and autonomy in the workplace.

6.1.4 Leadership Style as a Determinant of Subordinates' Work Outcomes

The study of leadership styles and their consequences has become one of the most common areas of research on professional workers. In this study, the relationships proposed by Bass (1985) between leadership styles and subordinates' work outcomes (extra effort, perceived leader effectiveness, and satisfaction with leaders) have been examined. One of the main hypotheses (H1) in the present study is that there is a significant association between each of the three types of leadership styles (transformational, transactional, and laissez-faire) and subordinates' work outcome (extra effort, effectiveness, and satisfaction with leaders). A number of sub-hypotheses (1a-i) have been generated to address the relationships posited in the model of leadership for building professionals, and a summary of the results of these sub-hypotheses is depicted in Table 32 in Chapter Five.

The findings of this study reveal the following:

- transformational leadership has a positive relationship with subordinates' work outcomes;
- two types of behaviours of transactional leadership: contingent reward and active management-by-exception, have positive relationships with subordinates' work outcomes, however passive management-by-exception has a negative relationship;
- laissez-faire leadership is, to a greater extent, negatively correlated with subordinates' work outcomes.

The study has found that overall, the relationships between transformational leadership and subordinates' work outcomes are more positive and stronger in magnitude than the relationship between subordinates' work outcomes and either the transactional style or the laissez-faire style of leadership, thereby confirming the findings underpinning the relationships between Bass and Avolio's (1991) Full Range of Leadership Styles and subordinates' work outcomes.

The following section will discuss the relationships between each of the various leadership styles and subordinates' work outcomes.

Transformational Leadership and Subordinates' Work Outcomes

Bass (1985) believes that transformational leadership can be used to motivate, inspire and coach subordinates so that they can achieve advanced personal growth and leadership abilities. Moreover, under transformational leadership, subordinates can also be motivated to do more

than was originally expected of them. It was hypothesised in this research, that transformational leadership styles would be positively related to subordinates' work outcomes, and the greater the degree of transformational leadership shown by leaders, the greater the subordinates' achievements. Clearly the results of this research support the sub-hypotheses (1a-c): that transformational leadership is positively and significantly correlated with subordinates' work outcomes. Highly positive relationships between transformational leadership and subordinates' work outcomes are evident in subordinates' extra effort, their perceived leader effectiveness, and their satisfaction with their leaders, corroborating similar patterns in the findings reported by Avolio, Waldman and Yammarino et al. (1991), Bass (1995) and Bass and Avolio (1990, 1997).

Transactional Leadership and Subordinates' Work Outcomes

The results of this study indicate that transformational leadership is more effective than transactional leadership in motivating subordinates to exert extra effort and perform better. In addition, professional leaders in the construction industry tend to adapt more readily to transformational leadership than transactional leadership. However, transactional leadership is still necessary for leaders to manage subordinates in their performance of routine and structured tasks on the basis of agreed performance and standards.

This study's results pertaining to dimensions of transactional leadership are consistent with the overall patterns predicted in sub-hypotheses (1d-f), and support the view that aspects of transactional leadership, i.e., contingent reward and active management-by-exception, are positively and significantly correlated with subordinates' work outcomes, while passive management-by-exception has a significant and negative effect. The findings also reveal that

the magnitude of correlation between contingent reward and subordinates' work outcome is much higher than that for active/passive management-by-exception. Therefore, under transactional leadership building professional leaders tend to use contingent reward rather than active/ passive management-by-exception in their daily work. Leaders prefer to use monetary/administrative incentive such as cash award and promotion to induce subordinates to achieve mutually agreed goals.

Laissez-Faire Leadership and Subordinates' Work Outcomes

The results of this research clearly support sub-hypotheses (1g-i) concerning the negative relationship between laissez-faire leadership and subordinates' work outcomes. These findings are also consistent with the results reported in Bass and Avolio (1997).

The laissez-faire leadership style is seldom used by leaders in the building profession to manage subordinates, possibly because the construction industry is a dynamic environment where rapid changes are occurring in terms of information flow and innovative challenges, and where timely, accurate and responsive actions are essential for operational efficiency. Laissez-faire styles of leadership in the form of delayed decision-making, and absence of feedback and rewards provide no room for motivation and advancement of subordinates, nor for the development of the organisation as a whole.

Augmentation Effect of Transformational Leadership on Transactional Leadership

The findings of this study further support sub-hypothesis (1j): that transformational

leadership can augment transactional leadership in producing a greater level of performance and satisfaction. More importantly, this study indicates that transformational leadership and transactional leadership used together will generate a stronger relationship with work outcomes than when either style is used in isolation. This supports the augmentation effect of transformational and transactional leadership styles described by Waldman, Bass and Yammarino (1990) and Bass and Avolio (1997). Indeed, the findings of this study suggest that in the context of the construction industry, transformational leadership is relatively effective when it manages to incorporate transactional leadership practices in a way that is responsive to professional subordinates. While both leadership styles are considered essential, transactional leadership is believed to be the foundation of the leader-subordinate relationship. Whether leaders in the building profession have a positive or negative effect on an organisation may be dependent on how individual professional subordinates are selected, managed and trained. Consistent with expectations, transformational leadership has been found to have an additive effect on transactional leadership in motivating subordinates to perform beyond their expectations. However, this study provides evidence that the additive effect is not reciprocal: transactional leadership does not have an additive effect on transformational leadership.

6.1.5 Professionalism as a Moderator in Leadership-Outcome Relationship

Review of literature suggested that subordinates' professionalism acts as a moderator between leadership styles and subordinates' work outcomes. It also plays an important role in the manner in which leadership styles affect subordinates' work outcomes. The second main hypothesis (H2) in this study is that the strength of the association between each of the three

types of leadership styles and subordinates' work outcomes is contingent upon the level of subordinates' professionalism. A number of hypotheses (2a-i) were generated to address the moderating effects of subordinates' professionalism on each of the three leadership styles: transformational, transactional, and laissez-faire leadership, posited in the model of leadership for building professionals and a summary of results of these sub-hypotheses is depicted in Table 33 in Chapter Five.

The most important finding from the moderator sub-hypotheses (2a-i) is that professionalism among subordinates appears to have different moderating effects dependent upon the type of leadership styles and the type of work outcomes investigated. In other words, professionalism is found to differently moderate the effects of transformational, transactional, and laissez-faire leadership on subordinates' work outcomes. These findings may go some way in addressing the appeals of numerous researchers (Bass, 1998; Howell, Dorfman & Kerr, 1986; Yukl, 1999) for more empirical research on the moderators of the leadership-subordinate relationships. These results, compared to previous studies, offer the stimulating insight that professionalism may not be antithetic to leadership (c.f. Howell & Dorfman, 1986; Shantz & Prieur, 1996). The following section will discuss the impact of subordinates' professionalism on the relationships between each of the leadership styles and the subordinates' work outcomes.

Moderating Effect of Professionalism on Transformational Leadership-Outcome Relationship

The results of sub-hypotheses (2a-c) support the view that subordinates' professionalism enhances the effects of transformational leadership on subordinates' work outcomes. On the

whole, transformational leadership fosters a professional culture within organisations in the construction industry, because it provides subordinates with insights into their organisation's future vision, higher levels of needs and transcendental goals that go beyond the subordinates' own self-interests.

The findings of this study suggest that high levels of professionalism among subordinates serve to enhance relationships between the impacts of transformational leadership on subordinates' work outcomes. It is not surprising, given that professional subordinates are frequently looking for challenging, creative and high-level work, and are keen to find ways of advancing their professional development. As indicated in the findings in Chapter Five, professional subordinates frequently attend continuing professional development events to improve their professional knowledge and keep abreast of advanced developments. Raelin (1985) considers that challenge is one of the most critical job characteristics for almost all professionals. The more challenging the activities they are assigned, the more they are stimulated to exceed what is expected of them. In this regard, transformational leaders can do an excellent job in providing an environment that is conducive to the development of their professional subordinates (Bass, 1985; c.f. Shapero, 1997). For instance, leaders of architectural/ structural engineering firms give their professional subordinates much more autonomy so that they can use their own judgement and expertise, and bring their own creative thinking and conceptual designs to development projects. Hence, the subordinates' intrinsic motivation and satisfaction are enhanced in a participative, constructive, and inspirational setting created by transformational leaders. In other words, the greater more the professional subordinates commit to their profession and their work, the greater they expect of transformational leadership from their leaders. Explained in terms of Howell et al.'s (1986) moderators, subordinates' professionalism under the leadership of transformational leaders

can be defined as an 'enhancer'. Therefore, these professional subordinates are more likely to be influenced by transformational leaders to fulfil their intrinsic motivation and satisfaction. This in turn leads to increased performance and enhanced satisfaction at work. In addition, the findings also reveal that it is not appropriate to closely supervise professionals, but rather to orchestrate their work by creating an environment of trustfulness within the culture of transformational leadership. As the professional subordinates adhere to an ethical code laid down by their professional associations, the need for direct supervision is reduced.

On the other hand, the summary of moderated regression analyses indicates that 'Belief in Self-Regulation' and 'Belief in Autonomy' emerge as the most important dimensions of professionalism that have interactive effects on transformational leadership style. The results suggest that the stronger the subordinates' belief in self-regulation and autonomy, the greater the extent to which these beliefs are integrated with transformational leadership to produce better work outcomes. A work setting in which transformational leadership is paramount offers an environment where professional subordinates are stimulated and inspired to freely exercise their expertise and make their own decisions without being threatened by external pressures.

Moderating Effect of Professionalism on Transactional Leadership-Outcome Relationship

The findings of sub-hypotheses (2d-f) substantiate the view that professionalism among subordinates will differently neutralise or exacerbate the effects of transactional leadership on subordinates' work outcomes. Compared with transformational leadership, transactional leadership is less likely to foster a professional culture in organizations in the context of the

construction industry.

Research suggests that transactional practice is a traditional approach of leadership, which focuses on the accomplishment of tasks and good subordinate relationships in exchange for desirable rewards. Transactional leadership is founded on the premise that leader-subordinate relations are rested on a series of exchanges or implicit negotiations between leaders and subordinates (Bass, 1985).

The results of this study reveal that transactional leaders, particularly those who use contingent reward or adopt a management-by-exception style, are often dependent upon reward, coercion and legitimate forms of power. Under transactional leadership, subordinates rarely make an extra effort for their leaders. In fact, in practice, this style of leadership is obviously contradictory to the norms and values of professionals. Professionals value work that satisfies their needs, and are prepared to receive professional challenges and evaluations. Transactional leadership, on the other hand, works against what Quinn, Anderson, and Finkelstein (1996) called 'professional intellect'. Transactional leaders pre-set a series of standard procedures and achievement guidelines for subordinates to follow, without taking into account their professional background. In addition, leaders practising transactional leadership do not encourage creativity. According to Herzberg, Mausner and Snyderman (1959), and the results of moderated regression analysis in this study, rewarding subordinates with more than they feel they are worth may not provide them with any real sense of satisfaction. On the contrary, it will inevitably weaken their relationship, and most importantly their commitment to their organization and their work. Thus, the subordinates' professionalism, under the leadership of transactional leaders, can be defined as a 'neutralizer' in terms of Howell et al.'s (1986) definition of moderators because the impact,

influence, and effectiveness of transactional leaders are offset and reduced by subordinates' professionalism.

On the other hand, the results of a series of moderated regression analyses for transactional leadership are consistent with those for transformational leadership. This study therefore suggests that 'Belief in Self-Regulation' and 'Belief in Autonomy' emerge as the most important dimensions of professionalism that have interactive effects on the transactional leadership styles. The importance attached to this further underlines the professionals' strong desire for an autonomous work setting. As previously indicated, belief in self-regulation and belief in autonomy have influential effects on leadership effectiveness. The stronger the subordinates' belief in self-regulation and autonomy, the greater their resistance to transactional leadership. Unlike transformational leaders, transactional leaders are more concerned with efficient processes than with substantive ideas (Bass, 1985). Transactional leaders provide a rather routine and structured environment in which professional subordinates are expected merely to perform systematic jobs. Challenging and stimulating work is almost absent. Under these circumstances, building professional subordinates may be unable to fully utilize their specialised knowledge and expertise, resulting in diminishing motivation and poor performance at work.

Moderating Effect of Professionalism on Laissez-Faire Leadership-Outcome Relationship

The results of the sub-hypotheses (2g-i) reveal that subordinates' professionalism exacerbates the effects of laissez-faire leadership on subordinates' work outcomes, and suggest that laissez-faire leadership is prejudicial to the development of a professional culture within

organizations in the construction industry.

Laissez-faire leadership refers to a 'non-interfering' approach toward subordinates and their performance, such that the leader ignores the needs of others, is not responsive to problems and does not keep an eye on performance. This style of leadership relinquishes power and would generally be seen as ineffective for subordinates in the construction industry. On the one hand, this type of leadership can provide a 'free' atmosphere for subordinates by not interfering with their decisions and by avoiding involvement in group discussions; on the other hand laissez-faire leaders do not attempt to motivate subordinates, neither do they recognize and satisfy their needs. This 'hands-off' style is not only inconsonant with the behaviour of professional subordinates, but also conflicts with their norms and values. Consequently, it inevitably undermines subordinates' relationships with their leaders and their commitment to the organization and their work, to a greater extent than transactional leadership. Explained in terms of Howell et al.'s (1986) definition of moderators, subordinates' professionalism under laissez-faire leadership can be defined as an 'enhancer', because it amplifies the leader's (aversive) impact on subordinates' work outcomes. In other word, when professionalism increases, the effect of laissez-faire leadership on subordinates' work outcomes will increase.

Furthermore, the results of a series of moderated regression analyses for laissez-faire leadership are consistent with those for transformational and transactional leadership, which suggests that 'Belief in Self-Regulation' and 'Belief in Autonomy' are the most important dimensions of professionalism that have interactive effects on laissez-faire leadership style. The stronger the subordinates' belief in self-regulation and autonomy, the greater the degree to which they are resistant to laissez-faire leadership, resulting in sub-standard work

outcomes. Under laissez-faire leaders, challenging and creative work is totally non-existent, which means that their professional subordinates are unable to fully utilize their specialised knowledge and expertise, resulting in diminishing motivation and poor performance at work.

6.2 IMPLICATIONS OF THE STUDY

This study will be of interest to professionals in the construction industry, because it raises several important issues related to the theoretical and practical implications of professionalism and leadership models.

6.2.1 Theoretical Implications

6.2.1.1 Bass and Avolio's Full Range of Leadership Model

From a theoretical standpoint, this study reinforces the conceptual model of Full Range of Leadership proposed by Bass and Avolio (1991), and supports the view that transformational leadership leads to higher levels of performance and satisfaction than transactional leadership. This study has also revealed that transformational and transactional leadership coexist in the construction industry - a fact not widely known because to date there has been very limited research in this area. The results of this study also serve to provide further support to the versatile application of Bass's transformational leadership theory in various industries. Furthermore, the results have endorsed the augmentation effects of transformational leadership on transactional leadership put forward by Bass (1985). They have also substantiated Bass's (1997) corollary that the process is not reversible: transactional leadership does not augment transformational leadership.

6.2.1.2 Hall's Professionalism Model

This study has utilised the modified Hall's Professionalism Scale to measure the attitudes of building professionals towards their own professions. All items of the scale refer to the professionals' beliefs, values, and attitudes about themselves and their professions. The scale was tested in a sample of building professionals through a series of exploratory and confirmatory factor analyses.

From a theoretical standpoint, these findings reinforced the view that the scale is applicable to the construction industry provided with certain modifications and additions are made to fully reflect professional practice in today's built environment. In particular, the sub-scales of 'Major Referent to Professional Organisation', 'Belief in Public Service' and 'Belief in Self-Regulation' need to be fine-tuned. After construct validation through a series of exploratory and confirmatory factor analyses, the original modified Hall's Professionalism Scale was reduced from 25 items to 21 items in the sample of building professionals. Hence, this 21-item scale is regarded as an appropriate instrument, which has been purposely validated in the context of construction industry, to measure the degrees of professionalism among building professionals.

There is a strong trend among institutes to make continuing professional development compulsory for all professionals and those who aspire to professional status. To further improve the scale and make it more compatible with contemporary practice in the construction industry, the sub-scale: 'Continuing Professional Development' should also be included in the 'traditional' definition of professionalism. By

doing so, the scale will become more relevant to the latest norm of professionalism advocated by professionals who, in the electronic age, have to cope with large amounts of ever-changing knowledge in their professional practice.

As to the reliability analyses of the overall scale and sub-scales, the finalized 21-item scale produced only a marginally acceptable alpha reliability of 0.655, while that of the sub-scale ranged from 0.509 to 0.743. Furthermore, an extraordinarily low internal consistency reliability was found in the sub-scale: 'Belief in Public Service'. This may be due to the fact that the practice of building professionals is less public-service oriented. Their mode and degree of participation in society is quite different from that of traditionally recognized professionals such as lawyers and doctors, who usually deal directly with the general public. Building professionals, on the other hand, deal with the property/construction-related issues in their daily work. Hence the sub-scale: 'Belief in Public Service' needs further modification to increase its values of reliability.

On the whole, the process of re-validation has revealed that the number of items belonging to each of the original factors should be refined and validated further before the scale can be used for future research.

6.2.1.3 Conceptual Model of Leadership for Building Professionals

The findings of this study support the view that subordinates' professionalism differently influences leadership effectiveness. This study verifies that subordinates' professionalism, in terms of Howell, Dorfman and Kerr's (1986) definitions, acts as either as an enhancer or a neutraliser in the leader-subordinate relationship, depending on the type of leadership style

exhibited. The findings also endorse the appeals of earlier researchers (Bass, 1998; Howell, Dorfman & Kerr, 1986; Yukl, 1999), particularly Villia, Howell, Dorfman, and Daniel's (2003) who recommended implementing the type of moderator research in this study. This involved hypothesis testing for those variables relevant to specific theories (in this case, Bass and Avolio's Full Range of Leadership Model and the modified Hall's Professionalism Scale) and in specific situations (in this case, in the context of the construction industry). The testing of each leadership factor and dimension of professionalism used in this study was based on the theoretical expectation of significant interactions existing among them.

The conceptual model developed in this study will be useful in helping leaders identify their subordinates' style of leadership and their degree of professionalism. Appropriate leadership styles in leading subordinates (with either low or high degrees of professionalism) can then be adapted as appropriate and tailor-made training programmes can be devised.

6.2.2 Managerial Implications

6.2.2.1 Use of Bass and Avolio's Full Range of Leadership Model

This study set out to examine the leadership styles of building professional leaders as perceived by their subordinates. Bass and Avolio (1990) suggest that transformational leaders can motivate and inspire subordinates to perform beyond their original expectations and attain greater achievements than initially anticipated. Accordingly, the findings of this study have revealed that all transformational factors and contingent reward of transactional factors were highly correlated with rated outcomes. Those leadership styles that were perceived positively by professional subordinates in the construction industry were: inspirational motivation,

idealised attributes, intellectual stimulation, idealised behaviours, contingent reward, and individualised consideration. Hence, building professionals tend to be more aware of and more likely to use transformational leadership styles to perform jobs and achieve results. More importantly, the results reveal that greater the degree of transformational leadership used, the better subordinates' performance and the greater their satisfaction compared with when transactional leadership is used, hence transformational factors play an instrumental role in many rated outcomes. Overall, the Full Range of Leadership Model may contribute to the following implications for managerial practice in the context of the construction industry:

- **Transformational Leadership in the Workplace** – In today's business world, effective leadership is seen as the key to success. All organisations must therefore be aware of the leadership style used by their leaders, and also they must identify those subordinates with leadership potential. A better understanding of leadership styles will not only improve relationships between leaders and subordinates, but also enhance subordinates' performance and satisfaction at work. This study recommends that building professional leaders promote the use of transformational leadership in their interactions with subordinates in the workplace through the following:
  - more inspirational motivation in the form of consistent encouragement and inspiration for creative thinking;
  - more intellectual stimulation in the form of sharing and facilitating discussion; and
  - more individualised consideration in the form of personal caring, coaching for individual needs, and offering more challenges and opportunities.

- **Training, Selection and Recruitment of leaders –** Understanding that transformational leadership may enhance the performance of subordinates and organisation, an

assessment of transformational leadership characteristics by using the Multifactor Leadership Questionnaire may therefore be incorporated into managerial assessment exercises and screening selection programmes for recruitment of potential transformational leaders.

The correlational analysis shown in Chapter Five shows that building professional leaders displayed both types of transformational and transactional leadership with the former generally being exhibited to a greater extent. Results of hierarchical regression analysis further suggest that transformational leadership has a significant and substantial add-on effect on transactional leadership in the prediction of subordinates' rated outcomes of extra effort, perceived leader effectiveness, and satisfaction with the leaders in the sample of building professionals. This evidence further reinforces the importance of transformational leadership factors in training, selection, and recruitment processes in organizations.

6.2.2.2 Use of Hall's Professionalism Model

Professionalism is essential if employees are to earn respect and social status through public recognition. Professionalism is a critical line of defence that employees need to safeguard against the threat of commercialism and managerialism in today's increasingly competitive society. Nevertheless, rarely has a scale been developed to simply measure the degree of professionalism for building professionals among skilled employees in the construction industry. From a practical point of view, the modified Hall's Professionalism Scale can be used to provide more useful information for efficient and effective management of professionals in both the private and public sector. By employing a conceptually rich and

methodologically sound measure of professionalism as validated in this study, the findings of the present study endorses the revised and validated index of professionalism for building professionals that serves the following practical purpose:

- **Measurement and Assessment of Professionalism** – The scale can be used to generate an index of professionalism for professional leaders and their subordinates. The higher the level of professionalism recorded, the greater the extent to which building professionals are committed to their own professions and their work. Practitioners may make use of this index in their analysis for training and recruitment of employees with high level of professionalism.

- **Design of Professional Training and Continuing Professional Development** – On-going training, both theoretical and practical, is essential to bring out the best in employees in every kind of profession. Levels of professionalism vary from individual to individual. The use of the scale may help in identifying the possible lack of essential elements of professionalism among employees – particularly those attributes identified in the present study, namely 'Belief in Public Service' and 'Sense of Calling to the Field'. Through specially designed training courses, workshops and seminars, employees can be nurtured and encouraged to attain higher levels of professional skill and ethics, both of which are crucial to the proper functioning of the construction industry. Hence business organizations and professional associations may benefit from the use of the scale in formulating continuing professional development.

- **Development of Administrative and Organizational System** – The scale could also be used to aid in the development of appropriate administrative and organizational

systems acceptable to the characteristics of professional subordinates. The findings of this study suggest that building professionals are often characterized as having a strong identification with professional organizations, and a strong belief in self-regulation and autonomy. However, these characteristics may create potential conflicts in the management of professionals. Through the use of the scale, a better understanding of the specific components of professionalism among professional subordinates may help organizations lessen the potential for such conflicts by designing and developing appropriate administrative and organisational systems. For example, an autonomous atmosphere should be created and developed in the workplace; continuing professional development should be developed and incorporated into company policy; and participation in professional activities organised by professional institutes should be encouraged. More attention paid to the above attributes of professionalism may also help organisations to create a collaborative environment for the development of leader-subordinate relations.

6.2.2.3 Use of the Conceptual Model of Leadership for Building Professionals

Based upon the observations of the results, the conceptual model developed in this study may help identify ways professional subordinates could be effectively managed by promoting an understanding of the impact of subordinates' professionalism on the relationship between leadership styles and subordinates' work outcomes. Figure 46 depicts a model in the form of flowchart showing the conceptual idea derived from the results of this study when dealing with the potential conflicts that may exist between leaders and professional subordinates.

As organizations are increasingly employing more professionals, leadership of these

professionals may present a potential problem if conflicts arise between leaders and their subordinates. These conflicts may arise if a number of conditions occur in combination. For example, if the leaders are inactive, and if their styles are ineffective, or demoralising to their subordinates; or if the subordinates have a strong commitment to their profession, and they turn to their peers for advice rather than seek guidance from their hierarchical supervisors. Inevitably this causes conflicts, which in turn contributes to poor organisational performance. In this regard, this study suggests looking at leaders' styles and subordinates' professionalism. As professionalism may vary within individuals, it is imperative that appropriate leadership styles are adopted. Therefore, an understanding of the subordinates' professionalism, in terms of leadership potential and specialised skills, can serve as an aid in strategic human resources planning, initiatives and training.

In this study, subordinates' professionalism can be considered as an enhancer and neutralizer in accordance with Howell et al.'s (1986) definition. Findings reported in Chapter Five reveal that subordinate's professionalism differently affect leaders' styles and consequently their subordinates' work outcomes. The moderated regression analysis revealed that 'Belief in Self-Regulation' and 'Belief in Autonomy' emerge as the most important attributes of professionalism. Therefore, theoretically an evaluation of the two attributes may be adopted as a simple and quick assessment tool of the degree of an employee's professionalism, which may have impact on the relationship between leaders' styles and subordinates' work outcomes.

Taking into account subordinates' professionalism, it depicts two theoretical situations where leaders may need to adapt themselves to lead subordinates:

- **Subordinates with a high level of professionalism –** When subordinates have a high degree of professionalism as measured by the simplified scale (as assessed by the sub-scale of 'Belief in Self-Regulation' and 'Belief in Autonomy'), leaders may adopt transformational leadership to coach, motivate, and lead subordinates. This will result in positively enhanced work outcomes. Active management-by-exception and contingent reward of transactional leadership may also be used, but only as required to ensure subordinates perform their tasks diligently and correctly. Passive management-by-exception of transactional leadership and laissez-faire leadership should seldom be used as this may adversely affect the performance and satisfaction of subordinates.

- **Subordinates with a low level of professionalism –** When subordinates have a low degree of professionalism as measured by the simplified scale (as assessed by the sub-scale of 'Belief in Self-Regulation' and 'Belief in Autonomy'), the subordinates are weakly committed to their profession and the works, and are more dependent on their leaders. The use of transformational and transactional leadership may result merely in motivating and leading subordinates to perform general tasks. Particular attention should therefore be drawn to those subordinates who are found to have a low degree of professionalism. Care should also be taken at the specific contribution of particular attribute(s) of professionalism as identified in the scale of professionalism so that appropriate training and development programmes may be organized for these who need them.

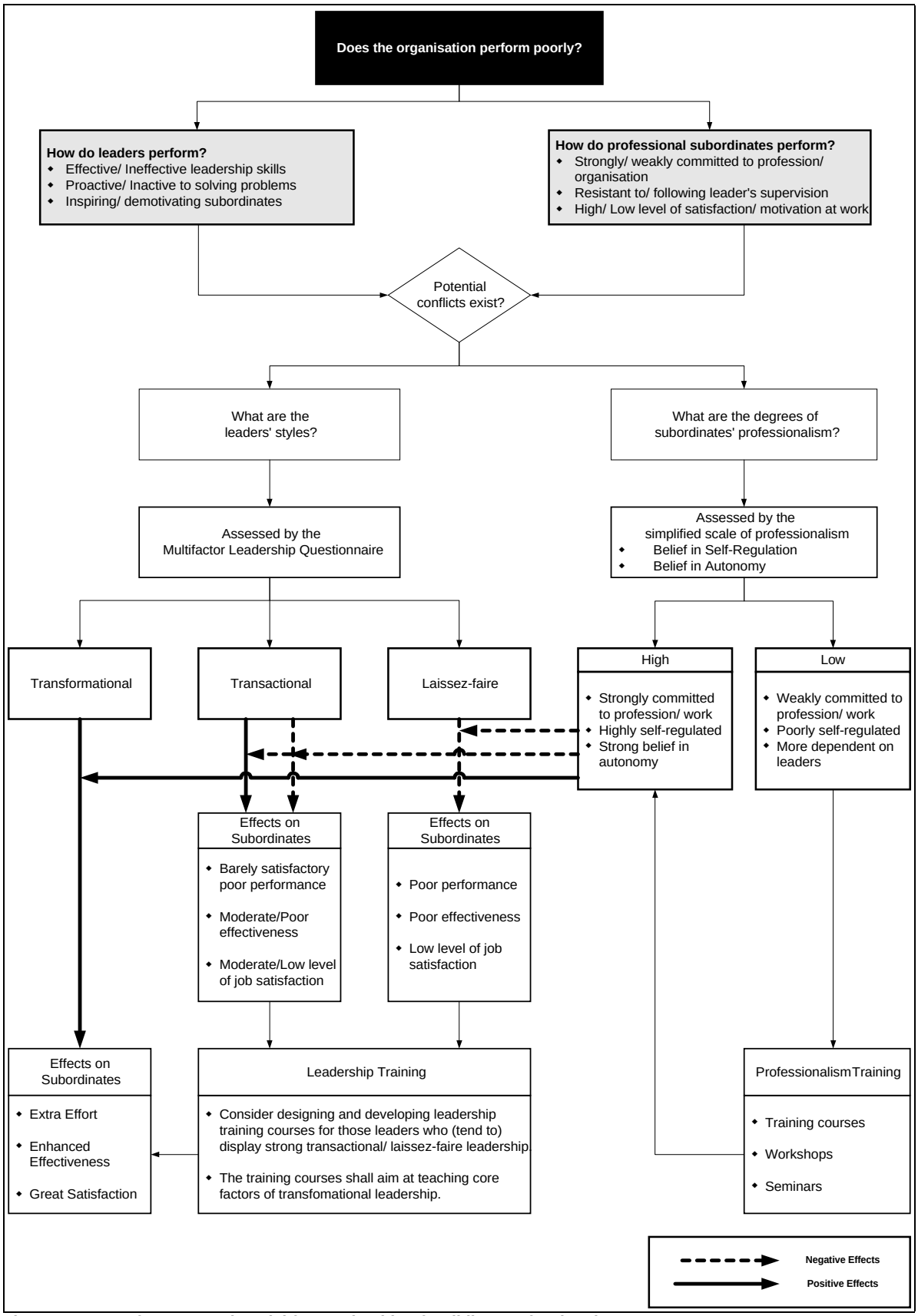

Figure 46 - Use of Conceptual Model for Leadership of Building Professionals

6.2.3 Implications for Professional Education

Although not directly proved by the data of this study, based upon the observations from the results of the level of professionalism and types of leadership styles in this study, future professional education may further be enhanced by taking the following into consideration:

- **Professionalism Education** – Concepts of professionalism may be instilled in young building professionals early; in fact while they are in tertiary education. The tertiary curriculum may embrace the concept and practice of professionalism, especially the elements of 'Belief in Self-Regulation' and 'Belief in Autonomy', as a core module, which should be taught in a structured manner.

- **Leadership Education** – Transformational leadership contributes significant improvement to individual and organizational performance. The findings of this research suggest that transformational leadership outweighs transactional leadership in determining leadership effectiveness. Transformational leaders create vision while changing, stimulating, motivating, and coaching subordinates. To make maximum gain from transformational leadership, professional education in the built environment may place greater focus on leadership skills and learning that prepares young professionals for the softer side of organizational management.

6.3 LIMITATIONS OF THE STUDY

There are several methodological issues in this study. First, this is a cross-sectional study, which means that the direction of causality cannot be determined. Nor can the study be used

to measure changes over time, because the data was collected at a single point in time (Gerhard, 1998; Judd, Smith & Kidder, 1991). In other words, causality among the independent and dependent variables cannot be assessed.

Second, this study involved a random sample of a cross section of building professionals in the construction industry of Australia, Hong Kong, Singapore, and the United Kingdom. It also examined only three main disciplines of building professionals pertaining to the four countries. The use of such a highly specific population could limit the generalizability and external validity of the findings.

Third, all targeted respondents in this study were limited to those building professionals who have electronic mail accounts. Hence the findings of this study may result in a survey bias towards the level of professionalism, the perceived leadership styles and the impact of professionalism on leadership effectiveness, where such a trend may not exist in the wider population. The use of a specific population of Internet users in the construction industry could again limit the generalizability and external validity of the findings.

Finally, the use of the single-source method and self-reported data may create problems for survey research. The magnitude of relationships among all variables may be somewhat inflated owing to a single-source bias as addressed and assessed in Chapter Four and Chapter Five respectively. The results of this study should be interpreted with caution because in self-reported study people tend to under-/ over-report their responses. In this study, the self-reported data may be biased upwards since respondents may favourably report their level of professionalism and leadership styles. In addition, the results suggest that common method variance does not seem to exist in the present study, nevertheless, multi-sourced methods

including interviews and case studies, should be carried out in future research in order to better eliminate bias.

The next section offers a discussion on how the knowledge gained in this research can enhance future research in the leadership practice of building professionals in the construction industry.

6.4 DIRECTIONS FOR FUTURE RESEARCH

The findings from this research have suggested several areas for future investigation by researchers interested in the professionalism and leadership of building professionals.

First**,** because the self-reported questionnaires used in this study could allow response bias to affect the results, a combination of data collection methods should be considered in the future. The actual temporal nature of the relationships depicted in this study may only be assessed using a longitudinal research design, whose purpose is to examine the continuity of the responses and to observe changes over time (Zikmund, 2003). For example, the relationship between leadership styles and subordinates' work outcomes, and the interactive effect of professionalism among subordinates on the leadership styles of leaders may be variable over time, therefore it would be worthwhile repeating this study in a five years' time to examine any changes that may have taken place in the interim.

Second**,** the underlying structure of the construction industry in the four countries investigated is similar to that in many other countries such as Canada, Malaysia, and New Zealand. Therefore, more countries could be included in future research, to see if the findings

obtained can be generalizable to the construction industry as a whole. Future efforts could also employ additional disciplines of building professionals such as building services engineers, who are also actively involved in the construction processes.

Third**,** the present study employed an electronic survey to collect data. To capture a broader and clearer picture of the leadership-subordinate relationship, future participants could be contacted by post. However, owing to the increasingly stringent controls on the confidentiality of personal data, the collection of qualified sample data is becoming more difficult. Future research may tend toward investigations at the organizational level using qualitative data collection methods such as focus group interviews and case studies in order to produce more interesting and rich data.

Fourth, Bass (1997) contends that the concepts of transformational and transactional leadership are universal to many countries and across many industries. Also it is widely recognized that cultural differences have a significant effect on leadership styles (Ardichvili & Kuchinke, 2002; Dorfman et al., 1997; Schein, 1985). Managing cultural diversity will be one of the most important factors for success in the construction industry. This study has provided worthwhile information on the use of multi-disciplinary building professionals from a cross-national perspective, and recommends that future research utilizes the theoretical frameworks of the Full Range of Leadership Model developed by Bass and Avolio (1991) and Hofstede's (1980) cultural dimensions to examine cross-cultural leadership issues among different disciplines of building professionals in the context of international organizations or construction projects. In this regard, cultural differences may be considered as a moderating factor. Larson (1977) also notes that professionalism develops during the socialization process. Therefore, studies may also be undertaken to investigate how the building

professions have developed in various countries by using Hofstede's (1980) cultural dimensions. Similarly, Gerpott and Domsch (1985) suggest that differences in a nation's prevailing beliefs about professionalism could affect its national practices in managing technical professionals. Future research could therefore explore the moderating effect of cultural differences on the relationship between the full range leadership styles and subordinates' work outcomes among building professionals.

Last but not least, the findings of this study have contributed to our overall understanding of the impact of professionalism on leadership effectiveness. Future exploration within the area of leadership studies in building professionals offers a great deal of promise in terms of further advancement of professionalism and leadership literature in the construction industry.

6.5 CONCLUSION

There has been ample recognition of the importance of professionalism in management and organizational literature. However, given the importance of the topic, there has been surprisingly little research on professionalism and leadership in the construction industry. Having reviewed issues related to professionalism among building professionals, there are several areas where further research would be helpful.

Hall's (1968) conceptualisation of professionalism is considered to be the most representative modern concept of professionalism in the field. As the number of professionals and professional associations increase in the construction industry, the concept of professionalism is important for future research. The findings of this study have made a substantial contribution to our existing knowledge about the scale of professionalism for building

professionals that is already, despite that need for further scale validation and refinement. This study has also served to enhance our understanding of the complexities involved in the relationship between professionalism and leadership styles and potential consequences leading to various subordinates' work outcomes. While previous studies had explicitly explored the relationships between Bass's (1985) transformational and transactional leadership styles and subordinates' work outcomes, the role of professionalism among subordinates in those relationships has been largely ignored in the built environment.

On the other hand, the current findings support research evidence that transformational leadership and transactional leadership can be found in the construction field. Consistent with Bass (1995), the findings of this study suggest that transformational and transactional leadership are more likely to be displayed by the same individuals in varied amounts and intensities.

Given the important concept of the professionalism model and transformational leadership in the construction industry, it is surprising that a measure of professionalism and a full range of leadership model have not been more fully developed for building professionals. Research in this area is indeed deficient, despite that fact that this study goes some way towards filling the void by undertaking an exploratory step to empirically re-validate a model of professionalism and a full range of leadership model to examine its applicability in the construction industry.

The findings of this study will not only shed light on the future applicability of the transformational and transactional theories in the industry, but also suggest that the full range of leadership model be a 'pro-development tool' in optimising the relationship between leaders and followers both intrinsically and extrinsically. This study has established a sound

foundation for further studies and has certainly aroused a profound interest in exploring the synergy of transformational and transactional leadership in organizational and project environments within the context of the construction industry.

The results of this study reveal that high levels of professionalism among subordinates serve to enhance the positive relationships between transformational leadership and subordinates' work outcomes. However, these same high levels of professionalism will differently neutralise or exacerbate the impact of transactional leadership on subordinates' work outcomes. They will also exacerbate the negative relationships between laissez-faire leadership and subordinates' work outcomes.

Moreover, the findings of the present study reveal that two dimensions of professionalism, 'Belief in Self-Regulation' and 'Belief in Autonomy', are the most important attributes that can significantly moderate the relationship between leadership styles and subordinates' work outcomes. Therefore, an evaluation of the two attributes can be used as a quick assessment of the degree of professionalism among building professional leaders and their subordinates. The assessment results may help senior management take swift and appropriate action to address the difficulty and promote a positive leadership style for their organisation.

All in all, the findings of this study suggest that appropriate use of leadership styles for management of professionals in organisations can lead to satisfactory work outcomes in subordinates. Taken together, transformational leadership is more compatible with and conducive to a professional culture in organisations in the built environment than either transactional or laissez-faire leadership.

APPENDICES

APPENDIX A – Tables (13 to 33)

Table 13 - Intercorrelations among Variables (N=510)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
Demographic Variables																									
(1) Gender																									
(2) Age	-.26**																								
(3) Education Level	.03	.02																							
(4) Professional Affiliation	.04	-.14**	-.22**																						
(5) Professional Experience	-.24**	.76**	.022	-.15**																					
(6) Country	0	.03	.03	-.36**	.07																				
(7) Organisational Type	-.04	-.07	-.03	-.07	-.03	.28**																			
(8) Position	.09*	-.37**	-.17**	.16**	-.39**	-.15**	-.23**																		
Professionalism																									
(9) Major Referent to Professional Organisation	-.11*	.10*	-.01	.06	.11*	-.16**	-.06	-.11*																	
(10) Belief in Public Service	.01	-.06	.01	.04	-.04	.05	-.01	.07	.03																
(11) Belief in Self-Regulation	-.01	.06	0	-.12**	.14**	.16**	.11*	-.09	.04	.35**															
(12) Sense of Calling	-.09*	.02	-.04	0	.02	-.09*	-.05	-.08	.15**	.01	.01														
(13) Belief in Autonomy	-.10*	.22**	.02	-.01	.21**	.05	.12**	-.38**	.08	.02	.14**	.09													
Transformational Leadership																									
(14) Idealised Attributes	.01	-.02	-.03	-.05	-.02	.11*	.19**	-.19**	0	.07	.12**	.13**	.08												
(15) Idealised Behaviours	.01	.01	-.05	-.04	0	.01	.09*	-.19**	.08	.07	.04	.22**	.04	.75**											
(16) Inspirational Motivation	.02	.02	-.03	-.10*	.02	.14**	.20**	-.18**	.02	.02	.06	.13**	.06	.75**	.76**										
(17) Intellectual Stimulation	.02	-.06	-.01	.02	-.06	0	.16**	-.13**	.04	.08	.07	.15**	-.04	.73**	.70**	.63**									
(18) Individualised Consideration	.06	-.04	-.07	-.03	-.05	.08	.20**	-.16**	-.02	.08	.09*	.14**	.05	.79**	.69**	.66**	.73**								
Transactional Leadership																									
(19) Contingent Reward	.02	-.01	-.03	.01	-.03	-.01	.12**	-.13**	.04	.09*	.07	.15**	.02	.80**	.72**	.69**	.75**	.77**							
(20) Management-By-Exception (Active)	-.03	-.05	-.02	.08	-.06	-.05	.01	.02	.02	.05	-.02	.08	-.18**	.20**	.25**	.17**	.31**	.19**	.26**						
(21) Management-By-Exception (Passive)	0	.03	.03	.07	.02	-.06	-.02	.03	.01	-.08	-.11*	-.05	0	-.35**	-.30**	-.31**	-.35**	-.29**	-.33**	.05					
Non-Leadership																									
(22) Laissez-Faire	-.03	.01	.05	.06	.04	-.04	-.07	.09	.03	-.07	-.10*	-.02	-.05	-.46**	-.32**	-.35**	-.44**	-.39**	-.42**	-.02	.66**				
Subordinates' Work Outcomes																									
(23) Extra Effort	.01	-.03	-.01	-.06	-.02	.09	.14**	-.16**	.02	.07	.07	.17**	.04	.77**	.69**	.68**	.70**	.70**	.71**	.24**	-.29**	-.38**			
(24) Perceived Leader Effectiveness	-.01	-.01	-.01	-.02	-.01	.02	.12**	-.14**	0	.09	.11*	.14**	.10*	.78**	.66**	.66**	.70**	.73**	.76**	.23**	-.42**	-.54**	.78**		
(25) Satisfaction with Leader	-.03	0	-.04	-.05	-.04	.03	.11*	-.10*	.01	.07	.06	.10*	.09*	.80**	.64**	.65**	.69**	.73**	.77**	.16**	-.42**	-.53**	.80**	.86**	

Note: *p< .05, **p< .01
The Cronbach coefficient alphas of all dimensions of professionalism are obtained after confirmatory factor analyses

Table 14 - The 25-Item Professionalism and Their Item-Total Correlation Grouped Under the 5-Factor Solution

Factor	Item	Corrected Item-total Correlation	Alpha if Item deleted
Major Referent to Professional Organisation (REF)	Ref 1	0.462	0.445
Factor 1 (Alpha = 0.573)	Ref 2	0.351	0.51
	Ref 3	0.313	0.535
	Ref 4	**0.167**	**0.601**
	Ref 5	0.403	0.472
Belief in Public Service (PUB)	Pub 1	0.313	0.603
Factor 2 (Alpha = 0.625)	Pub 2	0.348	0.586
	Pub 3	0.325	0.598
	Pub 4	0.493	0.509
	Pub 5	0.415	0.552
Belief in Self Regulation (REG)	Reg 1	0.416	0.731
Factor 3 (Alpha = 0.744)	Reg 2	0.508	0.699
	Reg 3	0.596	0.664
	Reg 4	0.537	0.687
	Reg 5	0.582	0.708
Belief in Calling (CAL)	Cal 1	0.580	0.673
Factor 4 (Alpha = 0.743)	Cal 2	0.641	0.654
	Cal 3	0.624	0.652
	Cal 4	0.354	0.764
	Cal 5	0.389	0.739
Belief in Autonomy (AUT)	Aut 1	0.534	0.631
Factor 5 (Alpha = 0.700)	Aut 2	0.371	0.688
	Aut 3	0.392	0.680
	Aut 4	0.481	0.644
	Aut 5	0.534	0.619

Table 15 - Principal Axis Factor Structure of the Modified Hall's Professionalism Scale

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Major Referent to Professional Organisation (REF)					
Ref 1					.805
Ref 2					.383
Ref 3					.341
Ref 5					.594
Belief in Public Service (PUB)					
Pub 1				.386	
Pub 2				.305	
Pub 3				.334	
Pub 4		.384		.334	
Pub 5				.807	
Belief in Self Regulation (REG)					
Reg 1				.409	
Reg 2		.556			
Reg 3		.723			
Reg 4		.742			
Reg 5				.522	
Sense of Calling (CAL)					
Cal 1	.712				
Cal 2	.828				
Cal 3	.760				
Cal 4	.363				
Cal 5	.396				
Belief in Autonomy (AUT)					
Aut 1			.627		
Aut 2			.460		
Aut 3			.476		
Aut 4			.609		
Aut 5			.657		
Eigenvalues	3.534	2.855	2.240	1.772	1.338
Percentage of variance explained	12.320	9.692	6.785	5.140	3.589
Cumulative %	12.320	22.012	28.797	33.937	37.525

Note: The above table only showed those items with factor loading > 0.30.
Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalization.

Table 16 - Summary of Changes in the Contents of the Modified Hall's Professionalism Scale after Scale Validation (from 25 to 21 items)

PROFESSIONAL ORGANIZATION AS A MAJOR REFERENT		
1)	**Ref1**	I systematically read the professional journals.
2)	**Ref2**	I regularly attend professional meetings at the local level.
3)	**Ref3**	I believe that the professional organization(s) should be supported.
4)*	**Ref4**	The professional organization doesn't really do too much for the average member.
5)	**Ref5**	Although I would like to, I really don't read the journals too often.
BELIEF IN PUBLIC SERVICE		
6)	**Pub1**	Other professions are actually more vital to society than building profession.
7)	**Pub2**	I think that building profession, more than any other, is essential for society.
8)	**Pub3**	The importance of building profession is sometimes over stressed.
9)*	**Pub4**	Some other occupations are actually more important to society than is building profession.
10)	**Pub5**	If ever an occupation is indispensable, it is the one.
BELIEF IN SELF-REGULATION		
11)*	**Reg1**	My fellow professionals have a pretty good idea about each other's competence.
12)	**Reg2**	A problem in building profession is that no one really knows what his colleagues are doing.
13)	**Reg3**	We really have no way of judging each other's competence.
14)	**Reg4**	There is not much opportunity to judge how another person does his work.
15)*	**Reg5**	My colleagues pretty well know how well we all do in our work.
SENSE OF CALLING TO THE FIELD		
16)	**Cal1**	People in building profession have a real "calling" for their work.
17)	**Cal2**	The dedication of people in this field is most gratifying.
18)	**Cal3**	It is encouraging to see the high level of idealism which is maintained by people in this field.
19)	**Cal4**	Most people would stay in the building profession even if their incomes were reduced.
20)	**Cal5**	There are very few people who don't really believe in their work.
BELIEF IN AUTONOMY		
21)	**Aut1**	I make my own decisions in regard to what is to be done in my work.
22)	**Aut2**	I don't have much opportunity to exercise my own judgement.
23)	**Aut3**	My own decisions are subject to review.
24)	**Aut4**	I am my own boss in almost every work-related situation.
25)	**Aut5**	Most of my decisions are reviewed by other people.

Note:
(1) The numbers in the first column refer to their corresponding numbers as appeared in the modified Hall's Professionalism Scale. The abbreviations as shown in the second column refer to those sub-scale items as appeared in statistical analyses.
(2) The four sub-scale items marked with an asterisk and shaded are those that were eliminated after item-total correlation analysis (refer to Table 14) and exploratory factor analysis (refer to Table 15).

Table 17 - Model Fit Indices for Confirmatory Factor Analysis of the Modified Hall's Professionalism Model

Fit Indices	Good Model Guidelines	Modified Hall's Professionalism Model Value		
		Default Model	Model-1[a]	Model-2[b]
Chi-square	Low, but is dependent on sample size	677.836	512.585	551.688
CMIN/DF Normed Chi-Square/degree of freedom	1.00< CMIN/DF <3.00	3.787 [677.836/179] (P<0.001)	3.204 [512.585/160] (P<0.001)	**3.099** [551.688/178] (P<0.001)
GFI – Goodness of Fit Index	>0.90	0.89	**0.91**	**0.91**
AGFI - Adjusted Goodness of Fit Index	>0.80	0.85	**0.88**	**0.88**
NFI - Normed Fit Index	>0.90	0.76	0.76	0.78
CFI - Comparative Fit Index	>0.90	0.79	0.82	0.84
TLI – Tucker-Lewis Index	>0.90	0.75	0.79	0.81
RMSEA - Root Mean Square Error of Approximation	<0.80	0.07	**0.07**	**0.06**

Note: [a] Model 1 with variable (Reg 2) deleted
[b] Model 2 was the Final model with pairing of error correlations (er7-er12)

Table 18 - Model Fit Indices with Guidelines for Confirmatory Factor Analysis of MLQ

Fit Indices	Good Model Guidelines	MLQ Value		
		Default Model	Model-1[a]	Model-2[b]
Chi-square	Low, but is dependent on sample size	1630.822	1537.836	1577.084
CMIN/DF Normed Chi-Square/degree of freedom	1.00< CMIN/DF <3.00	2.923 [1630.822/558] (P<0.001)	2.935 1537.836/524] (P<0.001)	2.836 [1577.084/556] (P<0.001)
GFI – Goodness of Fit Index	>0.90	0.84	0.85	0.86
AGFI - Adjusted Goodness of Fit Index	>0.80	0.81	0.82	0.82
NFI - Normed Fit Index	>0.90	0.83	0.84	0.84
CFI - Comparative Fit Index	>0.90	0.88	0.89	0.89
TLI – Tucker-Lewis Index	>0.90	0.87	0.87	0.87
RMSEA - Root Mean Square Error of Approximation	<0.80	0.06	0.06	0.06

Note: [a] Model 1 with variable (mbea1) deleted.
[a] Model 2 was the Final model with pairings of error correlations (er22-er23 and er31-er32).

Table 19 - Standardized Residual Covariances for the Modified Hall's Professionalism Scale

	Ref1	Ref2	Ref3	Ref5	Pub1	Pub2	Pub3	Pub5	Reg2	Reg3	Reg4	Cal1	Cal2	Cal3	Cal4	Cal5	Aut1	Aut2	Aut3	Aut4	Aut5
Ref1																					
Ref2	-0.359																				
Ref3	-0.473	**5.786**																			
Ref5	0.327	-1.093	-1.409																		
Pub1	1.741	-0.517	0.803	1.047																	
Pub2	1.093	-0.428	0.446	1.631	2.566																
Pub3	-1.033	-0.273	-1.535	-1.174	**-3.392**	-1.61															
Pub5	0.293	-0.768	0.716	-1.262	1.634	0.704	1.321														
Reg2	0.996	-1.467	-0.83	**2.63**	0.835	7.38	-1.191	-1.863													
Reg3	-1.126	-0.938	-1.243	0.935	0.612	-1.495	**3.095**	**-3.296**	-0.249												
Reg4	0.713	-1.135	-1.603	2.403	**2.784**	-0.635	-0.998	-2.268	-0.026	0.18											
Cal1	1.233	1.887	2.432	-0.104	1.456	-0.779	-0.332	0.081	0.392	-0.339	1.681										
Cal2	-1.263	1.336	1.616	-1.601	1.976	-0.926	-1.348	-0.955	0.233	-0.504	1.177	0.241									
Cal3	1.058	1.95	1.311	-1.389	2.17	1.181	0.099	0.741	0.845	-1.088	1.104	-0.419	0.067								
Cal4	-0.753	-0.565	0.315	-0.862	0.352	0.593	1.966	1.614	-1.368	-1.595	-0.779	-0.122	-0.86	0.977							
Cal5	0.54	2.022	2.268	-0.946	0.965	1.362	0.377	-0.21	0.497	0.743	0.36	-0.385	-0.633	0.655	3.812						
Aut1	0.999	0.011	1.2	0.266	-0.335	0.038	0.024	0.219	0.013	-0.544	-1.348	0.44	0.723	-0.167	0.113	1.324					
Aut2	-0.259	-0.855	0.726	2.429	1.529	0.67	-0.758	-0.685	**3.136**	**3.508**	2.575	-0.536	0.505	-1.858	-1.267	0.895	0.982				
Aut3	**-2.958**	1.508	-1.556	-0.74	-0.979	-0.223	-1.055	-2.303	-0.641	-1.874	-1.054	-0.621	-0.347	-1.533	-0.193	-1.482	-2.321	-1.282			
Aut4	0.69	2.029	0.948	-0.017	0.111	0.529	0.967	-0.623	0.391	-1.1	-0.908	0.08	1.205	0.478	-1.616	0.897	1.169	-1.061	-0.406		
Aut5	-2.281	1.05	-0.566	0.047	0.261	0.142	0.841	-0.378	0.313	0.843	-0.182	-0.541	0.041	-2.021	**-2.756**	-1.871	-1.019	-0.192	**5.899**	-0.94	

Note: Underlined values are standardized residual covariances exceeding the suggested guidelines of ±2.58.
As shown above there are 11 potentially significant residuals (**bold** and underlined) exceeding ±2.58 out of a total of 210 covariances.

Table 20 - Standardized Residual Covariances for the Multifactor Leadership Questionnaire (Form 5X)

	ia1	ia2	ia3	ia4	ib1	ib2	ib3	ib4	im1	im2	im3	im4	is1	is2	is3	is4	ic1	ic2	ic3	ic4	cr1	cr2	cr3	cr4	mbea1	mbea2	mbea3	mbea4	mbep1	mbep2	mbep3	mbep4	lf1	lf2	lf3	lf4
ia1																																				
ia2	-0.35																																			
ia3	0.42	0.10																																		
ia4	-1.10	-1.04	0.53																																	
ib1	0.10	0.26	-1.87	0.96																																
ib2	-0.36	-0.63	-1.07	0.38	1.21																															
ib3	1.08	1.98	2.12	1.68	-0.20	-1.40																														
ib4	-0.84	0.34	0.01	1.41	-0.14	0.21	0.41																													
im1	1.73	-0.76	-1.29	0.73	0.26	-0.13	-2.81	-1.36																												
im2	0.00	-0.88	-1.53	1.03	0.64	1.71	-0.86	-0.40	1.86																											
im3	0.24	0.29	-0.23	**3.58**	0.32	0.74	-0.36	0.49	-0.14	-0.50																										
im4	0.04	0.02	0.34	2.54	-1.07	-0.66	-0.38	0.05	0.78	-0.60	-0.31																									
is1	-0.64	-0.54	-0.41	**3.63**	0.43	-0.26	0.69	-1.06	-1.04	0.03	-0.86	1.10																								
is2	0.07	1.53	-0.17	-0.17	**2.72**	0.31	1.42	-0.66	0.69	1.56	-0.05	0.38	0.65																							
is3	-0.06	-0.28	0.05	1.06	-1.55	-0.64	1.90	-0.28	-1.87	-1.20	-0.01	0.88	-0.03	0.60																						
is4	-0.48	-0.10	0.01	0.95	-0.76	-0.79	1.58	0.55	-1.97	-0.61	0.98	1.59	-0.02	-0.55	0.01																					
ic1	0.00	-0.33	-0.34	-1.15	0.25	1.63	1.07	0.12	-1.78	-0.82	0.50	-0.09	0.20	0.02	0.19	0.51																				
ic2	0.24	1.56	1.43	0.43	-0.65	-1.45	1.48	0.43	1.57	0.43	0.77	2.09	-1.34	-0.49	-0.35	-1.39	-2.44																			
ic3	0.14	0.73	-0.99	-0.32	-0.24	-0.47	1.97	0.09	-1.13	-0.87	-0.28	-0.55	0.13	0.68	1.39	-1.08	-0.24	1.16																		
ic4	-0.08	-0.19	0.03	-0.66	-1.68	-0.67	0.66	0.22	-0.70	-1.02	0.49	0.98	-1.07	-0.98	0.28	0.49	0.80	-0.35	-0.02																	
cr1	1.00	1.02	0.49	-0.15	-0.90	-1.42	0.28	-1.73	-0.77	-1.67	-1.96	0.60	**5.51**	0.87	-0.09	0.41	0.74	0.68	-0.10	-0.05																
cr2	-0.32	-1.16	-0.77	-0.38	0.78	1.04	1.21	1.24	-0.97	1.13	0.26	0.34	-0.13	1.94	-0.58	0.31	-0.48	-0.82	-0.93	-1.03	-0.26															
cr3	-0.20	0.33	-0.44	-1.22	-0.58	0.76	-0.34	-0.23	-2.34	-0.88	0.41	0.01	-0.45	0.85	-0.74	-0.29	1.84	-1.20	0.36	0.09	-0.32	2.32														
cr4	-0.02	0.69	0.29	-0.23	-0.57	-0.77	0.65	0.56	0.29	0.10	-0.12	**3.19**	-1.33	-0.43	-0.55	0.19	-1.31	1.97	0.54	0.19	-0.62	-1.37	0.34													
mbea1	**-2.77**	-2.19	**-3.28**	2.00	-1.40	-1.67	-1.18	-2.06	**-2.67**	-0.42	-1.42	-2.05	**2.87**	1.28	-1.59	-2.33	-0.43	**-3.05**	0.14	**-2.88**	-1.54	0.98	-0.36	**-3.55**												
mbea2	0.63	0.14	2.20	**3.97**	-0.62	-0.49	3.27	0.87	-0.64	1.32	1.89	1.91	1.79	-0.95	0.66	2.08	1.92	0.68	0.10	1.56	-0.49	1.94	1.84	1.02	-0.53											
mbea3	-1.32	-0.52	-0.32	**2.75**	-2.49	-1.60	1.96	0.39	**-3.85**	-0.83	0.47	-0.38	1.42	-1.62	-0.92	-0.27	0.24	-2.13	-1.18	0.10	-1.82	1.05	1.07	-1.94	0.05	0.79										
mbea4	0.03	-0.63	1.04	**3.93**	0.48	0.89	1.31	1.40	-1.88	0.20	**3.52**	-0.17	0.70	-0.70	0.20	0.36	1.61	-0.93	1.23	0.54	-2.09	2.01	2.17	-0.47	0.63	-0.74	-0.24									
mbep1	0.41	0.72	0.18	-0.67	0.78	1.07	-1.64	1.62	1.87	0.59	0.07	-0.68	-0.48	-0.51	-0.32	0.01	-1.28	0.54	1.50	0.09	-1.98	0.26	1.10	1.40	2.02	-1.49	-1.85	0.35								
mbep2	-0.34	0.34	-0.62	-1.82	0.09	-0.54	-1.69	-0.30	0.27	0.49	0.09	-2.10	-0.25	-2.64	-0.58	0.15	-0.55	-0.87	1.30	-0.43	-2.52	-1.95	-0.17	0.28	0.15	-1.42	-1.03	0.46	0.56							
mbep3	**2.60**	**5.33**	**3.22**	1.41	0.20	0.64	0.53	1.11	1.17	0.39	0.35	1.42	2.73	0.31	2.33	**2.71**	1.43	**3.70**	**2.74**	2.07	3.56	1.20	**4.34**	3.40	0.02	0.73	0.86	1.77	-0.17	-0.34						
mbep4	0.50	0.05	-1.33	0.69	1.29	1.72	-1.86	0.13	0.47	0.38	0.52	-0.75	0.41	-0.50	0.80	0.29	1.13	-1.78	1.48	-0.32	-0.81	-1.46	**2.62**	0.75	2.35	-0.34	1.01	1.80	-0.44	-0.61	**3.30**					
lf1	0.10	-0.46	-1.14	-1.18	0.76	0.68	**-3.88**	-0.27	0.46	-0.01	-0.44	-2.42	-1.40	-0.49	-0.75	-0.94	1.41	-2.45	0.77	-0.90	-1.84	-0.66	1.38	-1.09	**2.76**	-1.87	0.41	1.73	0.60	-0.38	-1.62	0.41				
lf2	-0.06	0.34	-0.97	-0.03	2.34	0.46	**-3.31**	-0.46	1.14	-0.32	0.90	-1.69	-0.41	-1.04	-0.85	-0.60	-0.67	-1.19	2.06	-0.84	-2.34	-1.29	0.00	0.28	0.17	-2.26	-1.60	1.03	0.34	0.55	-0.36	-0.56	-0.28			
lf3	0.98	0.96	-0.51	-2.10	1.28	0.25	-1.72	-0.30	1.25	0.05	0.06	-1.77	-0.09	1.13	0.45	0.58	0.09	-1.18	**2.66**	-0.37	-0.57	-0.43	0.77	0.45	1.64	-2.33	-0.86	0.77	-1.17	-0.46	-0.03	0.16	0.50	-0.12		
lf4	1.24	1.71	0.32	0.21	1.57	1.67	-0.65	0.72	1.44	1.08	1.88	-0.46	0.53	0.48	1.08	1.37	1.07	-0.30	**3.44**	1.19	-0.80	0.84	2.12	1.40	0.92	-0.90	0.08	2.03	-0.22	0.16	0.60	1.29	-0.82	-0.57	1.16	

Note: Underlined values are standardized residual covariances exceeding the suggested guidelines of ±2.58.
As shown above there are 31 potentially significant residuals (**bold** and underlined) exceeding ±2.58 out of a total of 630 covariances.

Table 21 - Moderated Regression Analysis of Transformational Leadership Styles with Professionalism on Extra Effort

	Extra Effort*			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Control Variables				
Gender	.007	-.035	-.021	-.034
Age	.017	-.038	-.037	-.030
Education Level	-.061	.012	.013	.013
Professional Affiliation	-.036	-.016	-.017	-.023
Professional Experience	-.033	.014	.017	.009
Country	-.027	.015	.020	.018
Organization Type	.022[c]	-.034	-.029	-.034
Position	.081[a]	-.012	-.007	.001
Independent Variable				
Transformational Leadership				
Idealised Attributes (IA)		.398[a]	.406[a]	.420[a]
Idealised Behaviours (IB)		.098[c]	.081	.054
Inspirational Motivation (IM)		.138[a]	.140[a]	.149[a]
Intellectual Stimulation (IS)		.222[a]	.219[a]	.255[a]
Individualised Consideration (IC)		.141[a]	.140[a]	.121[b]
Moderating Variable				
Professionalism				
Referent (REF)			.014	.021
Public Service (PUB)			.025	.037
Self-Regulation (REG)			-.031	-.033
Calling to the Field (CAL)			.064	.085[b]
Autonomy (AUT)			-.002	.020
Interactions				
IA x REF				-.097[b]
IA x PUB				.062
IA x REG				.047[c]
IA x CAL				.047
IA x AUT				-.054
IB x REF				**.061[b]**
IB x PUB				.010
IB x REG				.110
IB x CAL				.156[b]
IB x AUT				.033
IM x REF				**.214[a]**
IM x PUB				.053
IM x REG				.082
IM x CAL				.104
IM x AUT				**.073[a]**
IS x REF				.010
IS x PUB				.113
IS x REG				**.035[b]**
IS x CAL				.071
IS x AUT				.038
IC x REF				.136[c]
IC x PUB				.055
IC x REG				.179[b]
IC x CAL				.024
IC x AUT				**.030[a]**
Constant in the Model	2.795	2.283	2.224	2.263
R	.217	.811	.813	.829
R^2	.047	.658	.661	.687
Adjusted R^2	.032	.649	.648	.658
Change in R^2	.047[b]	.611[a]	.003	.027[b]
F-value for change in R^2	3.095	177.272	.733	1.586
p-value for change in R^2	.002	.000	.599	.037

Note:
*The β values shown are the unstandardized coefficients obtained in the final stage of the regression analysis.
a - Significant at p<.01; b - Significant at p<.05; c - Significant at p<.10
Those **bold** and shaded interaction terms in the above table are found significant after backward elimination strategy.

Table 22 - Moderated Regression Analysis of Transformational Leadership Styles with Professionalism on Perceived Leader Effectiveness

	Perceived Leader Effectiveness*			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Control Variables				
Gender	-.010	-.075	-.072	-.085
Age	-.032	-.007	-.009	.007
Education Level	-.029	.021	.021	.043[c]
Professional Affiliation	-.011	.003	.001	-.002
Professional Experience	-.027	.014	.011	.006
Country	-.022	-.035	-.040[c]	-.045[c]
Organization Type	.087[c]	-.041	-.046	-.024
Position	-.246[a]	.024	.055	.058
Independent Variable				
Transformational Leadership				
Idealised Attributes (IA)		.431[a]	.414[a]	.399[a]
Idealised Behaviours (IB)		-.024	-.021	-.046
Inspirational Motivation (IM)		.139[a]	.144[a]	.158[a]
Intellectual Stimulation (IS)		.204[a]	.221[a]	.234[a]
Individualised Consideration (IC)		.249[a]	.240[a]	.239[a]
Moderating Variable				
Professionalism				
Referent (REF)			-.034	-.020
Public Service (PUB)			.026	.032
Self-Regulation (REG)			.030	.031
Calling to the Field (CAL)			.013	.011
Autonomy (AUT)			.097[b]	.053
Interactions				
IA x REF				.131
IA x PUB				.079[c]
IA x REG				.061
IA x CAL				.133
IA x AUT				**.222[a]**
IB x REF				-.031
IB x PUB				.114
IB x REG				.090[c]
IB x CAL				.055
IB x AUT				.022
IM x REF				.004
IM x PUB				.084
IM x REG				**.043[a]**
IM x CAL				.017
IM x AUT				**.080[b]**
IS x REF				.024
IS x PUB				.006[c]
IS x REG				.022
IS x CAL				.056
IS x AUT				**.184[b]**
IC x REF				.036
IC x PUB				.017
IC x REG				**.048[a]**
IC x CAL				.097
IC x AUT				.083
Constant in the Model	2.835	2.395	2.383	2.270
R	.179	.822	.825	.839
R^2	.032	.675	.681	.703
Adjusted R^2	.017	.667	.669	.676
Change in R^2	.032[b]	.643[a]	.006	.022[c]
F-value for change in R^2	2.069	196.314	1.827	1.403
p-value for change in R^2	.037	.000	.106	.045

Note:
*The β values shown are the unstandardized coefficients obtained in the final stage of the regression analysis.
a - Significant at p<.01; b - Significant at p<.05; c - Significant at p<.10
Those **bold** and shaded interaction terms in the above table are found significant after backward elimination strategy.

Table 23 - Moderated Regression Analysis of Transformational Leadership Styles with Professionalism on Satisfaction with Leaders

	Satisfaction with Leader*			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Control Variables				
Gender	-.087	-.151[b]	-.146[b]	-.184[b]
Age	.047	.074[c]	.063	.086[b]
Education Level	-.055	-.004	-.006	.010
Professional Affiliation	-.042	-.029	-.037[c]	-.037
Professional Experience	-.089[c]	-.044[c]	-.040	-.051
Country	-.019	-.036	-.036	-.034
Organization Type	.088[c]	-.048	-.053[c]	-.039
Position	-.201[b]	.085[c]	.129[b]	.144[a]
Independent Variable				
Transformational Leadership				
Idealised Attributes (IA)		.567[a]	.556[a]	.552[a]
Idealised Behaviours (IB)		-.064	-.058	-.085
Inspirational Motivation (IM)		.107[b]	.104[a]	.112[b]
Intellectual Stimulation (IS)		.213[a]	.238[a]	.267[a]
Individualised Consideration (IC)		.232[a]	.226[a]	.210[a]
Moderating Variable				
Professionalism				
Referent (REF)			.006	.011
Public Service (PUB)			.027	.022
Self-Regulation (REG)			-.043	-.032
Calling to the Field (CAL)			-.047	-.055
Autonomy (AUT)			.128[a]	.129[a]
Interactions				
IA x REF				.040
IA x PUB				.012[b]
IA x REG				.019
IA x CAL				.031
IA x AUT				.051[c]
IB x REF				.097
IB x PUB				.002
IB x REG				**.166[b]**
IB x CAL				.067
IB x AUT				.039
IM x REF				.017
IM x PUB				.071
IM x REG				-.030
IM x CAL				.148
IM x AUT				**.076[b]**
IS x REF				.013
IS x PUB				.055
IS x REG				**.171[b]**
IS x CAL				-.073
IS x AUT				.042
IC x REF				.015
IC x PUB				.018
IC x REG				.062
IC x CAL				.002[c]
IC x AUT				**.190[b]**
Constant in the Model	2.964	2.509	2.472	2.382
R	.176	.829	.834	.864
R^2	.031	.688	.695	.712
Adjusted R^2	.016	.680	.684	.688
Change in R^2	.031[b]	.657[a]	.007[b]	.030[b]
F-value for change in R^2	2.011	208.629	2.238	4.131
p-value for change in R^2	.043	.000	.049	.023

Note:
*The β values shown are the unstandardized coefficients obtained in the final stage of the regression analysis.
a - Significant at p<.01; b - Significant at p<.05; c - Significant at p<.10
Those **bold** and shaded interaction terms in the above table are found significant after backward elimination strategy.

Table 24 - Moderated Regression Analysis of Transactional Leadership Styles with Professionalism on Extra Effort

	Extra Effort*			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Control Variables				
Gender	.017	-.019	.000	.006
Age	-.061	-.072	-.072	-.066
Education Level	-.036	-.002	.001	.000
Professional Affiliation	-.033	-.032	-.032	-.040
Professional Experience	-.027	.015	.016	.008
Country	.022	.047[c]	.052[c]	.059[b]
Organization Type	.081[c]	.015	.019	.011
Position	-.288[a]	-.115[b]	-.094	-.093
Independent Variable				
Transactional Leadership				
Contingent Reward (CR)		.725[a]	.714[a]	.725[a]
Management-by-Exception (Active) (MBEA)		.095[b]	.096[b]	.098[b]
Management-by-Exception (Passive) (MBEP)		-.079[b]	-.080[b]	-.083[b]
Moderating Variable				
Professionalism				
Referent (REF)			-.001	-.005
Public Service (PUB)			.007	.022
Self-Regulation (REG)			-.014	-.009
Calling to the Field (CAL)			.097[b]	.104[b]
Autonomy (AUT)			.028	.038
Interactions				
CR X REF				-.092
CR X PUB				.025[c]
CR X REG				.032
CR X CAL				.032
CR X AUT				**-.060[a]**
MBEA X REF				.053
MBEA X PUB				.042
MBEA X REG				**-.032[c]**
MBEA X CAL				-.020
MBEA X AUT				-.014
MBEP X REF				.047[c]
MBEP X PUB				.040
MBEP X REG				-.031
MBEP X CAL				.024
MBEP X AUT				**-.106[b]**
Constant in the Model	2.795	2.412	2.312	2.336
R	.217	.726	.729	.739
R^2	.047	.527	.532	.556
Adjusted R^2	.032	.516	.516	.517
Change in R^2	.047[a]	.480[a]	.005	.024[b]
F-value for change in R^2	3.095	177.272	1.016	4.017
p-value for change in R^2	.002	.000	.408	.043

Note:
*The β values shown are the unstandardized coefficients obtained in the final stage of the regression analysis.
a - Significant at p<.01; b - Significant at p<.05; c - Significant at p<.10
Those **bold** and shaded interaction terms in the above table are found significant after backward elimination strategy.

Table 25 - Moderated Regression Analysis of Transactional Leadership Styles with Professionalism on Perceived Leader Effectiveness

	Perceived Leader Effectiveness*			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Control Variables				
Gender	-.010	-.046	-.040	-.050
Age	-.032	-.037	-.042	-.036
Education Level	-.029	.012	.014	.016
Professional Affiliation	-.011	-.003	-.005	-.009
Professional Experience	-.027	.017	.014	.015
Country	-.022	-.001	-.008	.005
Organization Type	.087[c]	.022	.014	.014
Position	-.246[a]	-.063	-.016	-.017
Independent Variable				
Transactional Leadership				
Contingent Reward (CR)		.728[a]	.722[a]	.715[a]
Management-by-Exception (Active) (MBEA)		.076[b]	.097[a]	.099[a]
Management-by-Exception (Passive) (MBEP)		-.230[a]	-.229[a]	-.215[a]
Moderating Variable				
Professionalism				
Referent (REF)			-.055	-.046
Public Service (PUB)			-.002	.006
Self-Regulation (REG)			.038	.036
Calling to the Field (CAL)			.029	.015
Autonomy (AUT)			.135[a]	.127[a]
Interactions				
CR X REF				-.043
CR X PUB				-.073
CR X REG				**-.097[b]**
CR X CAL				.000
CR X AUT				**-.082[b]**
MBEA X REF				-.010
MBEA X PUB				.038
MBEA X REG				-.023
MBEA X CAL				-.037
MBEA X AUT				-.030
MBEP X REF				-.068
MBEP X PUB				.038
MBEP X REG				-.039
MBEP X CAL				**-.090[c]**
MBEP X AUT				**-.087[c]**
Constant in the Model	2.835	2.387	2.351	2.316
R	.179	.783	.790	.799
R^2	.032	.613	.623	.669
Adjusted R^2	.017	.604	.617	.621
Change in R^2	.032[b]	.581[a]	.011	.046[a]
F-value for change in R^2	2.069	249.018	2.765	3.344
p-value for change in R^2	.037	.000	.018	.010

Note:
*The β values shown are the unstandardized coefficients obtained in the final stage of the regression analysis.
a - Significant at p<.01; b - Significant at p<.05; c - Significant at p<.10
Those **bold** and shaded interaction terms in the above table are found significant after backward elimination strategy.

Table 26 - Moderated Regression Analysis of Transactional Leadership Styles with Professionalism on Satisfaction with Leaders

	Satisfaction with Leader*			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Control Variables				
Gender	-.087	-.137[c]	-.131[a]	-.148[c]
Age	.047	.037	.026	.028
Education Level	-.055	-.011	-.011	-.013
Professional Affiliation	-.042	-.030	-.037	-.043[c]
Professional Experience	-.089[c]	-.043	-.040	-.042
Country	-.019	.004	.001	.004
Organization Type	.088[c]	.016	.010	.010
Position	-.201[b]	-.004	.048	.048
Independent Variable				
Transactional Leadership				
Contingent Reward (CR)		.808[a]	.810[a]	.798[a]
Management-by-Exception (Active) (MBEA)		-.017	.007	.007
Management-by-Exception (Passive) (MBEP)		-.218[a]	-.223[a]	-.219[a]
Moderating Variable				
Professionalism				
Referent (REF)			.810	-.004
Public Service (PUB)			.007	.021
Self-Regulation (REG)			-.223	-.043
Calling to the Field (CAL)			-.021	-.027
Autonomy (AUT)			-0.01[a]	.162[a]
Interactions				
CR X REF				-.039
CR X PUB				-.023
CR X REG				**-.140[a]**
CR X CAL				-.023
CR X AUT				**-.091[c]**
MBEA X REF				.045
MBEA X PUB				.052
MBEA X REG				-.031
MBEA X CAL				.036
MBEA X AUT				.051
MBEP X REF				.006
MBEP X PUB				.037
MBEP X REG				.070
MBEP X CAL				.064
MBEP X AUT				**-.113[b]**
Constant in the Model	2.964	2.510	2.465	2.504
R	.176	.780	.785	.794
R^2	.031	.608	.616	.640
Adjusted R^2	.016	.599	.604	.609
Change in R^2	.031 [a]	.577 [a]	.008	.024[b]
F-value for change in R^2	2.011	244.308	2.181	3.249
p-value for change in R^2	.043	.000	.055	.049

Note:
*The β values shown are the unstandardized coefficients obtained in the final stage of the regression analysis.
a - Significant at p<.01; b - Significant at p<.05; c - Significant at p<.10
Those **bold** and shaded interaction terms in the above table are found significant after backward elimination strategy.

Table 27 - Moderated Regression Analysis of Laissez-faire Leadership Style with Professionalism on Extra Effort

	Extra Effort*			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Control Variables				
Gender	.017	-.011	.028	.016
Age	-.061	-.076	-.064	-.065
Education Level	-.036	-.012	-.006	.001
Professional Affiliation	-.033	-.015	-.012	-.008
Professional Experience	-.027	.000	.002	.003
Country	.022	.022	.035	.037
Organization Type	.081[c]	.066	.080[c]	.097[b]
Position	-.288[a]	-.221[a]	-.211[a]	-.216[a]
Independent Variable				
Laissez-faire Leadership				
Laissez-faire (LF)		-.398[a]	-.393[a]	-.380[a]
Moderating Variable				
Professionalism				
Referent (REF)			.026	.026
Public Service (PUB)			.073	.088
Self-Regulation (REG)			-.013	-.026
Calling to the Field (CAL)			.239[a]	.247[a]
Autonomy (AUT)			-.057	-.062
Interactions				
LF x REF				-.043
LF x PUB				.135[c]
LF x REG				**-.071[b]**
LF x CAL				-.077
LF x AUT				**-.121[a]**
Constant in the Model	2.795	2.587	2.393	2.334
R	.217	.420	.455	.471
R^2	.047	.176	.207	.221
Adjusted R^2	.032	.162	.185	.191
Change in R^2	.047[a]	.129[a]	.031 [a]	.014[b]
F-value for change in R^2	3.095	78.567	3.845	1.778
p-value for change in R^2	.002	.000	.002	.037

Note:
*The β values shown are the unstandardized coefficients obtained in the final stage of the regression analysis.
a - Significant at p<.01; b - Significant at p<.05; c - Significant at p<.10
Those **bold** and shaded interaction terms in the above table are found significant after backward elimination strategy.

Table 28 - Moderated Regression Analysis of Laissez-faire Leadership Style with Professionalism on Perceived Leader Effectiveness

	Perceived Leader Effectiveness*			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Control Variables				
Gender	-.010	-.050	-.024	-.055
Age	-.032	-.052	-.045	-.034
Education Level	-.029	.006	.011	.018
Professional Affiliation	-.011	.014	.016	.022
Professional Experience	-.027	.012	.008	.007
Country	-.022	-.022	-.020	-.014
Organization Type	.087[c]	.065	.069[c]	.072[c]
Position	-.246[a]	-.151[b]	-.119[c]	-.119[c]
Independent Variable				
Laissez-faire Leadership				
Laissez-faire (LF)		-.567[a]	-.557[a]	-.533[a]
Moderating Variable				
Professionalism				
Referent (REF)			-.023	-.031
Public Service (PUB)			.064	.076
Self-Regulation (REG)			.038	.040
Calling to the Field (CAL)			.178[a]	.168[a]
Autonomy (AUT)			.041	.038
Interactions				
LF x REF				**-.177[a]**
LF x PUB				.117[c]
LF x REG				**-.096[c]**
LF x CAL				.052
LF x AUT				**-.050[a]**
Constant in the Model	2.835	2.538	2.412	2.365
R	.179	.549	.567	.584
R^2	.032	.302	.322	.351
Adjusted R^2	.017	.289	.303	.316
Change in R^2	.032[b]	.270[a]	.020[b]	.029[b]
F-value for change in R^2	2.069	193.226	2.953	2.858
p-value for change in R^2	.037	.000	.012	.015

Note:
*The β values shown are the unstandardized coefficients obtained in the final stage of the regression analysis.
a - Significant at p<.01; b - Significant at p<.05; c - Significant at p<.10
Those **bold** and shaded interaction terms in the above table are found significant after backward elimination strategy.

Table 29 - Moderated Regression Analysis of Laissez-faire Leadership Style with Professionalism on Satisfaction with Leaders

	Satisfaction with Leader*			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Control Variables				
Gender	-.087	-.129	-.100	-.123
Age	.047	.026	.025	.022
Education Level	-.055	-.019	-.015	-.009
Professional Affiliation	-.042	-.015	-.019	-.010
Professional Experience	-.089[c]	-.048	-.046	-.039
Country	-.019[c]	-.019	-.012	-.010
Organization Type	.088	.065	.070	.077[c]
Position	-.201[b]	-.102	-.061	-.063
Independent Variable				
Laissez-faire Leadership				
Laissez-faire (LF)		-.592[a]	-.587[a]	-.567[a]
Moderating Variable				
Professionalism				
Referent (REF)			.013	.009
Public Service (PUB)			.069	.080
Self-Regulation (REG)			-.027	-.028
Calling to the Field (CAL)			.126[b]	.122[b]
Autonomy (AUT)			.072	.073
Interactions				
LF x REF				-.093
LF x PUB				.030
LF x REG				-.019
LF x CAL				.029
LF x AUT				**-.139[b]**
Constant in the Model	2.964	2.654	2.509	2.461
R	.176	.539	.549	.559
R^2	.031	.291	.302	.322
Adjusted R^2	.016	.278	.282	.285
Change in R^2	.031	.260[a]	.011	.020[b]
F-value for change in R^2	2.011	183.109	1.562	3.450
p-value for change in R^2	.043	.000	.169	.049

Note:
*The β values shown are the unstandardized coefficients obtained in the final stage of the regression analysis.
a - Significant at p<.01; b - Significant at p<.05; c - Significant at p<.10
Those **bold** and shaded interaction terms in the above table are found significant after backward elimination strategy.

Table 30 - **Augmentation Effect of Transformational and Transactional Leadership on Subordinates' Work Outcomes (*N=510*)**

	Subordinates' Outcome Variables		
	Extra Effort	**Perceived Leader Effectiveness**	**Satisfaction with Leader**
Scenario 1 (Transformational on Transactional)			
Model 1 – Control Variables	.047**	.032**	.031**
Model 2 – Transactional Factors	.527*	.613*	.608*
Model 3 – Transformational Factors	.663*	.709*	.718*
Change in R^2	**.137***	**.097***	**.110***
F-Change	39.995	32.810	38.591
Scenario 2 (Transactional on Transformational)			
Model 1 – Control Variables	.047**	.032**	.031**
Model 2 – Transformational Factors	.658*	.675*	.688*
Model 3 – Transactional Factors	.663**	.709*	.718*
Change in R^2	**.005****	**.034***	**.031***
F-Change	2.572	19.477	17.795

Note: *p<.001, **p<.05
- **Control Variables** include gender, age, education level, professional affiliation, professional experience, country, organization type and position.
- **Transformational factors** include Idealised Attributes, Idealised Behaviours, Inspirational Motivation, Intellectual Stimulation and Individualised Consideration.
- **Transactional factors** include Contingent Reward, Management-by-Exception (active) and Management-by-Exception (passive).

Table 31 - Summary of Moderated Regression Analysis of Full Range of Leadership Styles with Subordinates' Professionalism on Subordinates' Work Outcomes

	Extra Effort					Effectiveness					Satisfaction					Total
	REF	**PUB**	**REG**	**CAL**	**AUT**	**REF**	**PUB**	**REG**	**CAL**	**AUT**	**REF**	**PUB**	**REG**	**CAL**	**AUT**	
Transformational Leadership																
Idealised Attributes (IA)	-0.97[b]		.047[c]				.079[c]			**.222[a]**		.012[b]			.051[c]	6
Idealised Behaviours (IB)	**.061[b]**			.156[b]			.090[c]						**.166[b]**			4
Inspirational Motivation (IM)	**.214[a]**				**.073[a]**			**.043[a]**		**.080[b]**					**.076[b]**	5
Intellectual Stimulation (IS)			**.035[b]**				.006[c]			**.184[b]**						3
Individualised Consideration (IC)	.136[c]		.179[b]		**.030[a]**			**.048[a]**					**.171[b]**	.002[c]		6
Transactional Leadership																
Contingent Reward (CR)		.025[c]			**-.060[a]**			**-.097[b]**		**-.082[b]**			**-.140[a]**		**-.091[c]**	6
Management-By-Exception (Active) (MBEA)			**-.032[c]**													1
Management-By-Exception (Passive) (MBEP)	.047[c]				**-.106[b]**				**-.090[c]**	**-.087[c]**					**-.113[b]**	5
Non-Leadership																
Laissez-faire		.135[c]	**-.071[b]**		**-.121[a]**	**-.177[a]**	.117[c]	**-.096[c]**		**-.050[a]**					**-.139[b]**	8
Sub-total of significant interaction terms before backward elimination strategy (%)	5	2	5	1	5	1	4	4	1	6	0	1	3	1	5	44 (32.6%)
Sub-total of significant interaction terms after backward elimination strategy (%)	2	0	3	0	5	1	0	4	1	6	0	0	3	0	4	29 (21.5%)
Number of reduced significant interaction terms after backward elimination strategy (%)	3	2	2	1	0	0	4	0	0	0	0	4	0	4	1	21 (15.6%)
Number of significant interaction terms in dimensions of professionalism (after backward elimination)	**Dimensions of Professionalism**															
	REF	3	**PUB**	0	**REG**	10	**CAL**	1	**AUT**	15						29
Number of significant interaction terms in dimensions of leadership styles (after backward elimination)	**Dimensions of Transformational Leadership**															
	IA	1	**IB**	2	**IM**	5	**IS**	2	**IC**	3						13
	Dimensions of Transactional Leadership															
	CR	5	**MBEA**	1	**MBEP**	4										10
	Non-Leadership															
	LF	6														6
Number of significant interaction terms of dimensions of professionalism on transformational, transactional and laissez-faire leadership (after backward elimination)	**Dimensions of Transformational Leadership**															
	REF	2	**PUB**	0	**REG**	5	**CAL**	0	**AUT**	6						13
	Dimensions of Transactional Leadership															
	REF	0	**PUB**	0	**REG**	3	**CAL**	1	**AUT**	6						10
	Non-Leadership															
	REF	1	**PUB**	0	**REG**	2	**CAL**	1	**AUT**	15						6

Note: Total number of interaction terms is **135**.

*The β values shown are the unstandardized coefficients obtained in the final stage of the regression analysis. a - Significant at p<.01; b - Significant at p<.05; c - Significant at p<.10
Those **bold** and shaded interaction terms in the above table are found significant after backward elimination strategy.

APPENDIX B – Figures (13 to 46)

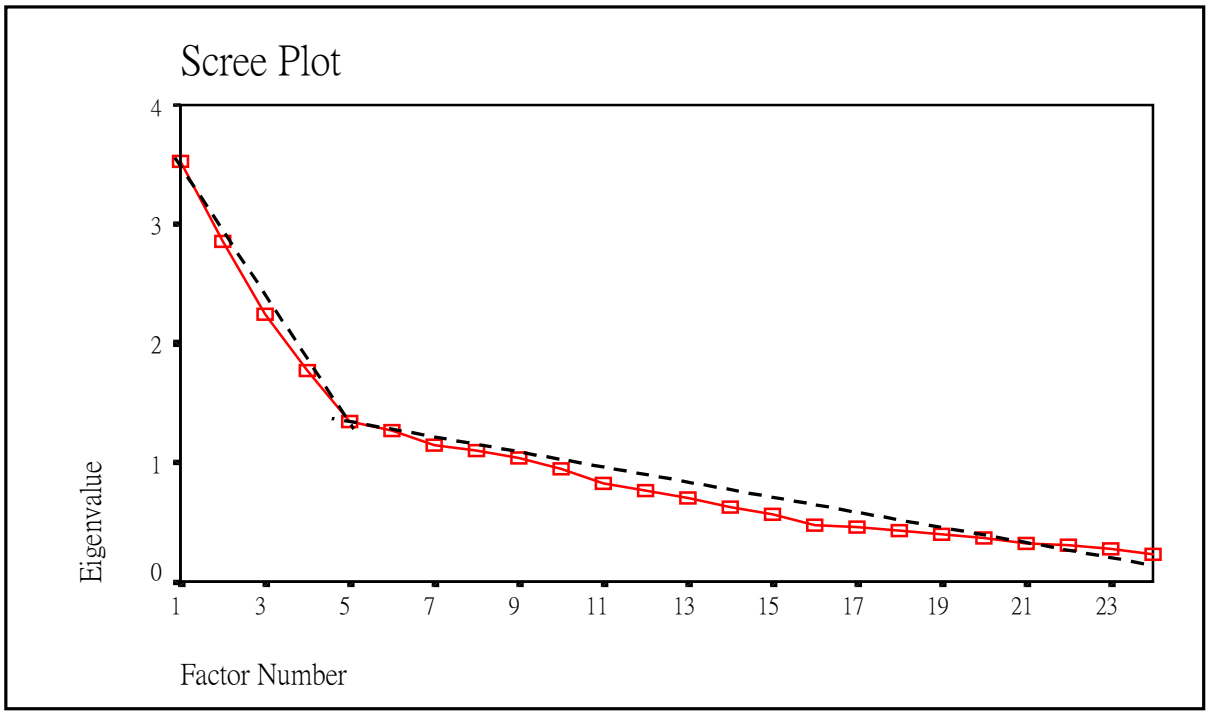

Figure 13 - Scree Plot of Exploratory Factor Analysis of the modified Hall's Professionalism Scale

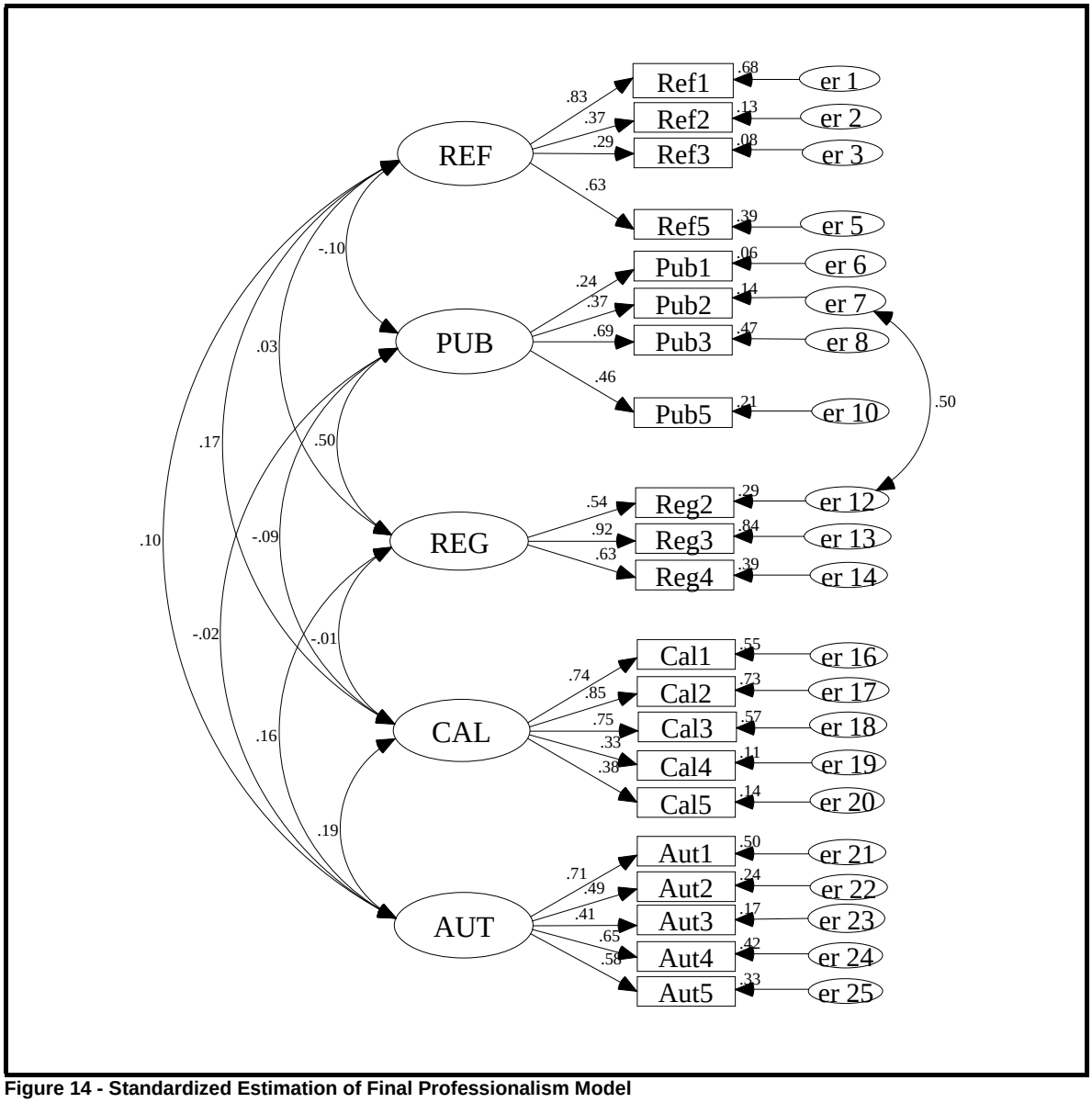

Figure 14 - Standardized Estimation of Final Professionalism Model

Note:
REF denotes Major Referent to Professional Organisation
PUB denotes Belief in Public Service
REG denotes Belief in Self-Regulation
CAL denotes Sense of Calling
AUT denotes Belief in Autonomy
er1-25 denote measurement errors

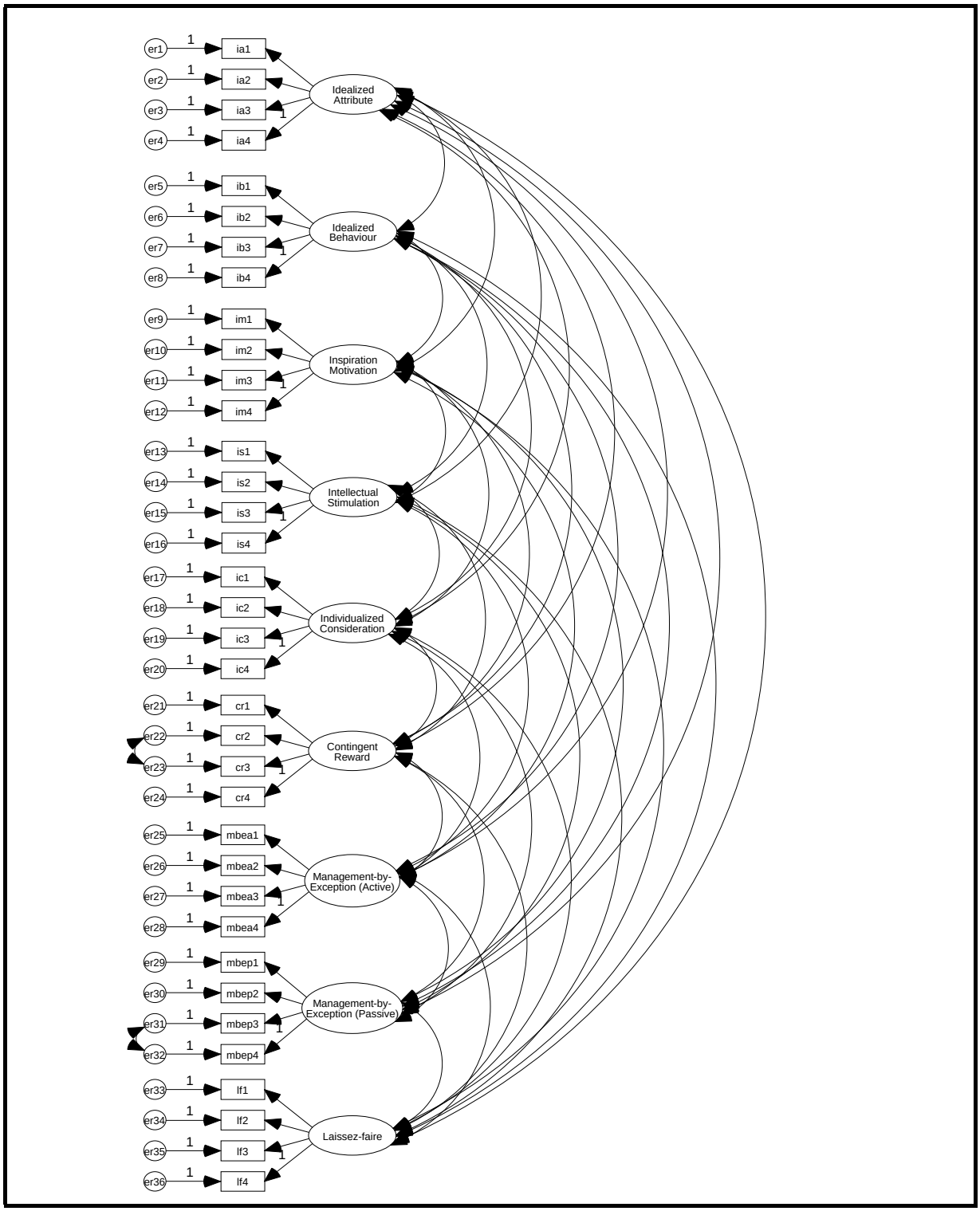

Figure 15 - Standardized Estimation of Final Model of Multifactor Leadership Questionnaire

Note:
"ia" denotes Idealised Attributes
"ib" denotes Idealised Behaviours
"im" denotes Inspiration Motivation
"is" denotes Intellectual Stimulation
"ic" denotes Individualised Consideration
"mbea" denotes Management-by-Exception (Active)
"mbep" denotes Management-by-Exception (Passive)
"lf" denotes Laissez-Faire

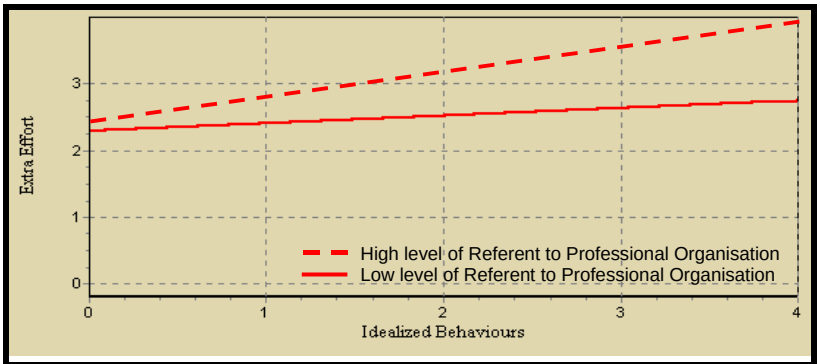

Figure 16 - The Moderating Effect of Referent to Professional Organisation on the Relationship between Idealised Behaviours and Extra Effort

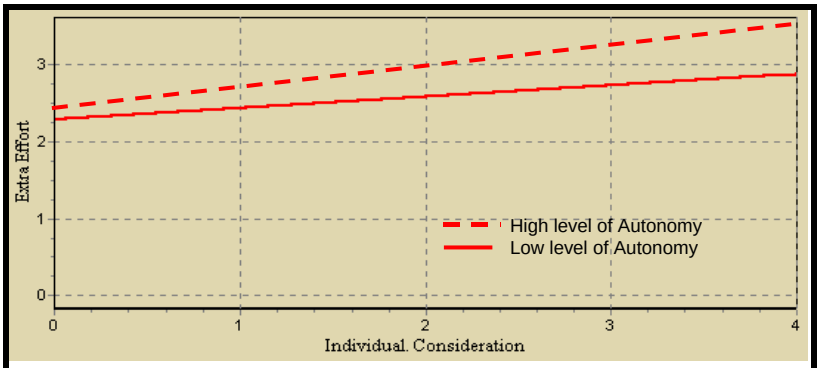

Figure 17 - The Moderating Effect of Autonomy on the Relationship between Individualised Consideration and Extra Effort

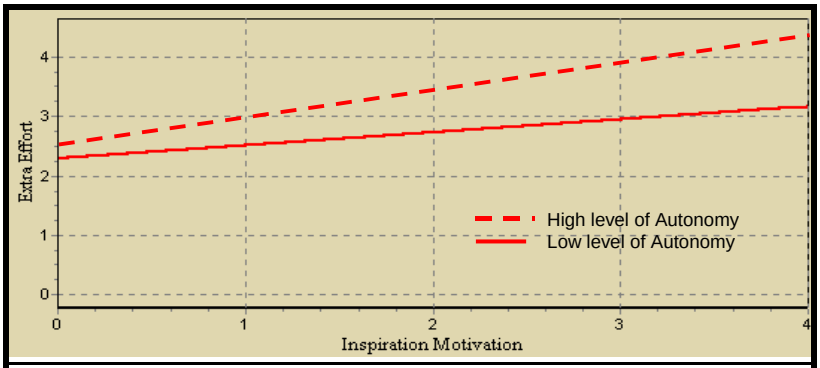

Figure 18 - The Moderating Effect of Autonomy on the Relationship between Inspirational Motivation and Extra Effort

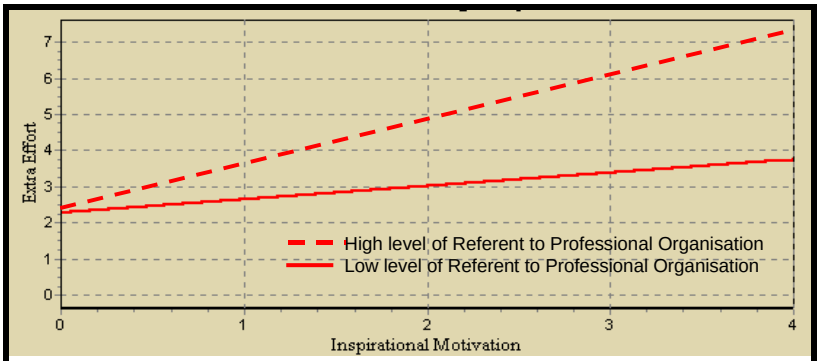

Figure 19 - The Moderating Effect of Referent to Professional Organisation on the Relationship between Inspirational Motivation and Extra Effort

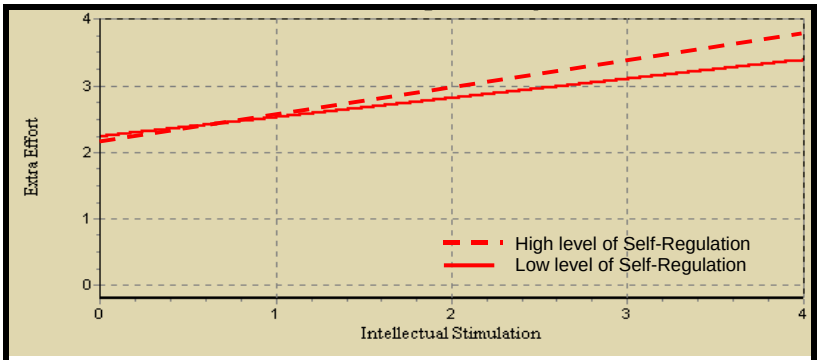

Figure 20 - The Moderating Effect of Self-Regulation on the Relationship between Intellectual Stimulation and Extra Effort

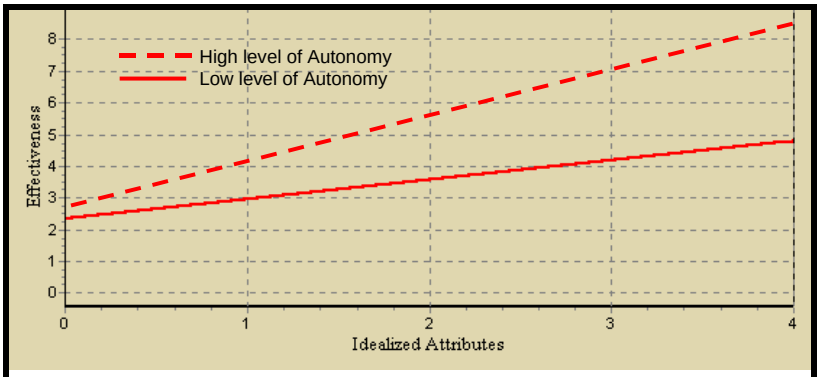

Figure 21 - The Moderating Effect of Autonomy on the Relationship between Idealised Attributes and Perceived Leader Effectiveness

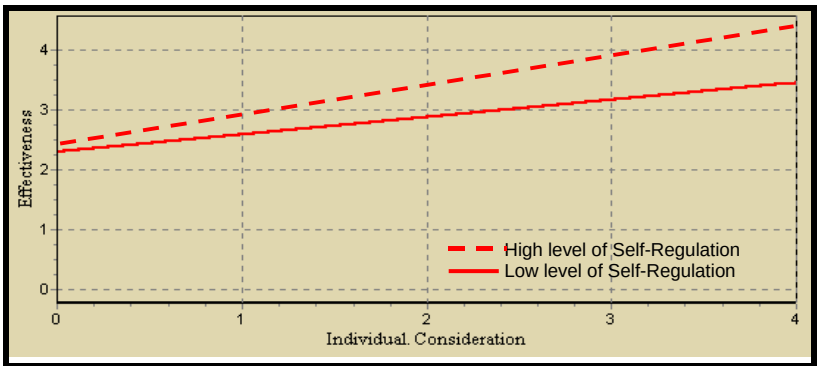

Figure 22 – The Moderating Effect of Self-Regulation on the Relationship between Individualised Consideration and Perceived Leader Effectiveness

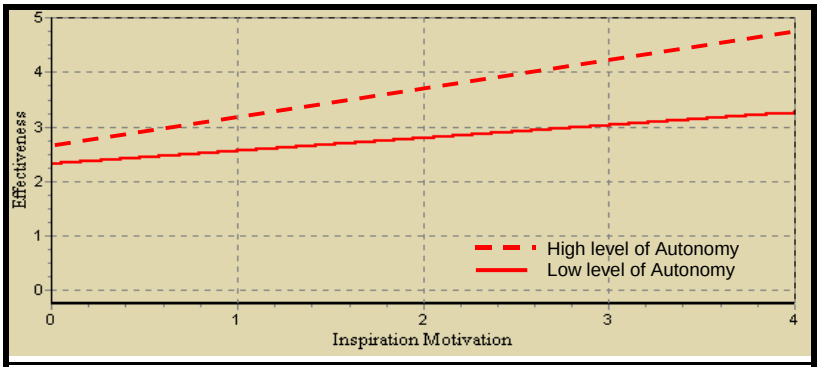

Figure 23 – The Moderating Effect of Autonomy on the Relationship between Inspirational Motivation and Perceived Leader Effectiveness

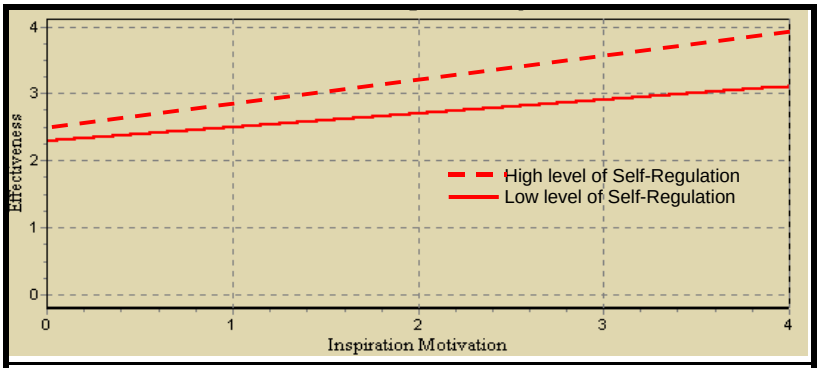

Figure 24 – The Moderating Effect of Self-Regulation on the Relationship between Inspirational Motivation and Perceived Leader Effectiveness

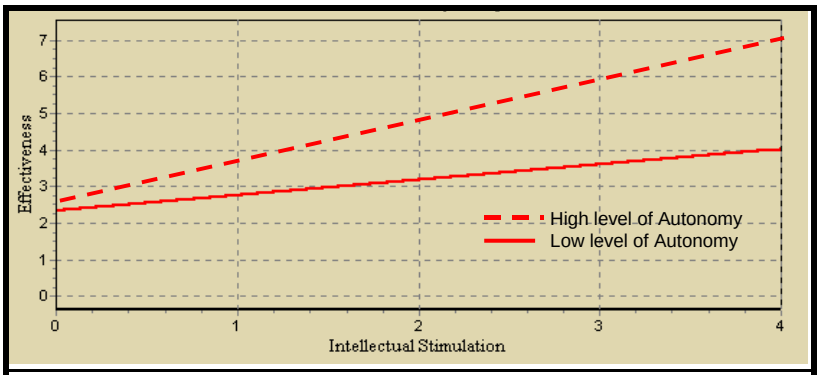

Figure 25 - The Moderating Effect of Autonomy on the Relationship between Intellectual Stimulation and Perceived Leader Effectiveness

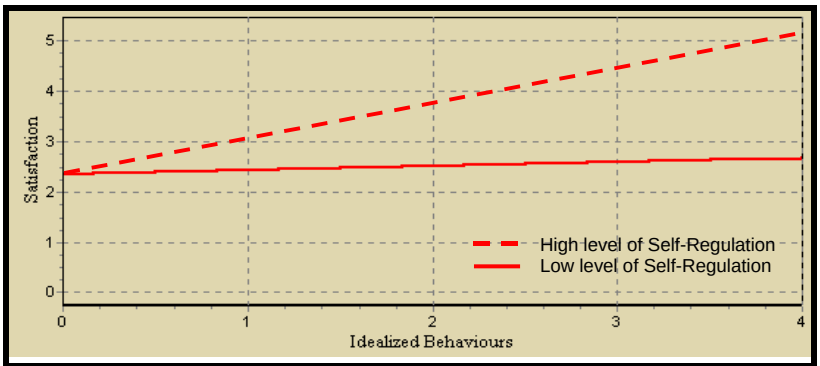

Figure 26 - The Moderating Effect of Self-Regulation on the Relationship between Idealised Behaviours and Satisfaction with Leaders

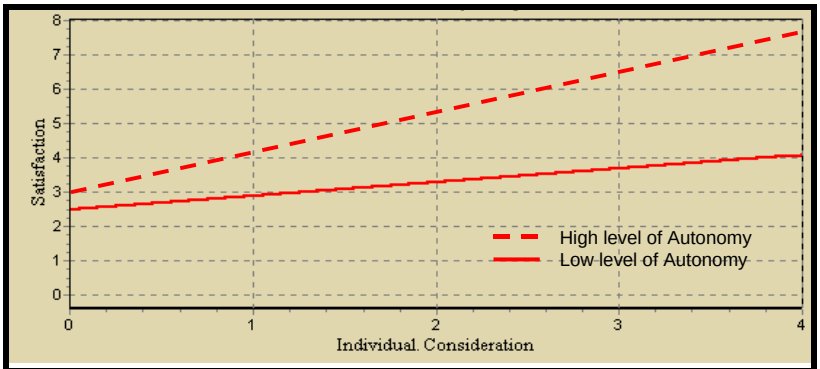

Figure 27 - The Moderating Effect of Autonomy on the Relationship between Individualised Consideration and Satisfaction with Leaders

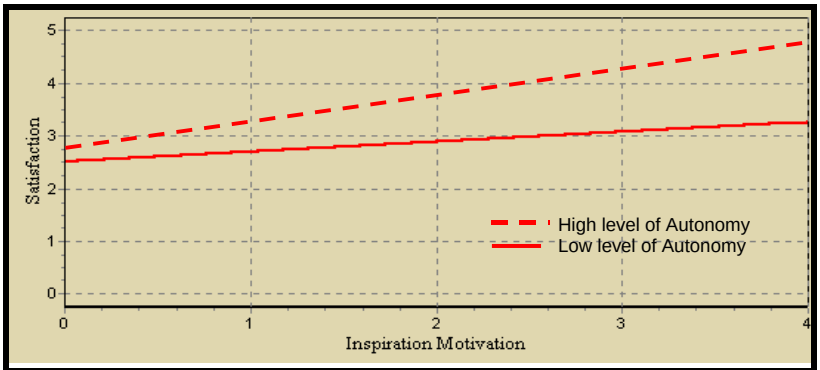

Figure 28 - The Moderating Effect of Autonomy on the Relationship between Inspirational Motivation and Satisfaction with Leaders

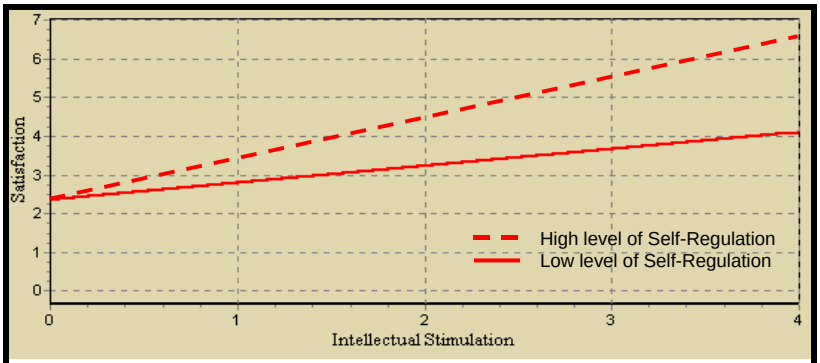

Figure 29 - The Moderating Effect of Self-Regulation on the Relationship between Intellectual Stimulation and Satisfaction with Leaders

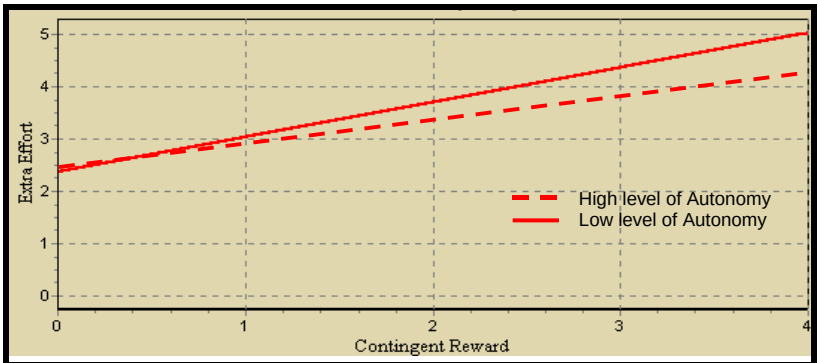

Figure 30 - The Moderating Effect of Autonomy on the Relationship between Contingent Reward and Extra Effort

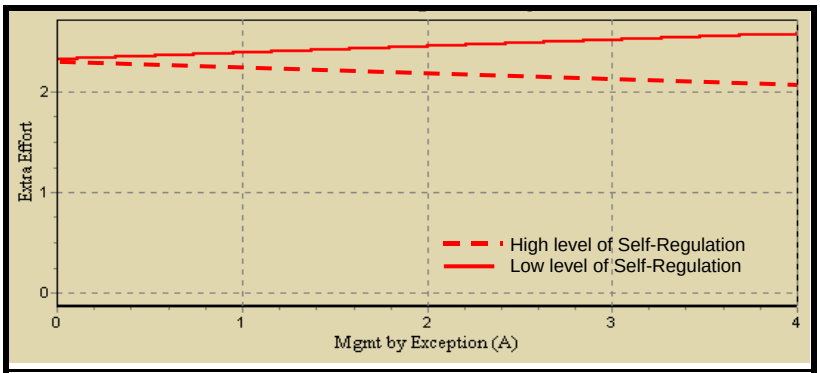

Figure 31 - The Moderating Effect of Self-Regulation on the Relationship between Management-by-Exception (Active) and Extra Effort

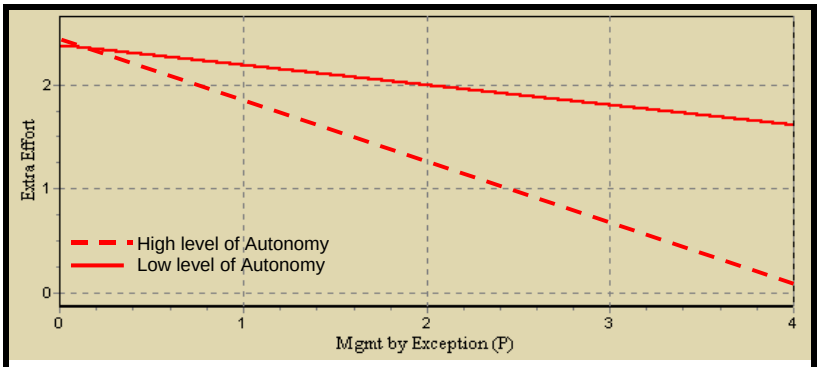

Figure 32 - The Moderating Effect of Autonomy on the Relationship between Management-by-Exception (Passive) and Extra Effort

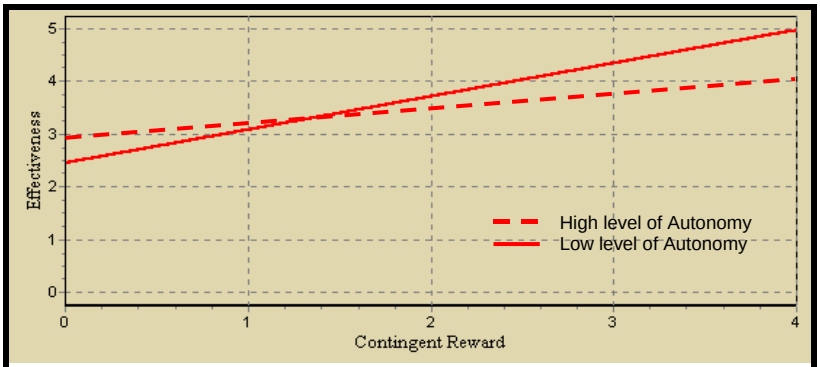

Figure 33 - The Moderating Effect of Autonomy on the Relationship between Contingent Reward and Perceived Leader Effectiveness

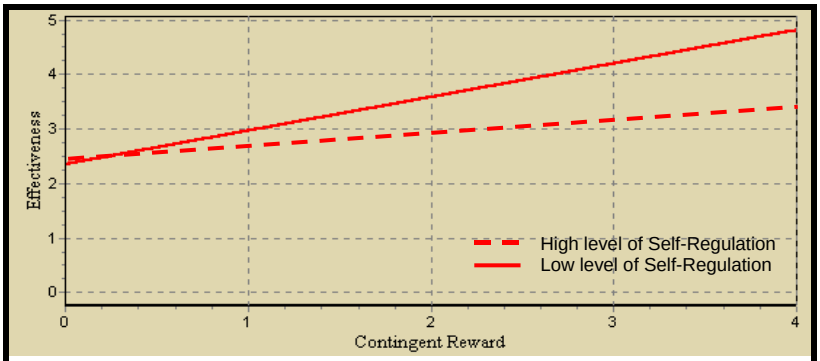

Figure 34 - The Moderating Effect of Self-Regulation on the Relationship between Contingent Reward and Perceived Leader Effectiveness

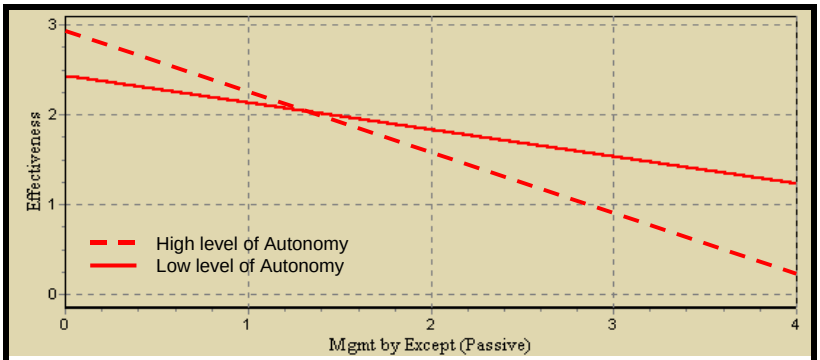

Figure 35 - The Moderating Effect of Autonomy on the Relationship between Management-by-Exception (Passive) and Perceived Leader Effectiveness

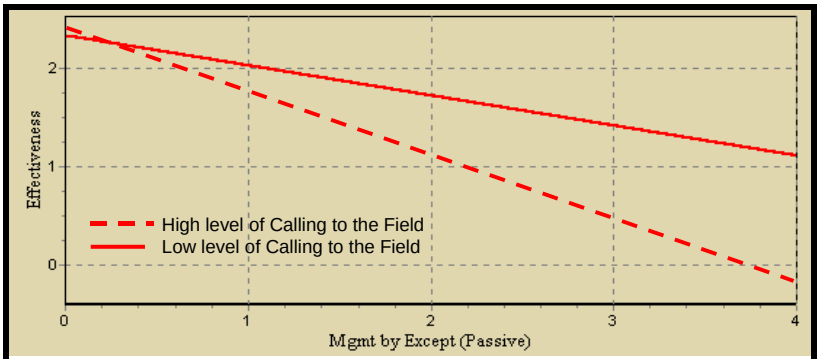

Figure 36 - The Moderating Effect of Calling to the Field on the Relationship between Management-by-Exception (Passive) and Perceived Leader Effectiveness

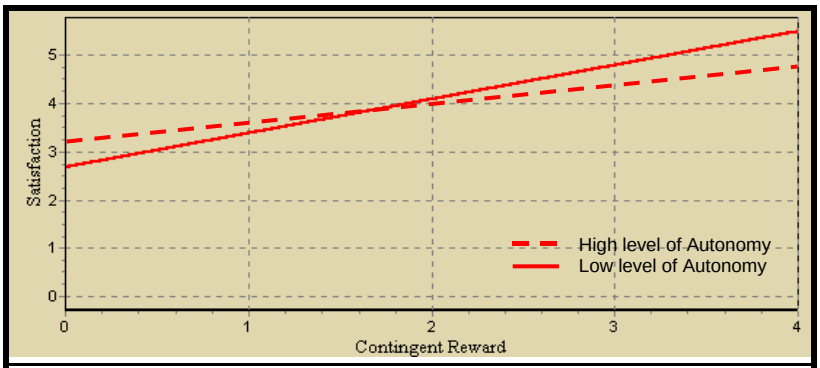

Figure 37 - The Moderating Effect of Self-Regulation on the Relationship between Contingent Reward and Satisfaction with Leaders

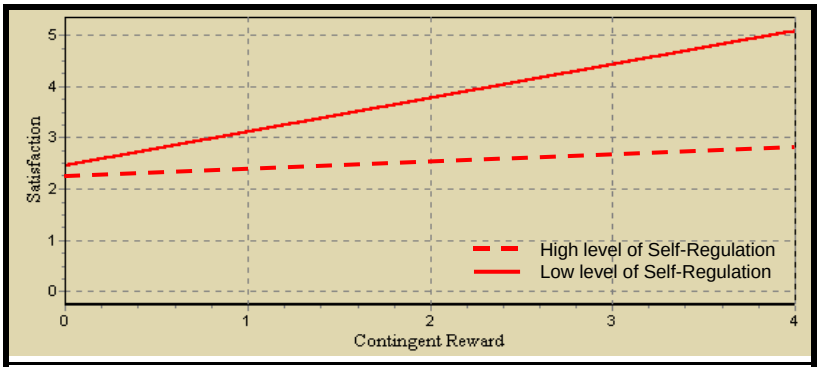

Figure 38 - The Moderating Effect of Self-Regulation on the Relationship between Contingent Reward and Satisfaction with Leaders

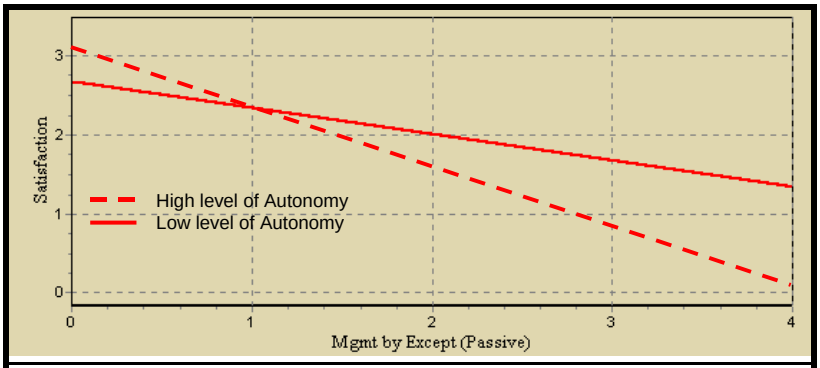

Figure 39 - The Moderating Effect of Autonomy on the Relationship between Management-by-Exception (Passive) and Satisfaction with Leaders

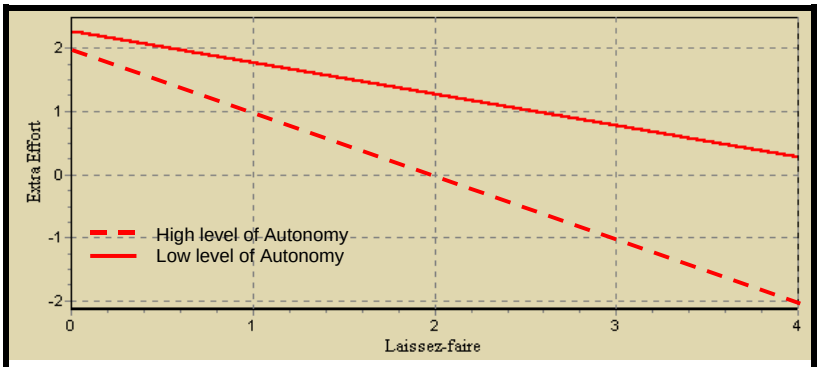

Figure 40 - The Moderating Effect of Autonomy on the Relationship between Laissez-faire and Extra Effort

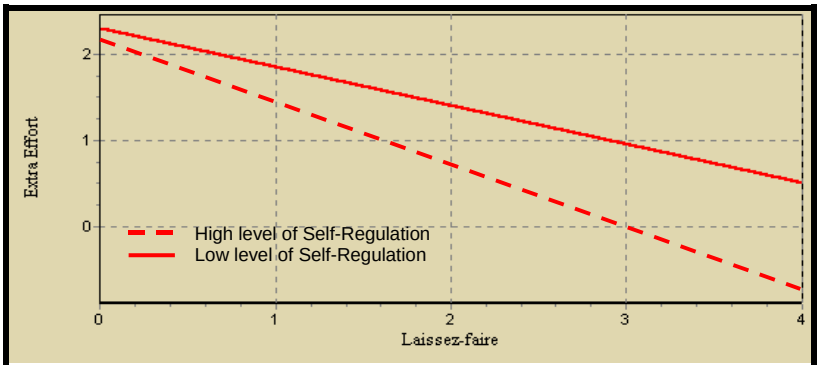

Figure 41 - The Moderating Effect of Self-Regulation on the Relationship between Laissez-faire and Extra Effort

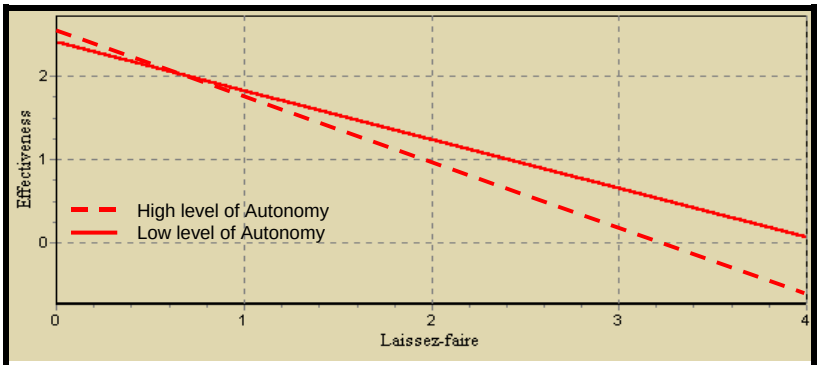

Figure 42 - The Moderating Effect of Autonomy on the Relationship between Laissez-faire and Perceived Leader Effectiveness

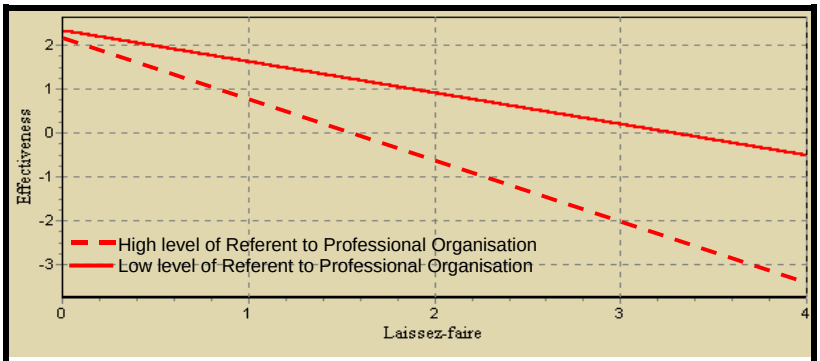

Figure 43 - The Moderating Effect of Referent to Professional Organisation on the Relationship between Laissez-faire and Perceived Leader Effectiveness

Figure 44 - The Moderating Effect of Self-Regulation on the Relationship between Laissez-faire and Perceived Leader Effectiveness

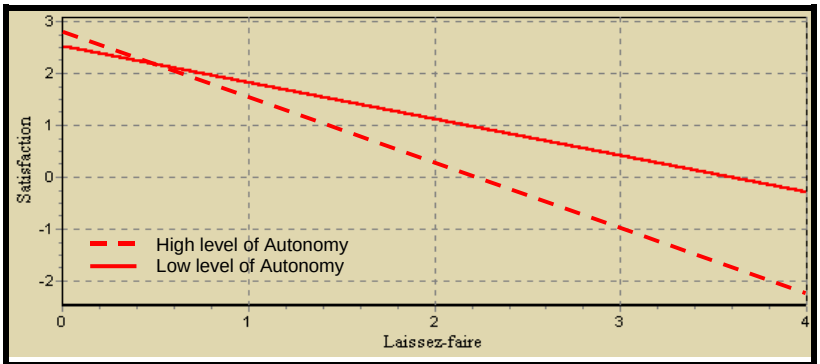

Figure 45 - The Moderating Effect of Autonomy on the Relationship between Laissez-faire and Satisfaction with Leaders

APPENDIX C – Covering Letter of Electronic Questionnaire Survey

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

Dear Sir,

Questionnaire Contributing to the Building Industry

I am a Ph.D. student of the Hong Kong Polytechnic University and also a member of the Hong Kong Institute of Surveyors and the Royal Institution of Chartered Surveyors. I would like to thank you in advance for your involvement with this research study. This study will attempt to investigate leadership styles and professionalism among building professionals. This information is considered vital in that it is related to the know-how in effective management of building professionals, which can lead to optimisation of work outcomes in organizations. As part of this research, attached is a questionnaire survey designed to collect data for my Ph.D. study entitled "The Impact of Subordinates' Professionalism on Leadership Effectiveness in the Construction Industry". I would much appreciate it if you can spend about **15 minutes** to complete the attached questionnaire.

The questionnaire consists of three parts. First is a "Professionalism Inventory", containing a series of items about your views on professionalism. The second part is a "Leadership Questionnaire" designed to determine the leadership characteristics of **your leader in your profession** in the present organization. The third part contains a brief set of personal background questions. Separate instructions are contained within each part.

I undertake that any information received are on confidential basis and will be used in this research study only. After completing this questionnaire, please **SAVE** and **FORWARD** it to me via **EMAIL** at **antony.chan@** by **15 March 2003**.

WITHOUT your support, this project cannot be accomplished. I really beg your generous help in completing this questionnaire as this will form the most important part of data collection process in this study. If you have any queries about the questions, please contact me at the above email address. I would be more than happy to assist you in completing this questionnaire.

Once again, thank you for your cooperation and I look forward to receiving your supportive response.

Yours sincerely,

Antony Chan
Encl.

APPENDIX D – The Modified Hall's Professionalism Scale

QUESTIONNAIRE

All the information is for academic research purposes only. Individual evaluation will not be revealed to any outside party.
Your answers and information will be completely confidential.

PART I PROFESSIONALISM FOR BUILDING PROFESSIONS

Please tick (✓) the appropriate answer

The following questions are an attempt to measure certain aspects of what is commonly called "professionalism". The following questions are referring to your own profession. Each item then, should be answered in light of the way you yourself both feel and behave as a member of your particular profession.

There are five possible responses to each item. If the item corresponds VERY WELL to your own attitudes and/ or behavior, put a tick on that response. If it corresponds WELL, POORLY, or VERY POORLY, mark the appropriate response. The middle category NEUTRAL is designed to indicate an essentially neutral opinion about the item. Please answer ALL items in one fashion or another, making sure that you have NO MORE THAN ONE RESPONSE FOR EACH ITEM.

	Very Well	Well	Neutral	Poorly	Very Poorly
PROFESSIONAL ORGANIZATION AS A MAJOR REFERENT					
1) I systematically read the professional journals.	☐	☐	☐	☐	☐
2) I regularly attend professional meetings at the local level.	☐	☐	☐	☐	☐
3) I believe that the professional organization(s) should be supported.	☐	☐	☐	☐	☐
4) The professional organization doesn't really do too much for the average member.	☐	☐	☐	☐	☐
5) Although I would like to, I really don't read the journals too often.	☐	☐	☐	☐	☐
BELIEF IN PUBLIC SERVICE					
6) Other professions are actually more vital to society than building profession.	☐	☐	☐	☐	☐
7) I think that building profession, more than any other, is essential for society.	☐	☐	☐	☐	☐
8) The importance of building profession is sometimes over stressed.	☐	☐	☐	☐	☐
9) Some other occupations are actually more important to society than is building profession.	☐	☐	☐	☐	☐
10) If ever an occupation is indispensable, it is the one.	☐	☐	☐	☐	☐
BELIEF IN SELF-REGULATION					
11) My fellow professionals have a pretty good idea about each other's competence.	☐	☐	☐	☐	☐
12) A problem in building profession is that no one really knows what his colleagues are doing.	☐	☐	☐	☐	☐
13) We really have no way of judging each other's competence.	☐	☐	☐	☐	☐
14) There is not much opportunity to judge how another person does his work.	☐	☐	☐	☐	☐
15) My colleagues pretty well know how well we all do in our work.	☐	☐	☐	☐	☐
SENSE OF CALLING TO THE FIELD					
16) People in building profession have a real "calling" for their work.	☐	☐	☐	☐	☐
17) The dedication of people in this field is most gratifying.	☐	☐	☐	☐	☐
18) It is encouraging to see the high level of idealism which is maintained by people in this field.	☐	☐	☐	☐	☐
19) Most people would stay in the building profession even if their incomes were reduced.	☐	☐	☐	☐	☐
20) There are very few people who don't really believe in their work.	☐	☐	☐	☐	☐
AUTONOMY					
21) I make my own decisions in regard to what is to be done in my work.	☐	☐	☐	☐	☐
22) I don't have much opportunity to exercise my own judgement.	☐	☐	☐	☐	☐
23) My own decisions are subject to review.	☐	☐	☐	☐	☐
24) I am my own boss in almost every work-related situation.	☐	☐	☐	☐	☐
25) Most of my decisions are reviewed by other people.	☐	☐	☐	☐	☐

APPENDIX E – Sample Items of MLQ (Form 5X) (Copyrighted Materials)

PART II LEADERSHIP QUESTIONNAIRE (RATER FORM)

Please tick (✓) the appropriate answer

This part is used to describe the leadership style of your leader in your profession as you perceive it. Please answer all items. If an item is irrelevant, or if you are unsure or do not know the answer, leave the answer blank. Forty-five descriptive statements are listed as below. Judge how frequently each statement fits the person you are describing.

Use the following rating scale:

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
0	1	2	3	4

My Leader ……	0	1	2	3	4
1) Provides me with assistance in exchange for my efforts……	☐	☐	☐	☐	☐
6) Talks about their most important values and beliefs……	☐	☐	☐	☐	☐
11) Discusses in specific terms who is responsible for achieving performance targets……	☐	☐	☐	☐	☐
16) Makes clear what one can expect to receive when performance goals are achieved……	☐	☐	☐	☐	☐
21) Acts in ways that builds my respect……	☐	☐	☐	☐	☐
26) Articulates a compelling vision of the future……	☐	☐	☐	☐	☐
31) Helps me to develop my strengths……	☐	☐	☐	☐	☐
36) Expresses confidence that goals will be achieved……	☐	☐	☐	☐	☐
41) Works with me in a satisfactory way……	☐	☐	☐	☐	☐

APPENDIX F – Demographic and Background Questions

PART III PERSONAL PROFILE

Please tick (✓) the appropriate answer

1) Gender
- ☐ Male
- ☐ Female

2) Age
- ☐ 20-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59
- ☐ 60 or above

3) Your highest level of formal education is
- ☐ Diploma
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Doctorate degree
- ☐ Other (please specify _____)

4) Professional affiliation
- ☐ Architect
- ☐ Structural Engineer
- ☐ Building Surveyor
- ☐ Quantity Surveyor
- ☐ General Practice Surveyor/ Valuer

5) Your total professional experience since qualified by your (first) institute in the construction industry up to now
- ☐ less than 5 years
- ☐ 5-9 years
- ☐ 10-14 years
- ☐ 15-19 years
- ☐ 20 or more years

6) Where are you working in?
- ☐ Australia
- ☐ Hong Kong
- ☐ Singapore
- ☐ United Kingdom

7) The type of organizational settting you are working in
- ☐ Public
- ☐ Private - Developer
- ☐ Private - Consultant
- ☐ Private - Contractor

8) Your position in the management structure of your organization could be best described as
- ☐ Top
- ☐ Middle
- ☐ Junior

9) How long have you been working with your leader (described in PART II) in the present organization?
- ☐ less than 1 year
- ☐ 1-2 years
- ☐ 3-5 years
- ☐ 6-10 years
- ☐ more than 10 years

10) How often did you participate in any Continuing Professional Development events to keep you up to date in your field in the past one year?
- ☐ No
- ☐ Only occasionally
- ☐ Once per month
- ☐ More than once per month
- ☐ Yearly

Thank you for spending precious time in completing this questionnaire!

Please SAVE and Forward this questionnaire to

Email Address: antony.chan@[redacted]

LIST OF REFERENCES

Abbott, A. (1988). *The system of professions*. Chicago, IL.: University of Chicago Press.

Abernethy, M.A. & Stoelwinder, J.U. (1995). The role of professional control in the management of complex organizations. *Accounting, Organizations and Society*, 20(1), 1-17.

Aguinis, H. (2004). *Regression analysis for categorical moderators*. New York: The Guilford Press.

Aiken, L.S. & West S.G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, California: Sage Publications

Al-Anazi, F.B. (1993). *The relationship between new leadership styles and organization: An empirical investigation of transformational and transactional leadership*. Unpublished PhD thesis. University of Reading.

Aranya, N., Pollock, J. & Amernic, J. (1981). An examination of professional commitment in public accounting. *Accounting, Organizations and Society*, 6, 271-280.

Arbuckle, J.L. & Wothke, W. (1999). *Amos 4.0 user's guide*. Chicago, Illinois: SmallWaters Corporation.

Ardichvili, A., & Kuchinke, K. P. (2002). Leadership styles and cultural values among managers and employees of manufacturing enterprises in six countries: A comparative study. *Human Resource Development International*, 5(1), 99-117.

Arnold, E.L., Blank, L.L., Race, K.E.H. & Cipparrone, N. (1998). Can professionalism be measured? The development of a scale for use in the medical environment. *Academic Medicine*, 73 (10), 1119-1121.

Avolio, B.J. & Bass, B.M. (1987). Charisma and beyond. In J.G. Hubt (ed.), *Emerging Leadership Vistas* (pp. 29-49). Boston: Lexington.

Avolio, B.J. & Bass, B.M. (1991). *The full-range of leadership development. New York, Binghamton*: Center for Leadership Studies.

Avolio, B.J. & Bass, B.M. (1995). Individual consideration viewed at multiple levels of analysis: A multi-level framework for examining the diffusion of transformational leadership. *Leadership Quarterly*, 6(2), 199-218.

Avolio, B.J., Bass, B.M. & Jung, D.I. (1996). *Construct validation of the Multifactor Leadership Questionnaire MLQ-Form 5X (CLS Report 96-1)*. Binghamton: State University of New York, Center for Leadership Studies.

Avolio, B.J., Bass, B.M. & Jung, D.I. (1999). Re-examining the components of transformational and transactional leadership using the Multifactor Leadership Questionnaire. *Journal of Occupational and Organizational Psychology*, 72, 441-462.

Avolio, B.J. & Gibbon, T.C. (1988). Transformational leaders: Going beyond the glitter for a closer look at development. In J.A. Conger & R.N. Kanungo (eds.), *Charismatic management: The elusive factor in organizational effectiveness*. San Francisco, CA: Jossey-Bass.

Avolio, B.J. & Howell, J.M. (1992). The impact of leader behaviour and leader-follower personality match on satisfaction and unit performance. In Clark, K.E., Clark, M.B. & Campbell, D.R. (eds.), *Impact of leadership*. Greensboro, NC: The Center for Creative Leadership.

Avolio, B.J., Waldman, D.A. & Einstein, W.O. (1988). Transformational leadership in a management game simulation. *Group & Organization Studies*, 13, 59-80.

Avolio, B.J., Waldman, D.A. & Yammarino, F.J. (1991). Leading in the 1990s: The four I's of transformational leadership. *Journal of European Industrial Training*, 15(4), 9-16.

Ayman, R., Chemers, M.M. & Fiedler, F.E. (1995). The contingency model of leadership effectiveness: Its levels of analysis. *Leadership Quarterly*, 6(2), 147-167.

Barber, G.C. (1963). Some problems in the sociology of the professions. *Daedalus*, 92, 669-688.

Barling, J., Weber, T. & Kelloway, E.K. (1996). Effects of transformational leadership training on attitudinal and financial outcomes: A field experiment. *Journal of Applied Psychology*, 81, 827-832.

Bartol, K.M. (1979). Professionalism as predictor of organizational commitment, role stress, and turnover: a multidimensional approach. *Academy of Management Journal*, 22(4), 815-821.

Bass, B.M. (1985). *Leadership and performance beyond expectations*. New York, Free Press.

Bass, B.M. (1990). *Bass & Stogdill's handbook of leadership: Theory, research and managerial applications* (3rd ed.). New York, Free Press.

Bass, B.M. (1997). Does the transactional-transformational leadership paradigm transcend organizational and national boundaries? *American Psychologist*, 52(2), 130-139.

Bass, B.M. (1998). *Transformational leadership: Industrial, military, and educational impact*. Mahwah, N.J.: Lawrence Erlbaum Associates.

Bass, B.M. & Avolio, B.J. (1989). Potential biases in leadership measures: How prototypes, leniency, and general satisfaction relate to ratings and rankings of transformational and transactional leadership constructs. *Educational and Psychological Measurement*, 49, 509-527.

Bass, B.M. & Avolio, B.J. (1994). Introduction. In Bass, B.M. & Avolio, J.B. (eds.). *Improving organizational effectiveness through transformational leadership*. California: Sage Publications.

Bass, B.M. & Avolio, B.J.(1997). *Full range leadership development: Manual for the Multifactor Leadership Questionnaire*. CA: Mind Garden.

Bass, B.M. & Avolio, B.J. (1990). The implications of transactional and transformational leadership for individual, team and organizational development. In R.W. Woodman & W.A. Passmore (eds.) *Research in organizational change and development*. Greenwich, CT: JAI Press.

Bass, B.M. & Avolio, B.J. (1997). *Full range of leadership development: Manual for the Multifactor Leadership Questionnaire*. CA: Mind Gardens.

Bass, B.M. & Avolio, B.J. (2000). *Multifactor Leadership Questionnaire: Sampler set* (2nd ed.). Redwood City, CA: Mind Garden, Inc.

Bass, B.M., Avolio, B.J., & Atwater, L. (1996). The transformational and transactional leadership of men and women. *International Review of Applied Psychology*, 45, 5-34.

Becher, T. (1999). *Professional practices: Commitment & capability in a changing environment*. New Brunswick: Transaction Publishers.

Bentler, P. & Bonett, D. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88, 588-606.

Bentler, P.M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107(2): 238-46.

Benveniste, G. (1987). *Professionalizing the organization: Reducing bureaucracy to enhance effectiveness*. London: Jossey-Bass.

Berman, E.M. (1999). Professionalism among public and non-profit managers. *American Review of Public Administration*, 29(2), 149-166.

Berson, Y. Shamir, B., Avolio, B.J. & Popper,M. (2001). The relationship between vision, strength, leadership style, and context. *Leadership Quarterly*, 12: 53-73.

Blake, R.R. & Mouton, J.S. (1964). *The managerial grid. Houston*: Gulf.

Blake, R.R. & Mouton, J.S. (1978). *The new managerial grid. Houston*: Gulf.

Blau, G.J. (1985). The measurement and prediction of career commitment. *Journal of Occupational Psychology*, 58, 277-288.

Blum, T.C., Fields, D.L. & Goodman, G.S. (1994). Organization-level determinant of women in management. *Academy of Management Journal*, 37(2), 241-268.

Bohrnstedt, G. W. & Knoke, D. (1994). *Statistics for social data analysis*. Itasca, IL: F. E. Peacock Publishers.

Boland, B.W. (1979). *The construction industry: A perspective*. Springfield, Va.: NTIS

Bresnen, M.J., Bryman, A.E., Ford, J.R., Beardsworth, A.D. & Keil, E.T. (1986). Leader orientation of construction site managers. *Journal of Construction Engineering and Management*, ASCE, 112(3), 370-386.

Bresnen, M.J., Bryman, A.E., Ford, J.R., Beardsworth, A.D. & Keil, E.T. (1987). Leader orientation and organizational transience: An investigation using Fiedler's LPC scale. *Journal of Occupational Psychology*, 60, 13-19.

Brewerton, P. & Millward, L. (2001). *Organizational research methods*. CA: Thousand Oaks: Sage Publications.

Broadbent, J., Dietrich,M. & Roberts, J. (1997). The end of the professions? In Broadbent, J., Dietrich, M. & Roberts, J., (eds.). *The end of the professions? The restructuring of professional work*. New York: Routledge.

Brown, J. D. (1996). *Testing in language programs*. Upper Saddle River, NJ: Prentice Hall Regents.

Browne, M.W. & Cudeck, R. (1993). Alternative ways of assessing model fit. In Bollen, K.A. & Long, J.S. (eds.) *Testing Structural Equation Models*. Newbury Park, Calif: Sage Publications.

Buchner, A., Erdfelder, E., & Faul, F. (1997). How to Use G*Power, retrieved from

http://www.psycho.uni-duesseldorf.de/aap/projects/gpower/how_to_use_gpower.html

Burns, J.M. (1978). *Leadership*. New York: Harper and Row Publishing.

Bycio, P. Hackett, R.D. & Allen, J.S. (1995). Further assessment of Bass' s conceptualization of transactional and transformational leadership. *Journal of Applied Psychology*, 80, 468-478.

Byrne, B.M. (2001). *Structural equation modelling with AMOS: Basic concepts, applications, and programming*. Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc.

Carless, S.A. (1998). Assessing the discriminant validity of transformational leader behaviour as measured by the MLQ. *Journal of Occupational and Organizational Psychology*, 71, 353-358.

Carmines, E.G. & Zeller, R.A. (1979). *Reliability and validity assessment*. Beverly Hills, CA: Sage Publications.

Carr-Saunders, A.M. (1928). *Professions: Their organization and place in society*. Oxford: The Clarendon Press.

Cattell, R.B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, 1:245-75.

Champoux, J. E. & Peters, W. S. (1987). Form, effect size and power in moderated regression analysis. *Journal of Occupational Psychology*, 60, 243-255.

Chan, E.H. & Chan, A.T.S. (1999). A review on professionalism. *The Official Journal of Hong Kong Institute of Architects*, Issue No.20, 2nd Quarter.

Chan, E.H. & Chan, A.T.S. (2002). Development of professional system in construction industry of China. *Journal of Construction Research*, 3(2), 271-284.

Chan, E.H., Chan, M.W., & Chan, A.T.S. (2000). Disintegrating professional boundaries: A case with the building professions in Hong Kong. *International Journal of Project Management*, 19(2), 127-135.

Chan, E.H., Chan, M.W., Scott, D. & Chan, A.T.S. (2001). Educating the 21st century construction professionals. *Journal of Professional Issues in Engineering Education & Practice*, ASCE,128(1), 44-51.

Child, J. & Fulk, J. (1982). Maintenance of occupational control. *Work and Occupations*, 9(2), 155-192.

Churchill, G.A. Jr. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16, 64-73.

Construction 21 Committee (1999). *Construction 21 reinventing construction*. Ministry of Manpower and Ministry for National Development, Singapore.

Construction Industry Review Committee (2001). *Construct for excellence: Report of the construction industry review committee*. Hong Kong: Construction Industry Review Committee (CIRC).

Cogan, M.L. (1953). Toward a definition of profession. *Harvard Educational Review*, 23(1), 33-51.

Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.), Hillsdale, N.J.: Lawrence Erlbaum Associate.

Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159.

Cohen, J., Cohen, P., West, S.G.& Aiken, L.S. (2003). *Applied multiple regression/ correlation analysis for the behavioral sciences*. (3rd ed.) Mahwah, N.J.: L. Erlbaum Associates.

Comrey, A.L. & Lee, H.B. (1992). *A first course in factor analysis*. Hillsdale, NJ: Lawrence Erlbaum.

Cooper, D.R. & Schindler, P.S. (1998). *Business research methods*. Boston, Mass.: Irwin/McGraw-Hill.

Crank, J.P. (1987). *Professionalism among police chiefs*. Unpublished PhD thesis, University of Colorado.

Crocker, L., & Algina, J. (1986). *Introduction to classical and modern test theory*. New York: Holt, Reinehart and Winston.

Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334.

Cronbach, L.J. (1960). *Essentials of psychological testing*. (2nd ed.) New York: Harper and Row.

Davies, R.B. (1994). From cross-sectional to longitudinal analysis, In Dale, A. & Davies, R.B. (Eds.) *Analysing social and political change. A casebook of methods,* London: Sage Publications.

De Vaus, D.A. (2001). *Research design in social research*. London: Thousand Oaks: Sage Publications.

De Vries, R.E., Roe, R.A. & Taillieu, T.C.B. (1998). Need for supervision: Its impact on leadership effectiveness. *Journal of Applied Behavioural Science*, 34(4) , 486-501.

De Vries, R.E., Roe, R.A. & Taillieu, T.C.B. (2002). Need for leadership as a moderator of the relationships between leadership and individual outcomes. *Leadership Quarterly*, 13, 121-137.

Den Hartog, D.N., Van Muijen, J.J. & Koopman, P.L. (1997). Transactional versus transformational leadership: An analysis of the MLQ. *Journal of Occupational and Organizational Psychology*, 70, 19-34.

Department of the Environment, Transport and the Regions (1998). *Rethinking construction: The report of the construction task force to the deputy prime minister, John Prescott, on the scope for improving the quality and efficiency of UK construction.* London: Department of the Environment, Transport and the Regions (DETR).

Diekmann, J. & Thrush, K. (1986). *Project control in design engineering, University of Colorado: A report to the Construction Industry Institute*, The University of Texas at Austin.

Dillman, D.A. (2000). *Mail and internet survey: The tailored design method*. (2nd ed.) New York: John Willey & Sons.

Djebarni, R. (1993). *Leadership patterns in the construction industry in Algeria*. Unpublished PhD thesis, University of Reading.

Dorfman, P.W., Howell, J.P., Hibino, S., Lee, J.K., Tate, U. & Bautista, A. (1997). Leadership in Western and Asian countries: Commonalities and differences in effective leadership processes across cultures. *Leadership Quarterly*, 8(3), 233-274.

Doty, D.H. & Glick, W.H. (1998). Common methods bias: Does common methods variance really bias results? *Organizational Research Methods*, 1(4), 374-406.

Drucker, P.F. (1952). Management and the professional employee. *Harvard Business Review*, May-June, 84-90.

Duffy, F. & Hutton, L. (1998). *Architectural knowledge: The idea of a profession*. London: E&FN Spon.

Dulaimi, M.F. (1991). *Job behaviour of site managers: Its determinants and assessment*. Unpublished PhD thesis. University of Bath.

Durkheim, E. (1952). *The Division of labor in society*. Glencoe, Illinois: Free Press.

Earl, R.B. (1990). *Survey research methods*. Wadswort, Belmont: California.

Economist Intelligence Unit (1998) *Knowledge workers revealed: New challenges for Asia*. Hong Kong: The Economist Intelligence Unit (EIU).

Enshassi, A. & Burgess, R. (1991). Managerial effectiveness and the style of management in the Middle East: An empirical analysis. *Construction Management and Economics*, 9, 79-92.

Erdfelder, E., Faul, F., & Buchner, A. (1996). GPOWER: A general power analysis program. *Behavior Research Methods*, Instruments, & Computers, 28, 1-11.

Esser, N.J. & Stother, J.B. (1962). Rule interpretation as indicator of style of management. *Personnel Psychology*, 15, 375-386.

Evans, M. G. (1985). A Monte Carlo study of the effects of correlated method variance in moderated multiple regression analysis. *Organizational Behavior and Human Decision Processes*, 36, 305-323.

Evans, M. G. (1991). The problem of analysing multiplicative composites: Interactions revisited. *American Psychologist*, 46, 6-15.

Evers, H.D. & Silcock, T.H. (1977). The role of professionals in the development of Southeast Asia. In Silcock, T.H. (ed.) *Development Studies Centre Monograph No.5: Professional structure in Southeast Asia*. Canberra: The Australian National University.

Fiedler, F.E. (1967). *A theory of leadership effectiveness*. New York: McGraw-Hill.

Field, A (2000). *Discovering statistics using SPSS for Windows: Advanced techniques for the beginner*. London: Sage Publications.

Fleishman, E.A. & Harris, E.F. (1962). Patterns of leadership behaviour related to employee grievances and turnover. *Personnel Psychology*, 15, 43-56.

Flexner,A. (1915). *Is social work a profession?* Proceedings of the National Conference of Charities and Corrections (p.581) Chicago: Hildermann Printing.

Flynn, R. (1999). Managerialism, professionalism and quasi-markets, In Exworthy, M. & Halford, S. (eds.). *Professionals and the new managerialism in the public sector*. Buckingham: Open University Press. U.K.

Foreman, J.I. (1975). *The influence of organizational settings of work upon the expression of professionalism among architects*. Unpublished PhD thesis. University of Michigan.

Fox, P.W. (2003). *Construction industry development: Analysis and synthesis of contributing factors*. Unpublished PhD thesis. Queensland University of Technology.

Fox, W.W. & Vonk, J.A. (1973). Comments on "Hall's Professionalism Scale: An Empirical Reassessment". *American Sociological Review*, 38, 392-395.

Freidson, E. (1986). *Professional powers: A study of the institutionalisation of formal knowledge*. Chicago: University of Chicago Press.

Freidson, E. (1994). *Professionalism reborn: Theory, prophecy, and policy*. Chicago: The University of Chicago Press.

Gerhard, L. (1998). *A practical guide to research methods*. Lanham: University Press of America.

Gerpott, T.J. & Domsch, M. (1985). The concept of professionalism and the management of salaried technical professionals: a cross-national perspective. *Human Resource Management*, 24(2), 207-226.

Glass, G.V., Peckham, P.D. & Sanders, J.R. (1972). Consequences of failure to meet assumptions underlying the fixed effects analyses of variance and covariance. *Review of Educational Research*, 42, 237-288.

Goode, W.J. (1957). Community within a community: the professions. *American Sociological Review*, 22(2), 194-200.

Goode, W.J. (1960). Encroachment, charlatanism, and the emerging profession: Psychology, sociology and medicine. *American Sociological Review*, 25, 902-14.

Greenwood, E. (1957). Attributes of a profession. *Social Work*, 2(3), 44-55.

Grendstad, G. & Strand, T. (1999). Organizational types and leadership roles. Scandinavian *Journal of Management*, 15, 385-403.

Gruenfeld, L.W. & Arbuthnot, J. (1968). Field independence, achievement values and the evaluation of a competency related dimension on the Least Preferred Coworker (LPC) measure. *Perceptual and Motor Skills*, 27, 991-1002.

Hair, J.F., Tatham, R.L., Anderson, R.E. & Black, W. (1998). *Multivariate data analysis*, Upper Saddle River, N.J.: Prentice Hall.

Hall, R. (1967). Some organizational considerations in the professional-organizational relationship. *Administrative Science Quarterly*, 12, 461-478.

Hall, R.H. (1968). Professionalization and bureaucratization. *American Sociological Review*, 33, 92-104.

Hammer, D.P., Mason, H.L., Chalmers, R.K., Popovich, N.G. & Rupp, M.T. (2000). Development and testing of an instrument to assess behavioural professionalism of pharmacy students. *American Journal of Pharmaceutical Education*, 64, 141-151.

Hantrais, L. & Mangen, S. (eds.) (1996). Method and management of cross-national social research. In Hantrais, L. & Mangen, S. (eds.) *Cross-national research methods in the social cciences*. New York: Pinter.

Harman, H.H. (1967). *Modern factor analysis*. Chicago, IL: University of Chicago Press.

Hater, J. & Bass, B.M. (1988). Superiors evaluations and subordinates perception of transformational and transactional leadership. *Journal of Applied Psychology*, 73(4), 695-702.

Haywood-Farmer, J. & Ian Stuart, F. (1990). An instrument to measure the 'Degree of Professionalism' in a professional service. *The Service Industries Journal*, 10(2), 336-347.

Hersey, P. & Blanchard, K. H. (1982). *Management of organizational behavior: Utilizing human resources* (4th ed.). Englewood Cliffs, NJ: Prentice-Hall.

Herzberg, F.B., Mausner, B. & Snyderman, B.B. (1959). *The motivation to work* (2nd.). New York: Wiley.

Hillebrandt, P.M. (1985). *Economic theory and the construction industry*. Hampshire: Macmillan.

Hofstede, G.H. (1980). *Culture's consequences: International differences in work-related values*. Beverly Hills, CA: Sage Publications.

House, R.J. (1971). A path-goal theory of leader effectiveness. *Administrative Science Quarterly*, 16, 321-339.

House, R.J. & Mitchell, T.R. (1974). Path-goal theory of leadership. *Contemporary Business*, 3, 81-98.

Howell, J.P. & Dorfman, P.W. (1981). Substitutes for leadership: Test of a construct. *The Academy of Management Journal*, 24(4), 714-728.

Howell, J.P. & Dorfman, P.W. (1986). Leadership and substitutes for leadership among professionals and non-professionals. *The Journal of Applied of Behavioral Science*, 22(1), 29-46.

Howell, J.P., Bowen, D.E., Dorfman, P.W., Kerr, S., & Podsakoff, P.M. (1990). Substitutes for leadership: Effective alternatives to ineffective leadership. *Organizational Dynamics*, 19(1), 20-38.

Howell, J.P., Dorfman, P.W. & Kerr, S. (1986). Moderator variables in leadership research. *Academy of Management Review*, 11(1), 88-102.

Hughes, E.C. (1963). Professions. *Daedalus*, 92, 655-668.

Hui, B. (1997). The concept of professionalism and the HKIA code of professional conduct. In Wong, W.S. & Chan, H.W.E. (eds.) *Professional practice for architects in Hong Kong*, Hong Kong: Pace Publishing Ltd.

Huru, H. (1992). *The UK construction industry: A continental view*. London: CIRIA.

Industry Science and Resources (ISR) (1999). *Building for growth: An analysis of the Australian building and construction industries*. Canberra: Australian Government Publishing Service.

Jaccard, J. & Turrisi, R. (2003). *Interaction effects in multiple regression*, (2nd ed.). (Sage University Papers Series on Quantitative Applications in the Social Sciences, 07-072). Thousand Oaks, CA: Sage.

Jenkins, W.O. (1947). A review of leadership studies with particular relevance to military problems. *Psychological Bulletin*, 44, p.54-79.

Joreskog, K. (1969). A general approach to confirmatory maximum likelihood factor analysis. *Psychometrika*, 34, 183-202.

Joreskog, K. G., & Sorbom, D. (1993). *SPSS LISREL 8: Users reference guide*. Chicago, IL: SPSS Inc.

Judd, C. M., Smith, E. R. & Kidder, L. H. (1991). *Research methods in social relations* (*6th ed.)*. Fort Worth: Harcourt Brace Jovanovich College Publishers.

Kaiser, H.F. (1970). A second generation little jiffy. *Psychometrika*, 35, 401-415.

Kaplan, D. (1995). Evaluating a model fit. In Hu, L. & Bentler, P. (eds.) *Structural equation modelling: Concepts, issues, and applications*. Thousand Oaks, Ca: Sage Publications, Inc.

Kaye, B. (1960). *The development of the architectural profession in Britain: A sociological study*. London: George Allen & Unwin Ltd.

Keillor, B., Deborah,W. & Pettijohn, C. (2001). A cross-cultural/ cross-national study of influencing factors and socially desirable response biases. *International Journal of Market Research*, 43, 63-84.

Keller, R.T. (1992). Transformational leadership and the performance of research and development project groups. Journal of Management, 18(3), 489-501.

Kelloway, E.k., Barling, J. & Helleur, J. (2000). Enhancing transformational leadership: The roles of training and feedback. *Leadership and Organization Development Journal*, 21(3), 145-149.

Kennedy, K.N. & Ramsey, R. (1995). Psychometric evaluation of the Hall professionalism scale. *Psychological Reports*, 77, 331-338.

Kerlinger, F.N. (1978). *Foundations of behavioural research*. Delhi: Surjeet Publications.

Kerlinger, F.N. & Lee, H.B. (2000). *Foundations of behavioral research*. Forth Worth: Harcourt College Publishers.

Kerr, S. & Jermier, J. (1978). Substitutes for leadership: Their meaning and measurement. *Organizational Behaviour and Human Performance*, 22(4), 375-403.

Kerr, S. (1977). Substitutes for leadership: Some implications for organizational design. *Organization and Administrative Sciences*, 8(1), 135-146

Kerr, S., Von Glinow, M.A. & Schriesheim, J. (1977). Issues in the study of "professionals" in organizations: The case of scientists and engineers. *Organizational Behaviour and Human Performance*, 18, 329-345.

Kim, J. & Mueller, C. W. (1978). *Factor analysis: Statistical methods and practical issues*. (Sage University Papers Series on Quantitative Applications in the Social Sciences, 07-014). Thousand Oaks, CA: Sage.

Kline, P. (1986). *A handbook of test construction: Introduction to psychometric design*. London: Methuen and Co.

Kline, P. (1994). *An easy guide to factor analysis*. London: Routledge.

Kline, R.B. (1998). *Principles and practice of structural equation modelling*. New York: The Guilford Press.

Kohn, A. (1996). Why incentive plans cannot work. In Steers, R.M., Porter, L.W. & Bigley, G.A., *Motivation and leadership at work* (6th ed.) New York: McGraw-Hill.

Konrad, A. M., & Linnehan, F. (1995). Formalized HRM structures: Coordinating equal employment opportunity or concealing organizational practices? *Academy of Management Journal*, 38(3), 787-820.

Krantz, J.H., Ballard, J., & Scher, J. (1997). Comparing the results of laboratory and World Wide Web samples on the determinants of female attractiveness. *Behaviour Research Methods, Instrumentation, and Computers*, 29, 264-269.

Larson, L.L. & Rowland, K.M. (1974). Leadership style and cognitive complexity. *Academy of Management Journal*, 17, 37-45.

Larson, M.S. (1977). *The rise of professionalism: A sociological analysis*. CA: University of California Press.

Latham, M. (1994). *Constructing the team: Final report, July 1994: Joint review of procurement and contractual arrangements in the United Kingdom construction industry*. London: HMSO.

Lawson, W.D. (2004). Professionalism: The golden years. *Journal of Professional Issues in Engineering Education and Practice*. ASCE, 130 (1), 26-36.

Lebell, D. (1980). Managing professionals: The quiet conflict. *Personnel Journal*, 59, 566-584.

Lee,T. (1995). The professionalization of accountancy: A history of protecting the public interest in a self-interested way. *Accounting, Auditing and Accountability Journal*, 8(4), 48-69.

Leicht, K.T. & Fennell, M.L. (2001). *Professional work: A sociological approach*. Oxford: Blackwell Publisher Ltd.

Liebing, R.W. (2001). *The construction industry: Processes, players, and practices*. Upper Saddle River, N.J.: Prentice Hall.

Long, J.S. (1980). *Confirmatory factor analysis: A preface to LISREL*. Beverly Hills: Sage Publications.

Loosemore, M. & Tan, C.C. (2000). Occupational bias in construction management research, *Construction Management and Economics*, 18, 757-766.

Lowe, K.B., Kroeck, K.G. & Sivasubramaniam, N. (1996). Effectiveness correlates of transformational and transactional leadership: A meta-analytic review of the MLQ literature. *Leadership Quarterly*, 7(3), 385-425.

Lynn, K. (1963). Introduction to the issue, The profession. *Daedalus* (Fall), 649-653.

Male, S.P. (1984). *A critical investigation of professionalism in quantity surveying*. Unpublished PhD thesis, University of Heriot-Watt, UK.

Manning, T.T. (2002). Gender, managerial level, transformational leadership and work satisfaction. *Women in Management Review*, 17(5), 207-216.

Marcus, A. (1985). Professional autonomy as a basis of conflict in an organization. *Human Resource Management*, 24(3) 311-328.

Marsch, H. & Hocevar, D. (1985). The application of confirmatory factor analysis to the study of self-concept: First-and higher order factor structure and their invariance across age groups. *Psychological Bulletin*, 97, 562-582.

Maslow, A. H. (1954). *Motivation and personality*. New York: Harper.

Matassarin-Jacobs, E.R. (1985). *The development of professionalism: An application to nursing*. PhD thesis. The University of Northwestern. Ann Arbor, Mich.: UMI.

McGrath, J.E. (1982). Dilemmatics: The study of research choices and dilemmas. In McGrath, J.E., Martin, J. & Kulka, R.A. (eds.). *Judgment calls in research*. CA, Newbury Park: Sage Publications.

McGregor, D. (1960). *The human side of enterprise*. New York: McGraw-Hill.

McLeod, J.M. & Hawley, S.E. (1964). Professionalization among newsmen. *Journalism Quarterly*, 41(3), 529-538.

Mehta, R. & Sivadas, E. (1995). Comparing response rates and response content in mail versus electronic mail surveys. *Journal of the Market Research Society*, 37(4), 429-439.

Millerson, G. (1964). *The qualifying associations: A study in professionalization*. London: Staples Printers Ltd.

Mintzberg, H. (1998). Covert leadership: Notes on managing professionals. *Harvard Business Review*, 76(6), p.140-147.

Monette, D.R., Sullivan, T.J. & DeJong, C.R. (2002). *Applied social research: Tool for the human services*. Fort Worth: Harcourt College Publishers.

Morrow, P.C. & Goetz, J.F. (1988). Professionalism as a form of work commitment. *Journal of Vocational Behaviour*, 32, 92-111.

Mowday, R.T., Steers, R.M. & Porter, L.W. (1979). The measurement of organizational commitment. *Journal of Vocational Behaviour*, 14, 244-247.

Mowery, J.K. (1986). *Correlates of professionalism among academic librarians*. Unpublished PhD thesis. Indiana University.

National Audit Office (NAO) (2001). *Modernizing construction*. London: The Stationery Office.

National Economics Development Office (NEDO) (1976). *The professions in the construction industries: A review of their role in determining the industries' performance and a prospectus for further work*. London: H.M.S.O.

Nelson, B. (1996). Dump the cash, load on the praise. *Personnel Journal*, 75(7), 65-68.

Nesbary, D. K. (2000). *Survey research and the world wide web*. Boston: Allyn and Bacon.

Nicholson, M. P. & Jepson, W.B. (1992). Architects in a changing environment. In Nicholson, M. P., *Architectural Management*. London; New York: E & F N Spon.

Noerager, J.P. (1979). An assessment of CAD - A personality instrument developed specifically for marketing research. *Journal of Marketing Research*, 16, 53-59.

Norris, D.R. & Niebuhr, R.E. (1983). Professionalism, organizational commitment and job satisfaction in an accounting organization. *Accounting, Organizations and Society*, 9(1), 49-59.

Norusis, M.J. (1997). *SPSS Professional Statistics 7.5*. Chicago, Illinois: SPSS Inc.

Norusis, M.J. (2002). *SPSS 11.0 guide to data analysis*. Upper Saddle River, N.J.: Prentice Hall.

Nunnally, J.C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

Nunnally, J. C. & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.

O'Sullivan, E. & Rassel, G.R. (1989). *Research methods for public administrators*. New York: Longman.

Oates T.D. (1993). Practice of professionalism. *Journal of Professional Issues in Engineering Education and Practice*, 1993, 119, 1, 44-45.

OECD (1995). *Liberalization of trade in professional services*. France: Organization for Economic Cooperation and Development (OECD).

Pett, M.A., Lackey, N.R. & Sullivan, J.J. (2003). *Making sense of factor analysis: The use of factor analysis for instrument development in health care research*. CA: Thousand Oaks: Sage Publications Inc.

Podsakoff, P. M., MacKenzie, S. B., Ahearne, M., & Bommer, W. H. (1995). Searching for a needle in a haystack: Trying to identify the illusive moderators of leader behavior. *Journal of Management*, 21, 422–470.

Podsakoff, P. M., MacKenzie, S. B., & Bommer, W. H. (1996). Meta-analysis of the relationships between Kerr and Jermier's substitutes for leadership and employee job attitudes, role perceptions and performance. *Journal of Applied Psychology*, 81, 380–399.

Podsakoff, P.M., Mackenzie, S.B. & Fetter, R. (1993). Substitutes for leadership and the management of professionals. *Leadership Quarterly*, 4(1), 1-44.

Podsakoff, P.M. & Organm D.W. (1986). Self-reports in organizational research: Problems and Prospects. *Journal of Management*, 12(4), 531-544.

Pollard, G. (1985). Professionalism among Canadian newsworkers: A cross media analysis. *Gazette*, 36, 21-38.

Poole, E & Regoli, R. (1980). Examining the impact of professionalism on cynicism, role conflict, and work alienation among prison guards. *Criminal Justice Review*, 5, 57-65.

Presthus, R. (1978). *The organizational society*. New York: St. Martin's Press.

Quinn, J.B., Anderson, P. & Finkelstein, S. (1996). Managing professional intellect: Making the most of the best. *Harvard Business Review*, 74 (2), 71-80.

Raelin, J.A. (1984). *The salaried professionals: How to make most of your career*. New York: Praeger Publishers.

Raelin, J.A. (1986). *The clash of cultures: Managers and professionals*. Boston, Mass: Harvard Business School Press.

Raelin, J.A. (1989). *An anatomy of autonomy: Managing professionals*. The Academy of Management Executive, 3(3), 216-228.

Rainbird, H. (1996). Negotiating a research agenda for comparisons of vocational training. In Hantrais, L. & Mangen, S. (eds.) *Cross-national research methods in the social sciences*. New York: Pinter.

Regoli, R., Crank, J., Culbertson, R., & Poole, E. (1988). Linkages between professionalization and professionalism among police chiefs. *Journal of Criminal Justice*, 16, 89-98.

Royal Institute of British Architects (1995). *Strategic study of the profession: Phase 3&4*. London: Royal Institute of British Architects (RIBA).

Rice, W.R. (1978). Construct validity of the least preferred co-worker score. *Psychological Bulletin*, 85, 1199-1237.

Royal Institution of Chartered Surveyors (RICS) (1971). Professionalism in a changing world. *Chartered Surveyor*, May.

RICS (1991). *Market requirements of the profession: A report to the Royal Institution of Chartered Surveyors by Richard Lay's committee*. The Royal Institution of Chartered Surveyors (RICS).

Royal Institution of Chartered Surveyors (RICS) (1998). Towards a sustainable profession. *Chartered Surveyors Monthly*, Jun, 56-57.

Ritzer, G. (1973). Professionalism and the individual. In Freidson, E. (ed.) The Professions and the Prospect. Beverly Hills, CA: Sage Publications.

Rowlinson, S.M. (1988). *An analysis of factors affecting project performance in industrial building*. Unpublished PhD thesis, Brunel University, UK.

Rowlinson, S., Ho, T.K.K. & Yuen, P.H. (1993). Leadership style of construction managers in Hong Kong. *Construction Management and Economics*, 11, 455-465.

Rupp, M.T. & Segal, R. (1989). Confirmatory factor analysis of a professionalism scale in pharmacy. *Journal of Social and Administrative Pharmacy*, 6(1), 31-38.

Rushing, S.K. (1982). *Professionalism among television news directors*. Unpublished PhD thesis, The University of Mississippi.

Scandura, T. A., & Williams, E. A. (2000). Research methodology in management: Current practices, trends, and implications for future research. *Academy of Management Journal*, 43(6), 1248-1264.

Schack, D.W. & Hepler, C.D. (1979). Modification of Hall's Professionalism Scale for use with pharmacists. *American Journal of Pharmaceutical Education*, 43(2), 98-104.

Schein, E.H. (1972). *Professional education: Some new directions*. New York: McGraw-Hill.

Schein, E.H. (1985). *Organizational culture and leadership*. Jossey Bass, San Francisco.

Schiller, M.R., Foltz, M.B. & Campbell, S.M. (1993). Dietitians' self-perceptions: implications for leadership. *Journal of the American Dietetic Association*, 93, 868-874.

Sergiovanni, T.J. (1990a). Adding value to leadership gets extraordinary results. *Educational Leadership*, 47, 23-27.

Sergiovanni, T.J. (1990b). *Value-added leadership: How to get extraordinary performance in schools*. New York: Harcourt Brace.

Shafer, W.E., Park, L.J. & Liao, W.M. (2002). Professionalism, organizational-professional conflict and work outcomes: a study of certified management accountants. *Accounting, Auditing & Accountability Journal*, 15(1), 46-68.

Shantz, D. & Prieur, P. (1996). Teacher professionalism and school leadership: An antithesis? Education, 116 (3), 393-396.

Shapero, A. (1997). Managing creative professionals. In Katz, R. (ed.) *The human side of managing technological innovation: A collection of readings*. New York: Oxford University Press.

Simister, S.J. (1994). *An investigation into the influences on construction professionals' working practices*. Unpublished PhD thesis. University of Reading.

Slevin, D.P. & Pinto, J.K. (1988). Leadership, Motivation, and the Project Manager. In Cleland, D.L. & King, W.R. (eds.), *Project management handbook* (2nd ed.), New York: Van Nostrand Reinhold.

Snizek, W.E. (1972). Hall's Professionalism Scale: An empirical reassessment. *American Sociological Review*, 37, 109-114.

Sorensen, J. E. & Sorensen, T.L. (1974). The conflict of professionals in bureaucratic organizations. *Administrative Science Quarterly*, 19, 98-106.

Stanton, J.M. (1998). An empirical assessment of data collection using the Internet. *Personnel Psychology*, 51 709-725.

Stevenson, C.L. (1944). *Ethics and language*. New Haven: Yale University Press, p.210.

Stogdill, R.M. (1974). *Handbook of leadership: A survey of theory and research*. New York: The Free Press.

Swailes, S. (2003). Professionalism: Evolution and measurement. *The Service Industries Journal*, 23(2), 130-149.

Symes, M., Eley, J. & Seidel A.D. (1995). *Architects and their practices: A changing profession*. London: Butterworth Architecture.

Tabachnick, B.G. & Fidell, L.S. (1996). *Using multivariate statistics*. New York: Harper Collins.

Tay, K.S. (1997). Perspectives on the past and the future of the architecture profession in the age of globalization, architecture Asia. *A Journal of the Architects Regional Council Asia*, Sept./Oct. p.4-7.

Tejeda, M.J., Scandura, T.A. & Pillai, R. (2001). The MLQ revisited: Psychometric properties and recommendations. *Leadership Quarterly*, 12, 31-52.

Thakor, M.V. & Kumar, A. (2000). What is a professional service? A conceptual review and bi-national investigation. *Journal of Services Marketing*, 14(1), 63-82.

Thomas, K.W. (2000). *Intrinsic motivation at work: Building energy and commitment*. California: Berrett-Koehler Publishers.

Thompson, A. (1990). *Architectural designs procedures*. London: Edward Arnold.

Tichy, N.M. & Devanna, M.A. (1990). *The transformational leader: The key to global competitiveness*. New York: Wiley.

Tosi, H. L., & Banning, K. (1998). A need to reconceptualize "substitutes for leadership". In Dansereau, F. & Yammarino, F. J. (eds.), *Leadership: The multiple-level approaches*. Stanford, CT: JAI Press.

Tosi, H.J., Rizzo, J.R. & Carroll, S.J. (1986). *Managing organizational behaviour*. Boston: Pitman.

Tucker, L.R. & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis, *Psychometrika*, 38(1), 1-10.

Vecchio, R.P. (1977). An empirical examination of the validity of Fiedler's model of leadership effectiveness. *Organizational Behaviour and Human Performance*, 19, 180-206.

Vollmer, H.M. & Mills, D.L. (1966). *Professionalization*. Englewood Cliffs, New Jersey: Prentice-Hall.

Villa, J.R., Howell, J.P., Dorfman, P.W. & Daniel, D.L. (2003). Problems with detecting moderators in leadership research using moderated multiple regression. *Leadership Quarterly*, 14 3-23.

Von Glinow, M.A. (1985). Reward strategies for attracting, evaluating, and retaining professionals. *Human Resource Management*, 24(2), 191-206.

Von Glinow, M.A. (1988). *The new professionals: Managing today's high-tech employees*. New York: Ballinger.

Waldman, D.A., Bass, B.M., & Einstein, W. (1987). Leadership and outcomes of performance appraisal processes. *Journal of Occupational Psychology*, 60, 177-1986.

Waldman, D.A., Bass B.M. & Yammarino, F.J. (1989). *Adding to leader-follower transactions: The augmenting effect of charismatic leadership*. (ONR Technical Report No.3). Center for Leadership Studies, State University of New York, Binghamton, NY.

Waldman, D.A., Bass, B.M., & Yammarino, F.J. (1990). Adding to contingent-reward behavior: The augmenting effect of charismatic leadership. *Group and Organisation Studies*, 15, 381-394.

Walker, D.H.T. (1997). Choosing an appropriate research methodology. *Construction Management and Economics*, 15, 149-159.

Walumbwa, F.O. & Lawle, J.J. (2003). Building effective organizations: Transformational leadership, collectivist orientation, work-related attitudes and withdrawal behaviours in three emerging economies. *International Journal of Human Resource Management*, 14(7), 1083-1101.

Wang, X. & Armstrong, A. (2001). *A structural model of professional commitment from the perspective of characteristics of a professional community*. Working Paper Series. Victoria: School of Management. Victoria University of Technology.

Wayne, C.G. (2001). *Practical project management: Learning to manage the professional*. Research Triangle Park, NC: ISA - The Instrumentation, Systems, and Automation Society.

Weissenberg, P. & Gruenfeld, L.W. (1966). Relationships among leadership dimensions and cognitive style. *Journal of Applied Psychology*, 50, 392-395.

Wheaton, B., Muthen, B., Alwin, D., & Schumers, G. (1977). Assessing reliability and stability in panel models. In D.R. Heise (ed.), *Sociological Methodology*, 84, San Francisco: Jossey-Bass.

Wilensky, H.L. (1964). The professionalization of everyone? *The American Journal of Sociology*, 70(2), 136-158.

Wisely, W.H. (1983). The influence of engineering societies on professionalism and ethics. In Schaub, J.H., Pavlovic, K. & Morris, M.D. (eds.), *Engineering professionalism and ethics*. New York: John Wiley and Sons.

Wright, P.M. & Noe, R.A. (1976). *Management of organizations*. New York: McGraw-Hill.

Yammarino, F.J. & Bass, B.M. (1990). Transformational leadership and multiple levels of analysis. *Human Relations*, 43, 975-995.

Yulk, G. (1999). An evaluation of conceptual weakness in transformational and charismatic leadership theories. *Leadership Quarterly*, 10(2), 285-305.

Yulk, G. (2002). *Leadership in organizations*. (5th ed.) Upper Saddle River, N.J.: Prentice Hall.

Yun, G.W. & Craig, W.T. (2000). Comparative response to a survey executed by post, email, & web form. *Journal of Computer-Mediated Communication*, 6(1), retrieved from http://www.ascusc.org/jcmc/vol6/issue1/yun.html.

Zalenznik, A. (1967). Management disappointment. *Harvard Business Review*, 45(6), 59-70.

Zikmund, W.G. (2003). *Business research methods*. Mason, Ohio: Thomson, South-Western.

RELEVANT PUBLICATIONS BY THE AUTHOR

Publications in Refereed Journal Articles

- Chan, E.H., Chan, M.W., & Chan, A.T.S. (2000). Disintegrating professional boundaries: A case with the building professions in Hong Kong. *International Journal of Project Management*, 19(2), 127-135.

- Chan, E.H., Chan, M.W., Scott, D. & Chan, A.T.S. (2002). Educating the 21st century construction professionals. *Journal of Professional Issues in Engineering Education and Practice*. ASCE, 128(1), 44-51.

- Chan, E.H. & Chan, A.T.S. (2002). Development of professional system in the construction industry of China. *Journal of Construction Research*, 3(2), 271-284.

- Chan, A.T.S. & Chan, E.H. (2005). The impact of perceived leadership styles on work outcomes: The case of building professionals. *Journal of Construction Engineering and Management*. ASCE, 131(4), 413-422.

- Chan, A.T.S. & Chan, E.H. (2004). Re-validation of Hall's professionalism scale for professionals in the construction industry. *Psychological Reports*. (Under Review)

Publications in Professional Magazine

- Chan, E.H. & Chan, A.T.S. (1999). A review on professionalism. *The Official Journal of Hong Kong Institute of Architects*, Issue No.20, 2nd Quarter, 18-24.

Conference Presentations and Publications

- Chan, E.H., Scott, D. & Chan, A.T.S. (2000). Formation of construction professionals: Should China aim for convergence with the "international" mode? *International Symposium on Construction Management and Economic Development*. Tianjin University, Tianjin, China, pp. 29-36, 9-12 October 2000.

- Chan, A.T.S. & Chan, E.H. (2003). Transformational and transactional leadership styles in the construction industry. *The International Symposium On "Advancement of Construction Management and Real Estate" 2003*. The Chinese Research Institute of Construction Management, Macau, China, pp.16-23, 3-5 December 2003.

- Chan, A.T.S. & Chan, E.H. (2004). Professionalism revisited for the building professions. *The International Symposium On "Advancement of Construction Management and Real Estate" 2004*. The Chinese Research Institute of Construction Management, Hong Kong, China, pp. 206-211, 6-7 December 2004.