Curtin Business School

Critical Determinants Influencing Employee Reactions to Multisource Feedback Systems

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DECLARATION

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university. To the best of my knowledge and belief, this thesis contains no material previously published by any other person, except where due acknowledgement has been made.

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ABSTRACT

The current study examines the Multisource Feedback (MSF) system by investigating the impact several MSF design and implementation factors have on employees' reaction towards the system. The fundamental goal of the research was to advance the understanding of what is currently known about effectively implementing multisource feedback systems to maximize employee favorable reaction, acceptance and perceptions of usefulness.

Of the many management feedback trends that have swept organizations in the past decade, few have had the outstanding impact of MSF. Despite the numerous studies on MSF, perusal of empirical literature lacks overall cohesion in identifying critical factors influencing employees' reactions to MSF. The constructs examined were delimited to those found to have inherent paradoxes, insufficient coverage, be inconclusive and/or have contradictory findings in the extant literature.

A series of main research questions, underscoring the main goal of the study, were developed from the gaps identified in literature to establish which predictors were predominant in influencing the employees' reactions, acceptance and perceptions of usefulness towards the MSF system. These research questions were formed into hypotheses for testing. The relationships to be tested were integrated into a hypothetical model which encompassed four sub-models to be tested. The models, named the *Climate, Reaction, Reaction-Acceptance, Reaction-Perceptions of Usefulness and Acceptance-Perceptions of Usefulness Models* were tested in parts using a combination of exploratory factor analysis, correlation analysis and multiple regressions. Further, key informants from each organization and HR managers in three large organizations provided post-survey feedback and information to assist with the elucidation of quantitative findings; this represented the pluralist approach taken in the study.

Survey items were derived from extant literature as well as developed specifically for the study. Further, the items were refined using expert reviewers and a pilot study. A

cross-sectional web-based survey was administered to employees from a range of managerial levels in three large Malaysian multinational organizations. A total of 420 useable surveys were received, representing a response rate of 47%.

Self-report data was used to measure the constructs which were perceptions of the various facets of the MSF. An empirical methodology was used to test the hypotheses to enable the research questions to be answered and to suggest a final model of *Critical Determinants Influencing Employee Reaction to MSF Systems.*

The study was conducted in six phases. In the first phase, a literature map was drawn highlighting the gaps in empirical research. In the second stage, a hypothetical model of employees' reaction to MSF was developed from past empirical research and literature on MSF. The third phase involved drafting a survey questionnaire on the basis of available literature, with input from academics and practitioners alike. The fourth stage entailed pilot testing the survey instrument using both the 'paper and pencil' and web-based methods. The surveys were administered with the assistance of the key informants of the participant organizations in the fifth stage of the study; data received were analysed using a range of statistical tools within SPSS version 15. Content analysis was utilized to categorize themes that emerged from an open-ended question. In the sixth and final stage, empirical results from the quantitative analysis were presented to HR managers to glean first hand understanding over the patterns that emerged.

Exploratory factor analysis and reliability analysis indicated that the survey instrument was sound in terms of validity and reliability. In the Climate model, it was found that all the hypothesized predictors, feedback-seeking environment, control over organizational processes, understanding over organizational events, operational support and political awareness were positively associated with psychological climate for MSF implementation. In terms of predictive power, control over organizational processes failed to attain significance at the 5% level. In the Reaction model, it was found that perceived purpose, perceived anonymity, complexity and rater assignment processes had significant associations with employee reaction to MSF, but perceived anonymity indicated poor predictive power from the regressions results. As hypothesized, employee reaction was found to be

related to MSF acceptance and perceptions of usefulness, and results indicated that the two latter outcome constructs were related, but statistically distinct.

The two-tier pluralist technique of collecting and examining data was a salient feature of the current study. Indeed, such a holistic approach to investigating the determinants of employee reaction to MSF allowed for better integration of its theory and practice. The study is believed to make a modest, but unique contribution to knowledge, advancing the body of knowledge towards a better understanding of MSF design and implementation issues.

The results have implications for calibrating MSF systems and evaluating the need for, and likely effectiveness of, what has been hailed as one of the powerful new models for management feedback in the past two decades. Suggestions were made about how the results could benefit academia and practitioners alike. Since most organizational and management research has a western ethnocentric bias, the current study encompassed eastern evidence, using cases in Malaysia.

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1 INTRODUCTION

While use of MSF systems has proliferated rapidly, understanding of its complexities
has not - and many companies are moving forward with MSF amid a dangerous void
of systematic research and discussion on this powerful process.

(Bracken, Timmreck & Church 2001b, cover)

1.1 Chapter Introduction

The current study was undertaken to investigate the critical determinants influencing employee reaction to multisource feedback (MSF) systems. Specifically, the main goal was to establish certain best practices with regard to the design and implementation of the MSF system by evaluating employees' perception of MSF acceptance and the usefulness perceptions. As an ancillary objective, the current study was used to provide a richer understanding of employees' perceptions towards MSF systems by way of using qualitative interview data to explain quantitative findings. Additionally, the possibility of de-coupling between MSF policy and practise was explored.

In the study, it is argued that decisions are made about the many variations with regard to MSF design and implementation; for instance, the purpose of MSF, assignment of raters, anonymity of raters and operational support all influence the overall employee perceptions about, acceptance of, and usefulness of the MSF system. Furthermore, it is the actual perceptions and experiences of employees which matter and not merely the stated policies regarding each MSF system component. During the research, a model was developed depicting the relationships between factors influencing employee reaction to the MSF system, with reaction conceptualized as acceptance and perceptions of the system's usefulness (see Figure 1-4). It is argued that a better understanding of these factors may assist in improving the acceptance and success of MSF system implementation by contributing to both management research and practice.

Chapter One begins with an explanation of the major research topic within the field of management (see Figure 1-1). This is followed by a background statement on

MSF, including the definition of the term, its origins and recent adoption in organisations. A general statement on the problem situation is examined briefly in relation to gaps evident in extant literature. This, then, is followed by some comment on the philosophy behind the current research. A concise section about the research questions encompassing main and ancillary research questions is put forward, together with the theoretical framework and main relationships hypothesized under the current study. Subsequently, there is a summary of the research methodology, a brief description of the parameters within which the study was undertaken, and an in-depth discussion over the significance of the current study in the light of theoretical, methodological and practical contributions. Finally, a list of the main terms used, with their definitions, is provided, followed by an outline of the overall thesis structure.

Figure 1-1: Chapter One Outline
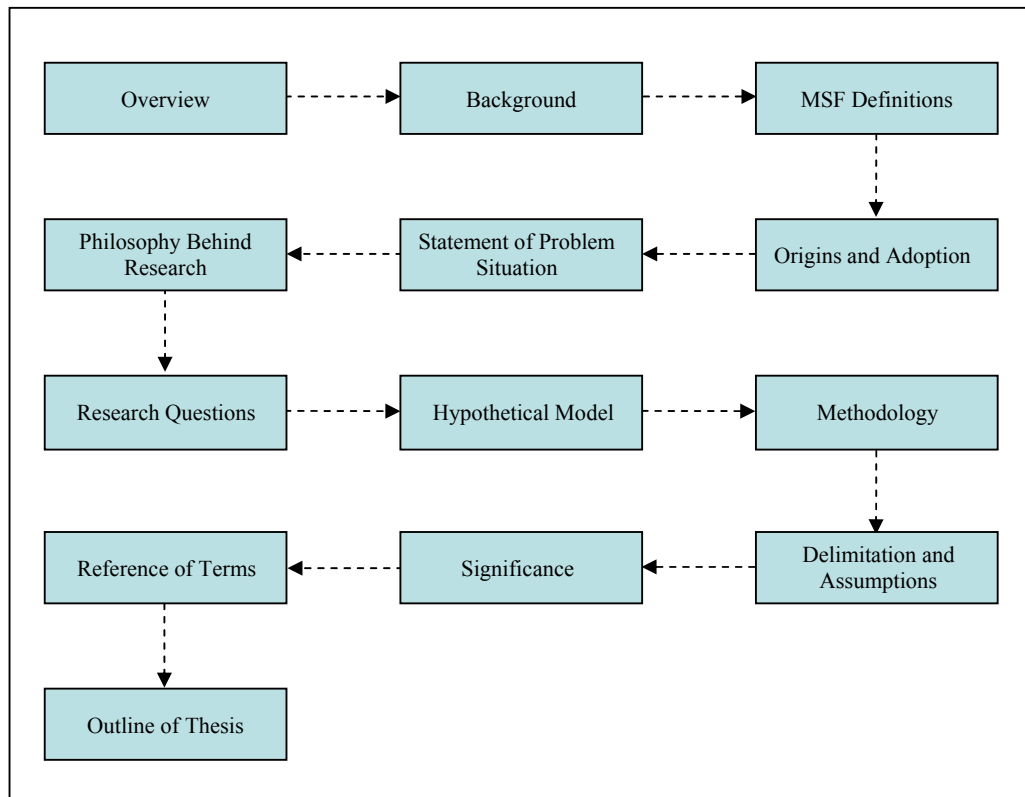
1.2 Background to the Research

1.2.1 Multisource Feedback: Definition

Multisource Feedback (MSF), also commonly referred to as 360-degree feedback, multi-rater assessment, multi-rater feedback, multisource assessment, and full-circle feedback, essentially describes the process of obtaining feedback from multiple sources (Bracken et al. 2001b p.xxv). The sources of feedback comprise sundry groups of people with whom the employees interact regularly. By general definition, MSF is a collection of evaluations from two or more rating sources gathered about a target participant, sources may include self, supervisor, peers, direct reports, internal customers, external customers, vendors or suppliers (Antonioni 1996; Brutus, Fleenor & London 1998; Church & Bracken 1997). Seifert, Yukl and McDonald (2003) narrow down this definition of MSF as a program where managers receive feedback information by groups with whom they interact regularly.

There are numerous other proposed definitions of the MSF feedback process; among others, feedback from multiple sources encompassing input from superiors, colleagues, subordinates, sometimes customers, suppliers and/or spouses (Yukl & Lepsinger 1995). MSF would possibly encompass different combinations of two or more of the following: peer feedback, subordinate feedback, customer feedback and top-down feedback. Brutus, Petosa and Aucoin (2005) clarify that the variations above are often considered homogenous practices but actually encompass a range of different practices with the common denominator as using multiple evaluators as individual performance. In a special edition of Human Resource Management on MSF, Tornow (1993) simplifies the definition of MSF programmes as feedback about a target individual that is solicited from significant others using a standardized instrument.

More recently, Foster and Law (2006) highlighted the confusion between the terms '360-degree feedback' and 'multisource' feedback, and attributed the problem to a common error in deductive logic. The authors prompted calls for a more precise and concise use of the terms multisource feedback and 360-degree feedback especially since they have been used confusingly and interchangeably. Basically, it was argued

that 360-degree feedback is a form of MSF and, hence, actually a subset of it. Consequently, MSF is not necessarily 360-degree feedback. Even though the terms often are used synonymously in literature, it is imperative that a distinction be made between MSF and 360-degree feedback. MSF essentially refers to an individual receiving personalized feedback from two or more sources, as opposed to the 360-degree feedback where feedback really comes from self-ratings as well as all around (Foster & Law 2006). Figure 1-2 below depicts the different perspectives possibly captured by the 360-degree feedback. As stated above, MSF would comprise feedback from a combination of any two or more of those sources.

Figure 1-2: 360-Degree Feedback Perspectives
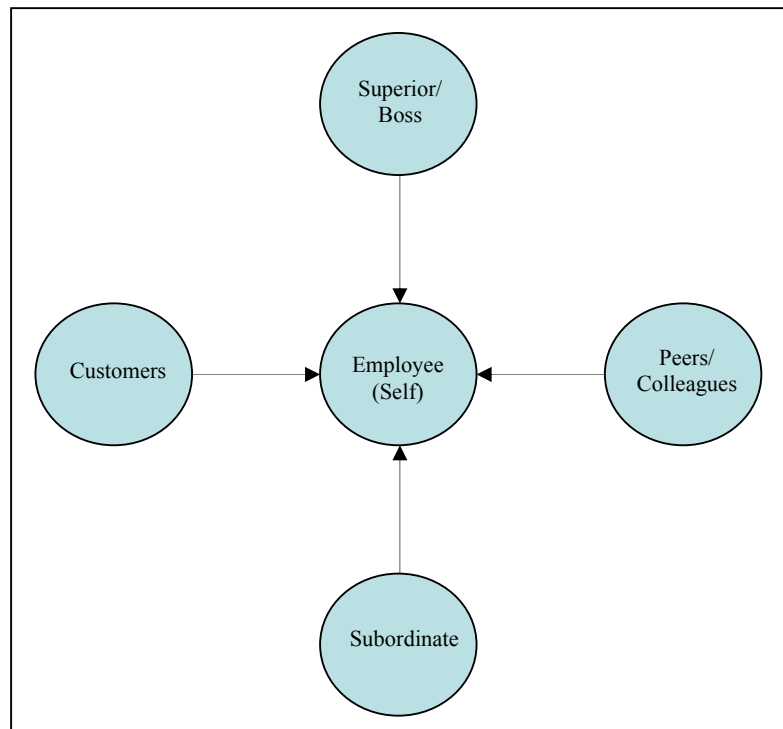
Most organisations have adopted some form of the MSF, with feedback being sought from sources such as peers, subordinates and bosses just to name a few. Having said this, one can envisage an endless number of permutations of the categories and numbers of sources from which feedback could be sought to accomplish a 'multisource' feedback system.

To be uniform, the term 'multisource feedback (MSF)' is chosen as the preferred terminology as it is more general compared to others such as multi-rater assessment and multisource appraisal; also, it encompasses concepts that are included in the alternative terms. The term 'multisource feedback' is perceived as having no connotations with regard to the number of different perspectives from which feedback is sourced (i.e., as long as it solicits feedback from more than one of the sources) and has no implied assumptions about the purpose of feedback (i.e., whether it is used for development, decision making or planning purposes). However, acknowledging the multitude of terminology used to refer to MSF, and in order to ensure thoroughness, references are made to extant literature and studies encompassing all the possible variations and subsets making up MSF systems (e.g., research on peer appraisals or subordinate appraisals).

1.3   Statement of the Problem Situation

1.3.1   MSF – Is it Yet Another Management Fad?

As with most management tools, organisations have rushed to join the MSF bandwagon without really considering what they sought to accomplish from this powerful management device. This precipitous phenomenon has seen MSF systems prematurely abandoned, fail to achieve their potential or instigate harmful effects like deteriorated employee morale compared to the status quo, thus allowing MSF to fall into the unfortunate category of yet another 'management fad'. It is well understood that any business process, ultimately, has to serve particular constituencies; i.e., the stakeholders (Bracken et al. 2001b). Nevertheless, in regard to MSF systems, considering the impact and reactions of employees may be more likely to shed some light as to why MSF systems have not lived up to their potential.

In the following section, the researcher navigates the complexity of MSF ideas and highlights a gap in the current body of knowledge.

1.3.2 Gaps in Literature

Perusal of more recent literature on feedback has highlighted a noticeable reduction in the concern over feedback instruments and accuracy. Instead, there is a growing interest in issues such as psychological variables that underlie the feedback process, and user reactions to facets of the system (Atwater & Brett 2005; Brett & Atwater 2001; Smither, London & Reilly 2005a; Smither, London & Richmond 2005b). However, though there is some literature on acceptance of feedback, ideas are presented within the context of a supervisor/subordinate dyad (Ryan, Brutus, Greguras & Hakel 2000), not within the context of MSF. Hence, there appears to be a paucity of literature that captures the range of feedback combinations possible under the MSF system (peer, subordinate, self etc.). Since the complexity of MSF lies in the many ways in which it can be implemented (Bracken, Timmreck, Fleenor & Summers 2001c; Carson 2006; Dunnette 1993; Kluger & DeNisi 1996), empirical evidence is still equivocal with regard to acceptance of the MSF concept, especially with regard to the various design and implementation issues.

Bearing in mind reactions to feedback, the general sense in the proliferation of feedback literature is that it is "much like the blind men groping the elephant, each arriving at a different conclusion depending on the angle taken" (Bracken et al. 2001b p.3). Like the rest of the discipline, there has been little effort to integrate studies under this specific subject-area; in the end, one is left with a series of snapshots without any overall picture of the process.

Also, the reasons behind favourable reactions to feedback are hard to pin down. The crucial question to be asked is why employee reaction is so important. One potential answer lies in the essential link that exists between employee reactions and acceptability of a feedback system in relation to its overall feedback effectiveness (Bernardin & Beatty 1984; Dobbins, Cardy & Platz-Vieno 1990; Miller 2001). Since the underlying objective behind feedback is to help retain, motivate and develop employees (Mount, Judge, Scullen, Sytsma & Hezlett 1998), there is little hope that positive outcomes will occur if individuals are disgruntled with the MSF practice. Thus, even at the infancy stage of MSF, Lawler (1967 in Fletcher & Baldry 2000)

went to the extent of signifying that employee opinions are really at a par with psychometric validity and reliability of feedback instruments as far as feedback and performance appraisals are concerned.

Presumably, conclusions drawn from the literature on feedback are germane to the topic of MSF. The assumption is based on the concept that MSF operates with similar objectives to feedback; i.e., to help retain, motivate and develop staff (Mount 1984) and provide employees with a holistic view of their performance (Bracken et al. 2001b). Hence, referring to the critical link established above, i.e., between reaction, acceptability and effectiveness, it can be assumed that understanding employee reactions to the MSF system will assist in achieving overall MSF system effectiveness. Unfortunately, compared to the broader umbrella topic of feedback in general, and despite the plethora of published literature on MSF, the narrowed focus of employee reactions towards MSF and the factors contributing to these reactions still remain grey areas as far as empirical evidence is concerned (Brett & Atwater 2001; Cardy & Dobbins 1994; Morgan, Cannan & Cullinane 2005).

Notwithstanding the varied and myriad issues highlighted in explaining the MSF purpose, design and implementation, research has lagged behind in identifying important determinants of successful MSF systems. Furthermore, the current review of literature has not shed much light on some particularly salient issues about MSF adoption. The list is not exhaustive, but there have been heated disputes over the precise nature of the MSF purpose, anonymity and rater selection. In addition, and jeopardizing MSF potential even more, organisations have been jumping on the bandwagon without properly aligning MSF to other organisational HR policies (Mabey 2001; Morgan et al. 2005).

Evidence has emerged offering inconclusive, if not contradictory, findings to certain issues particularly critical in MSF design and implementation. Accordingly, the contested debate about the so-called 'best-practices' of MSF provides the backdrop for assessing its acceptance and perceptions of usefulness amongst employees. Also, the issue of policy-perception alignment is addressed, underscoring the main goal of establishing the critical determinants influencing employees' reaction to MSF systems. Therefore Chapter Two is used to outline the limits of extant literature on

the various MSF design and implementation issues and, consequently, propose what remains to be investigated.

Put simply, it is postulated that the current research creates a knowledge base for determining the consequences of certain design and implementation decisions on employee reactions to the MSF systems. Furthermore, the research findings increase understanding of what constitutes best-practice in MSF systems, thereby leading to a higher probability of success for the overall MSF system.

Experts often have warned about the feasible predicaments that may emerge from applying non-traditional systems such as the MSF in various cultures (Brutus, Leslie & McDonald 2001). Malaysia is one example of a country with rapidly developing industries and is home to many large organizations emulating management tools from developed nations. Brutus et al. (2001) called for additional research to offer new insights into issues that may prevail when applying MSF systems outside North America.

Anecdotal evidence seems to suggest that an increasing number of Malaysian organizations are trying to implement some form of MSF system (e.g., Shipper, Hoffman & Rotondo 2004). The present research uses Malaysia as the background of the study; the over-arching objective is to broaden the underdeveloped empirical evidence on factors influencing employee acceptance of the MSF system in an Asian setting, specifically taking three cases in Malaysia.

1.3.3   Philosophy Behind the Research

Taking a macro perspective, the following relationships were identified in the early stages of the current study.

1. MSF design and implementation decisions are made by HR management.
2. The perceptions of employees about various MSF issues may or may not be synonymous with what management intends it portray (i.e. they may be aligned or de-coupled).

3.   The perceptions of employees towards these design and implementation issues influence their reaction towards the system and consequently, influence the degree of acceptance of MSF and perceptions of its usefulness.

4.   Employees' acceptability of MSF and perceptions of its usefulness have serious repercussions on the overall success of the MSF system.

5.   HR management's understanding of the degree of employees' MSF acceptance and perceptions of usefulness may or may not be representative of empirical reality.

6.   Where there is a possibility of de-coupling between policy and practice, adjustments can be made to the design and implementation of MSF, to increase the acceptance of the MSF system.

Figure 1-3 is used to elucidate the relationships above and illustrate the general approach (quantitative or qualitative) taken to address the issues identified above.

The area shaded and labelled 'quantitative' method denotes the major part of the current research, and this underpins the hypothetical model at the heart of the research (to be discussed in Chapter Two).

Figure 1-3: A Bird's Eye View of the Philosophy Behind the Current Research
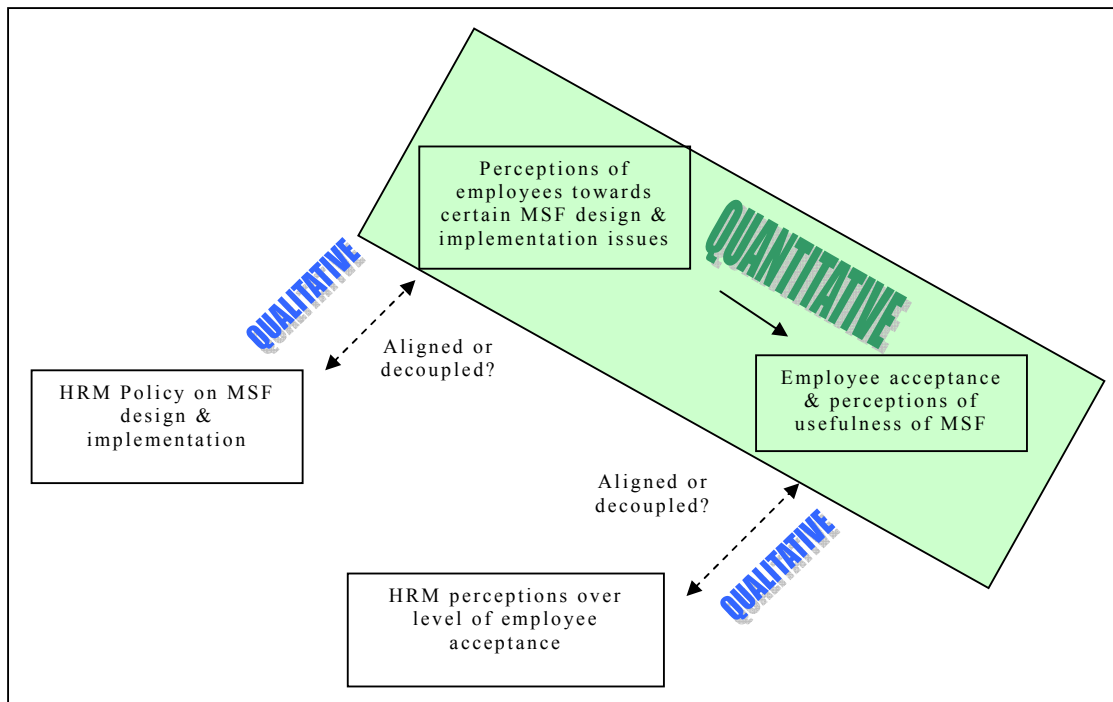
1.4   Research Questions

In this section, the fundamental objective and main research questions are presented. Also, three ancillary questions are presented to link policy and practice in MSF implementation. Although this research has adopted a predominantly quantitative approach, a qualitative technique appeared suitable to address the ancillary research questions.

Fundamental Research Objective:

> To advance the understanding of what is currently known and what still needs to be learned about effectively implementing multisource feedback systems to maximize employee favourable reaction, acceptance and perceptions of usefulness.

Main Research Questions:

To achieve the overarching research objective, the following research questions were formulated. Being a pre-dominantly quantitative research, the hypothetical model for the research as presented in Chapter Two illustrates the relationships hypothesized, simultaneously addressing the research questions formulated for the study.

The main research questions were:

1. Are the constructs of feedback seeking environment (FSE), control over organizational processes (CTRL), understanding of organizational events (UNDERST) and operational support (SUPPORT); individually associated with the psychological climate for MSF implementation (CLIMATE)? *(Relationship Model)*

    To what extent do constructs of feedback seeking environment (FSE), control over organizational processes (CTRL), understanding of organizational events (UNDERST) and operational support (SUPPORT); collectively predict the psychological climate for MSF implementation (CLIMATE)? *(Predictive Model)*

2. Are the constructs of psychological climate (CLIMATE), perceived MSF purpose (PURPOSE), complexity (COMPLEX), perceived rater anonymity (ANONYM) and assignment of raters (ASSGN), individually associated with employee reaction to MSF (REACTION)? *(Relationship Model)*

To what extent do constructs of psychological climate (CLIMATE), perceived MSF purpose (PURPOSE), complexity (COMPLEX), perceived rater anonymity (ANONYM) and assignment of raters (ASSGN), collectively predict employee reaction to MSF (REACTION)? (*Predictive Model)*

3. To what extent does employee reaction towards MSF (REACTION) predict employee acceptance (ACCEPTANCE) and perceptions of usefulness (POU)?

4. Are the constructs of acceptance (ACCEPT) and perceptions of usefulness (POU) distinct constructs as far as employee reactions to MSF systems are concerned?

The ancillary research questions were:

1. What are the issues that are perceived as pertinent to the overall success of MSF implementation?

2. Are employee perceptions of the MSF system aligned with or de-coupled from the original intention of management?

3. To what extent is management aware of the employees' acceptance of the MSF system and perceptions of its usefulness?

As a result of the main research questions, Figure 1-4 was developed as an overview, hypothetical model of the topic being researched. In addition, fifteen main hypotheses have been developed from literature to enable the relationship between all the constructs under contention to be explored. A detailed discussion on the justification of the hypotheses development will follow in Chapter Two and an additional hypothesis, referred to as H5 in the consolidated table of hypotheses, was added following exploratory factor analysis in Chapter Four.

1.5 Hypothetical Model

Figure 1-4: Hypothetical Model
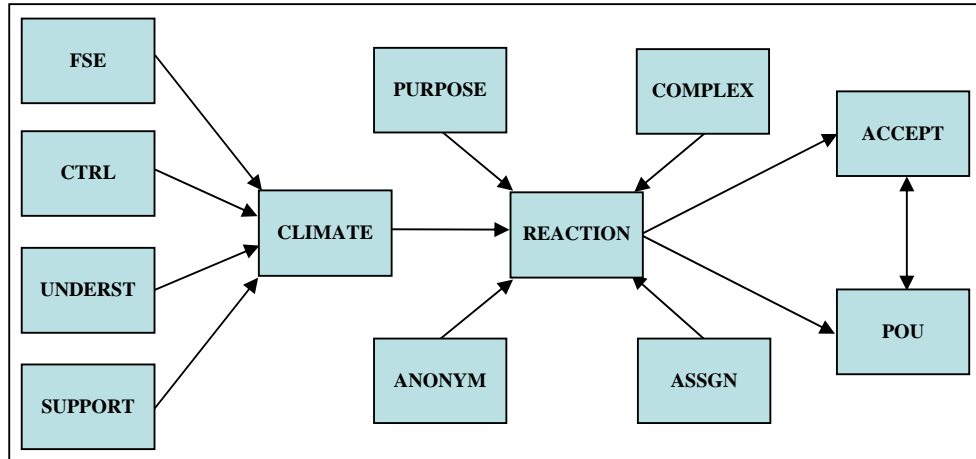
FSE=feedback seeking environment, CTRL=control over organizational processes, UNDERST=understanding of organizational events, SUPPORT=operational support for MSF system implementation, CLIMATE=psychological climate for MSF system implementation, PURPOSE=perceived MSF purpose, COMPLEX=MSF system complexity, ANONYM=perceived rater anonymity, ASSGN= perceptions of the rater assignment process, REACTION=employee reaction to MSF, ACCEPT=employee acceptance of MSF systems, POU= employee perceptions of MSF system usefulness.

The research hypotheses are:

Table 1-1: Table of Hypotheses

H1	Feedback seeking environment (FSE) is positively associated with the psychological climate (CLIMATE) for MSF implementation.
H2	Control over organisational processes (CTRL) is positively associated with the psychological climate (CLIMATE) for MSF implementation.
H3	Understanding of organisational events (UNDERST) is positively associated with the psychological climate (CLIMATE) for MSF implementation.
H4	Perceptions of operational support (SUPPORT) are positively associated with the psychological climate (CLIMATE) for MSF implementation.
H5	Perceptions of political awareness (POLIT) are positively associated with the psychological climate (CLIMATE) for MSF implementation.
H6	Feedback seeking environment (FSE), control over organisational processes (CTRL), understanding of organisational events (UNDERST), perceptions of operational support (SUPPORT), and perceptions of political awareness (POLIT) are together predictors of the psychological climate (CLIMATE) for MSF implementation.
H7	Psychological climate for MSF implementation (CLIMATE) is positively associated with employee reaction to MSF (REACTION).
H8	Perceived MSF purpose (PURPOSE) is associated with employee reaction to MSF (REACTION), such that a non-administrative purpose will be positively associated with REACTION.

H9	Perceptions of the level of complexity related to MSF process (COMPLEX) are negatively associated with employee reaction to MSF (REACTION).
H10	Perceptions of rater anonymity (ANONYM) are positively associated with employee reaction to MSF (REACTION).
H11	Perceptions of the rater assignment process (ASSGN) are positively associated with employee reaction to MSF (REACTION), such that a favourable ASSGN is positively related to REACTION.
H12	Psychological climate for MSF implementation (CLIMATE), Perceived MSF purpose (PURPOSE), Perceptions of the level of complexity related to MSF process (COMPLEX), Perceptions of rater anonymity (ANONYM), and Perceptions of the rater assignment process (ASSGN) are together predictors of the employee reaction to MSF (REACTION).
H13	Reaction to MSF systems (REACTION) is positively associated with employee acceptance towards MSF systems (ACCEPT)
H14	Reaction to MSF systems (REACTION) is positively associated with perceptions of usefulness towards MSF systems (POU)
H15	There is a positive relationship between employee acceptance of MSF systems (ACCEPT) and perceptions of usefulness (POU), but statistically ACCEPT and POU are distinct constructs.

1.6 Methodology

In the current research, both quantitative and qualitative methods were used to capitalise on the advantages of both. The researcher first explored the subject matter in a general manner by use of a pilot study to test a potential survey instrument; then, a large number of individuals were surveyed, and a follow-up used with a few individuals to obtain their specific opinions regarding the phenomena discovered from the surveys. However, it is crucial to stress the pre-dominance of the quantitative approach over its counterpart, especially in answering the key research questions for the current study.

Quantitative data was collected by means of a questionnaire with the main section containing 54 items; and a demographic section of 6 questions. The majority were Likert-scale items based on a 5-point-scale. Some measures were taken from previously developed instruments already known to be reliable, while others were developed by the researcher and drawn from concepts identified from literature. Nevertheless, the entire instrument, which comprised the adapted and developed scales, was piloted to enhance clarity and content validity. The qualitative data were sourced from three in-depth interviews with senior representatives of the Human

Resource Departments from the three organizations participating in the current research.

The study was sited in three large Malaysian multi-national organizations; namely a telecommunications, oil and gas, and power-supply organisation. All three organisations have implemented the MSF feedback system for at least three years. The unit of analysis for the research population was employees at executive-level and above, specifically with designations of Executive, Senior Executive, Manager, Senior Manager, Assistant General Manager and General Manager. A total of 420 useable surveys were completed from a distribution of 900 surveys, representing a 46.7% response rate.

1.7   Delimitations of Scope and Key Assumptions

Delimitations of a study set the boundaries and scope of the research to a central phenomenon, on specific variables relevant to specific participants or sites (Creswell 2003). The research was sited at three multi-national organisations in Malaysia, located in Kuala Lumpur, the country's capital city. The scope was narrowed to these large organisations from three main industries being Oil and Gas, a Telecommunications and a Power-supply Company; these were representative of different industries that have on-going MSF systems as part of their performance management program. As mentioned earlier, the central phenomenon of the study is employee reaction to MSF, acceptance and perceptions of usefulness; the predictors examined are delimited to those found to have inherent paradoxes, insufficient coverage, be inconclusive and/or have contradictory findings in the extant literature.

The key assumptions (limitations) of the study include:
- The duration in which the MSF system has been on-going has no effect on the reaction to the MSF system;
- The number of cycles the employees have received feedback has no effect on the reaction to the MSF system;
- The framework presented encompasses only part of the factors influencing reaction to MSF systems;

- The job-levels with the respective descriptions of 'executive levels' right up to 'general manager' is comparable across the three organizations.

1.8 Significance of the Study

The current research is envisaged to make a number of significant contributions to the theory and practice of MSF. The theoretical contributions provide a better understanding of the design and implementation issues plaguing MSF systems by exploring, investigating and contributing to existing extant literature. On the other hand, the practical contributions include providing large multi-national organisations in Malaysia and countries with similar cultural dimensions an instrument to test the model proposed by the current study. The specific theoretical, methodological and practical contributions of the study are discussed next.

1.8.1 Theoretical Contribution

Firstly, the current research is seen as filling the void in empirical research studies on MSF reactions. Referring to extant literature on MSF, the available findings are "a hodgepodge of techniques, testimonials, cautions, methodological problems, and lack overall cohesion" (Dunnette 1993 p.373). Even two decades later, that level of understanding has not progressed sufficiently (Bracken et al. 2001b). To date, theories have emerged to explain the psychometric validity of MSF ratings, but there is a dearth of empirical scrutiny about employee reactions to MSF systems. As such, the contention is that the current study provides a significant contribution to the body of knowledge by increasing the understanding of employee reaction to MSF systems. Specifically, the present study was designed to uncover relationships not previously investigated in this manner and within this context, but often suggested for future research (e.g., Bailey & Austin 2006; Facteau, Facteau, Schoel, Russell & Poteet 1998; Morgan et al. 2005; Morgeson, Mumford & Campion 2005; Othman, Domil, Senik, Abdullah & Hamzah 2006; Spicer & Ahmad 2006; Waldman 1997; Waldman & Bowen 1998). Of particular interest was the degree of acceptance of MSF and perceptions of its usefulness in relation to specific predictors influencing these reaction criteria.

Secondly, the study takes a generic approach since research on the essence of MSF acceptance is devoid of empirical examination. Most management tools are known to have a western, ethnocentric bias (Lee-Ross 2005), so the current study was based on cases of MSF as it is applied in Malaysia. That country was chosen not only because it is one of the fastest developing third world countries, but also because of its unique socio-cultural heritage; it is home to the three major ethnic groups of Malay, Chinese and Indian. With rapid business globalisation and increased international trade with third world countries, there is a need to examine the cultural impact on management practices in these countries. As culture tends to exert a strong influence on management practices and on organisational behaviours, effective HRM practices may vary across different cultures. Findings from the current study are envisaged to be generalisable to other nations and organisations with similar cultural dimensions.

Thirdly, the current study is used to develop a hypothetical model of MSF critical success factors; the model used tests the identified dimensions of employee reaction to MSF systems. Without a framework on which to build the research, further efforts to discover useful information about the process would remain scattered and disorganised. Following the collection of data in light of the hypothetical model, an updated, 'best practice' model is suggested to provide direction for future research, help shed light on the theoretical underpinnings of MSF and to begin the process of building a nomological network to explain how the study has moved forward the knowledge of MSF practices.

From the methodological standpoint, a contribution is made due to the mixed-methods approach that is adopted to elucidate the contentious issues. Miles and Huberman (1994, p.267) suggest that "triangulation is a way to get and double-check findings, using multiple sources and modes of evidence". While there has been little research regarding employee reactions to MSF either taking a purely positivist approach or interpretivist approach, there have been even less, if any, adopting a mixture of methods as used in this study.

1.8.2 Practical Contribution

In response to rapid changes in the increasingly competitive business environment, many scholars and practitioners are recommending that organizations adopting new management tools such as the MSF make a concerted effort to understand and appreciate the practical implications of researches on MSF.

The current research has implications for organisations contemplating the use of or already implementing, MSF systems. The organisations can benefit from indications as to the critical success factors impacting on employee acceptance and perceptions of usefulness of the system, because the feedback of employees has significant repercussions for the overall success of the MSF system. Besides that, the qualitative portion of the current research identifies limitations in MSF applications. In fact , an alarming observation by a recent study on MSF systems was that MSF programs "may hurt more than they help" (Pfau, Kay, Nowack & Ghorpade 2002 p.55). Similarly, Schneider et al. (cited in McCarthy & Garavan 2001) claim that many of the MSF programs are carried out in the absence of a strategic context, are not focused on contributions to an organisation's competitive advantage nor aligned to other HR policies.

Scholars and practitioners have recognized the need for a closer examination of issues beyond psychometric properties of MSF ratings to more crucial aspects such as user reactions towards the MSF system. The current study investigates these perceptions to provide insight into the receptivity towards the various facets within the MSF system. By doing that, organizations and human resource managers can utilize the proposed model to test the level of acceptance and perceptions of usefulness of MSF systems. Further, human resource departments can use the information to customize the MSF system design components to maximize employee reaction and develop training and development programs aimed at ensuring effective MSF system implementation.

To sum up, the aim of the current research was to provide researchers and practitioners alike with new insights into the relatively under-researched topical

management issue of MSF. The ability to predict and understand employees' reactions to MSF systems is regarded as imperative to help organisations ensure effectiveness and success with one of the major performance feedback tools. It is considered that, should the right approach be made with regard to implementing the MSF system, organisations can benefit from improving their MSF systems to be more than simply a management fad of the past two decades.

1.9 Definition of Terms

The definitions of terms do vary from one researcher to another; therefore, the key terms and concepts incorporated within the current study are defined in this section to provide a better understanding of the research issues. Most the definitions herein are developed by the researcher from literature and modified to correspond to the essence of the current study.

Multisource Feedback (MSF) – MSF refers to an employee receiving personalized feedback about his/her performance on the job from two or more sources from any of the following categories: self, superiors (bosses), colleagues, peers, subordinates/ direct-reports, customers or suppliers.

Rater – Rater refers to the people who are making the assessment of an employee, and whose views will be consolidated to make up the MSF assessment.

Ratee – Ratee refers to the employee being assessed; i.e. the employee receiving feedback from the MSF system on his/her performance.

Rating/Assessment – Rating/Assessment refers to the exercise of an evaluation being made of the ratee through the MSF system.

De-coupling – De-coupling refers to the extent of mismatch between the management's intention for MSF and the perception of employees towards the system.

Feedback Seeking Environment (FSE) – FSE refers to the employee perceptions of the environment as to whether they are comfortable in giving and seeking feedback.

Control over Organizational Processes (CTRL) – CTRL can be defined as the extent to which employees have the ability to exercise influence over their organisational environment (Sutton & Kahn 1986).

Understanding over Organizational Events (UNDERST) – UNDESRT refers to knowledge concerning how or why things happen in the organisational environment (Sutton & Kahn 1986).

Operational Support (SUPPORT) – SUPPORT refers to the perceived level of support provided for by the organization in ensuring the smooth implementation of the MSF system.

Psychological Climate for MSF Implementation (CLIMATE) – CLIMATE refers to the psychological evaluation of how the employees perceive the MSF environment at work to be suitable for MSF implementation (James & Jones 1974).

Perceived Purpose (PURPOSE) – PURPOSE refers to whether the employees perceive the MSF system to be used for an administrative purpose or only for development.

Complexity of Process (COMPLEX) – COMPLEX refers to employee perceptions of level of difficulty associated with participating in the MSF system.

Assignment of Raters (ASSGN) – ASSGN refers to the employee perceptions of the appropriateness for the rater assignment process.

Perceived Anonymity of Rater (ANONYM) – ANONYM refers to the employee perceptions of the level of rater anonymity maintained within the MSF process.

Employee Reaction to MSF (REACTION) – REACTION refers to employee initial reaction towards the MSF system reflecting a positive, neutral or negative reaction.

Employee Acceptance (ACCEPT) – ACCEPT refers to employee agreeableness and acceptance of the MSF system.

Perceptions of Usefulness of MSF System (POU) – POU refers to employee perceptions of whether the MSF system would be useful for employee development.

1.10 Outline of the Thesis

The current thesis is comprised of five chapters.

In Chapter One, the foundation of the study is laid, comprising the background, problem identification, philosophy behind the research, its objectives, a hypothetical model, as well as its significance and motivations for undertaking the research from both a theoretical and practical standpoint.

Chapter Two contains an examination of the state of existing literature on MSF, with scrutiny into issues and paradoxes within MSF systems evidenced by contradictory, inconclusive or absence of findings on specific MSF design and implementation issues. Chronological and theoretical developments critical to the current study are traced and linkages made between its conceptual bases. Also in the chapter, a summary is presented of the research questions and hypotheses to be tested.

Empirical aspects of the design of the current study are listed in Chapter Three by briefly presenting and justifying the positivist paradigm, mixed-method methodology with a pre-dominantly quantitative approach, as well as the web-based survey approach as the data-collection method for investigating the primary research question and the interview approach to meet the ancillary research objective. Also included are sample parameters, and methods used to develop the survey instrument. Further, the chapter includes a discussion of the selection of appropriate data analysis

techniques and procedures bearing in mind the mixture between qualitative and quantitative data, with the statistical data analysis being pre-dominant over the qualitative counterpart.

Chapter Four contains the summary and analysis of the survey results. The information is used to test and calibrate the value of the hypothetical model developed for the current research. Exploratory Factor Analysis, Correlation and Multiple Regressions are among the rigorous analysis tools utilized to investigate the inherent relationships.

Chapter Five explains the distinct contribution made by this study to the body of MSF knowledge. The ancillary research questions were addressed here. Qualitative findings were used to discuss quantitative findings representing a pluralist technique. The main findings and limitations of the study are summarized. The results are discussed in relation to the culmination of an updated model of MSF, which is possible as a result of the investigation into the original hypothetical model. Finally, the implications of the study findings for employees and organisations are discussed and the potential for new research is discussed and directions suggested.

2 REVIEW OF RELATED LITERATURE

Performing an intervention without a clear purpose is like prescribing an antibiotic for a virus; it doesn't treat the underlying problems and may lead to undesirable outcomes.
(Wimer & Nowack 1998, p. 70)

2.1 Chapter Introduction

In this chapter, as outlined in Figure 2-1, an in-depth review is presented of the current literature relating to multisource feedback systems in the context of employee reaction, acceptance and perceptions of usefulness. The relationships between identified critical determinants influencing these three dependent constructs were specifically explored. Despite the multitude of other factors known and believed to have influence over reaction, acceptance and perceptions of usefulness towards MSF systems, the scope of the current study is focused specifically on those factors either having contradictory, inconclusive or insufficient coverage in past MSF research. Pursuant to this end, the current research provides a unique contribution to knowledge and practise.

The chapter begins with a concise discussion on the origins of MSF, followed by a summary of early research and comment on evidence of MSF adoption in organisations in the past couple of decades. A comprehensive literature map, then, is presented to trace the research direction of the current study, informed by the gaps evident from the visual presentation. Next, there is a section on the theoretical framework development and the overview of the proposed relationships; this, then, is supported by a thorough explanation of each construct incorporated within the model, after which all hypotheses are aggregated into a table at the end of the chapter. Before the final summary of the chapter is a brief section addressing the ancillary objective of the study; i.e., to deal with the task of uncovering the extent of alignment or de-coupling between the respective management's intentions for MSF with what is perceived by the relevant employees.

Figure 2-1: Chapter Two Outline
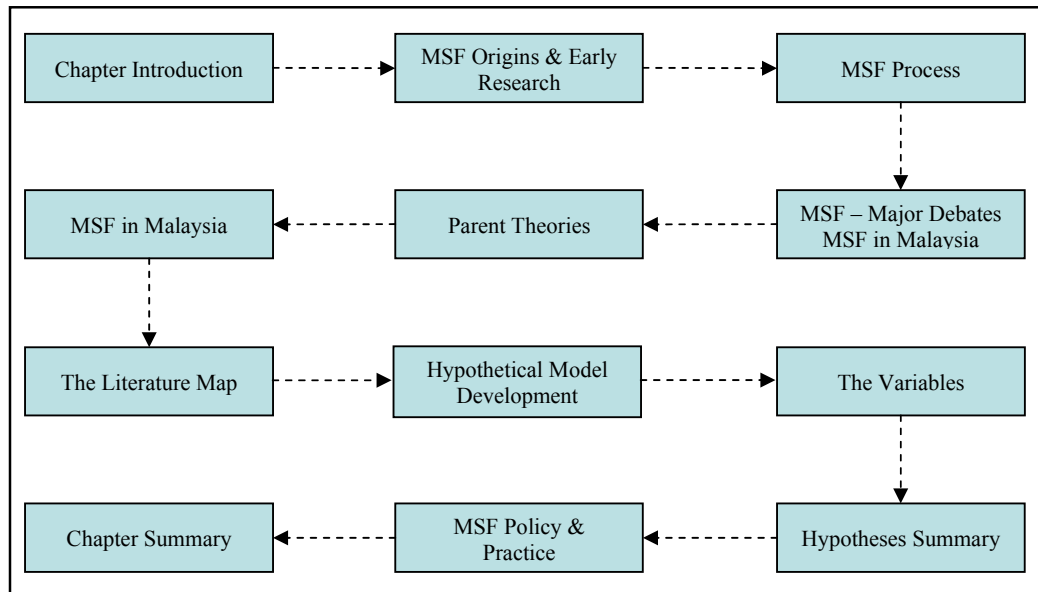
2.2   Multisource Feedback (MSF) Systems

2.2.1   Origins

Presenting the historical context of MSF may help improve understanding of the premise behind the emergence of this powerful tool. It was this pivotal understanding over the background of MSF which inspired this section on origins and early research of MSF.

MSF is a hybrid of the two worlds of psychological assessment and performance management. Campbell (2000, p.xiv) traced the initial introduction of psychological assessment in France back to the early 1900s. Up to the 1950s, the main purpose of such assessments was to fulfil the requests of assessing institutions, not of those being assessed. Results of assessments were never shared, discussed or even made available to assessed individuals. However, ratees' resistance and dissatisfaction towards the psychological testing prompted psychologists to react in the 1960s by improving test items and addressing the myriad of issues prevalent at that time. Another major related change noted during that decade was the sharing of assessment results with the individual being assessed; this alteration revolutionised

the way assessments were accepted by ratees even though the preliminary assessments were confined to self-reports rather than MSF.

As with many other new management tools, it would be difficult to put a point on the real pioneer of MSF, as there may be many similar exercises of a comparable nature happening at other locations around the globe. However, Campbell (2000) reported that Robert Don from Peace Corps training programs and the economist Robert Bailey were responsible for breaking new ground with MSF systems. This historical event happened when they were working together at the Center of Creative Leadership on techniques to provide better feedback to participants. Primitive data processing facilities and software, plus the void of commercial MSF instruments were main reasons behind the slow spread of MSF. Following the initial adoption of MSF in the 1970s, the proliferation of technology and data processing techniques saw a sudden increase of MSF activities in the 1980s and beyond.

In the mid-1990s, Edward and Ewen (1996) delved into research and traced the origins of MSF as evolving from a few different systems prevalent during that time; total quality management (TQM), organisational surveys, developmental feedback, performance appraisals and multisource assessment. It was recognized that MSF, was not a categorically exclusive method; but a tool that gained popularity due to the multi-dimensional nature of information it had to offer. Bracken et al. (2001) simplified the amalgamation of various portfolios related to MSF by categorising the system as the intersection of three major practice areas; viz., assessment, performance management and employee surveys. After all, MSF is a combination of variations in performance feedback systems comprising a combination of two or more of many facets; for instance, self-evaluation, peer feedback, subordinate feedback and the traditional supervisor feedback, just to name four critical ones.

On the topic of classification, a close inspection of the three disciplines reveals the following cognitive arguments. MSF is summarized as essentially focusing the collective wisdom of those closest to the employee (Mohrman, Resnick-West & Lawler 1989); they include supervisors, peers, direct reports and customers both internal and external. Basically, the various viewpoints are consolidated by means of employee *surveys*. The multiple perspectives offered for employee *assessment*

include critical competencies, specific behaviours, skills and development potential. Consequently, information that results from the above perspectives will constitute a part of the organisation's *performance management* system. The overlap area depicts the convergence of the three major practice areas – the domain for 'multisource feedback'. Having said this, it should be pointed out that MSF systems are weighed down by substantial paradoxes in each of the three powerful management disciplines (Bracken et al. 2001b). The main issues and best-practices of MSF systems continue to be subject to intense contention across the global academic and practitioner community, with the lack of a nomological network linking the extant knowledge. This is augmented by the fact that MSF studies are dispersed under multiple disciplines, with MSF being studied independently under each one's own disciplinary filter.

2.2.2 Early Research

Commonly used as inter-changeable with MSF, the popular term '360-degree feedback', was coined and registered in the mid-1980s by Teams, Inc (Edwards & Ewen 1996). However, the practice of MSF was not implemented widely until the early 1990s when it received a unifying focus; viz., to be a new and promising innovation in Human Resource Management. MSF was espoused to take on a dynamic and multidimensional view of individual performance, one that is best captured by its multiple perspectives (Borman 1997; Craig & Hannum 2006; London & Smither 1995; Morgeson et al. 2005). The tenor of times between the late 1960s and early 1990s saw progress in the MSF concept, ranging from the impetus of the multi-rater perspective (initially called the multitrait-multirater approach) to research and publications in the field, delving into various facets of the MSF system. The early literature on the multitrait-multirater aspect of MSF is summarized partly in Table 2-1 that follows.

Table 2-1: Early MSF Research

Author/s	Research
Lawler (1967)	Multitrait-Multirater approach offered as an alternative to supervisor rating and the variety of objective measures used as replacements such as salary level, organisational level achieved and business games results. Demonstrated how use of multiple sources offered new useful insights into the meaning of the rating results.
Kavanagh, McKinney & Wolins (1971)	Applied the analysis-of-variance approach to interpretation of multitrait-multimethod data where the methods were organisational-level rating sources. Yielded indices of the convergent and discriminant validity of the multisource ratings.
Campbell, Dunnette, Lawler & Weick (1970); Borman (1974)	Noted that high interrater reliability between raters at different organisational levels should not be expected. Raters at different levels may have different perspectives of ratee performance because of their distinctive roles relative to the ratees.
Landy & Farr (1980)	Suggested that across-source interrater reliability is not high. Also, no one type of rater is more valid than another due to the relatively unique perspective each source generates.
Lewin & Zwany (1976); Kane & Lawler (1978)	Found through review of literature on peer assessment that there was reliability, validity and freedom of bias of peer-assessment methods and those peer-assessments were tapping important performance related variance.
McEvoy & Butler (1987)	Noted that peer ratings are not well accepted by raters and ratees except when they are used for developmental purposes.
Hegarty (1973, 1974)	Noted that subordinates' ratings of supervisors proved useful and acceptable as a method of performance feedback to supervisors
Mabe & West (1982)	Performed a meta-analysis of relationships between self-assessments on trait-dimensions and criteria relevant to those assessments
Benardin (1992)	Provided support that customer-based appraisals were a source of added and unique information beyond that from top-down appraisal.
Harris & Schaubroeck (1988)	Found that there was much stronger agreement between supervisors and peers than between self and peers and self and supervisors.
Borman (1991)	Summarized a large body of research evidence for multi-rater perspectives noting that each source has advantages in producing valid performance information.

Source: Adapted and tabulated from Hedge, Borman & Birkeland (2001)

Since then, the body of knowledge on MSF has expanded exponentially in many directions, namely in the field of psychometric properties of ratings and leadership development. A focused discussion on the specific literature leading to the current research will follow under the hypothetical model development section.

2.2.3 Evidence of Adoption

After the early 1990s, the application of MSF began to flourish exponentially in comparison with the conventional, widely used methods of performance feedback in organisations; especially those which relied primarily on supervisor evaluations of subordinate performance (Bracken 1996; Church & Bracken 1997; London, Smither & Adsit 1997). The growth has not tapered off, with evidence of adoption spreading out across borders into Europe and Asia (Adsit, London, Crom & Jones 1997; Frank, Joel, Denise & Richard 2003; Gillespie 2005; Rowson 1998). Organisations around the globe began to recognize the potential benefits of gathering performance feedback from sundry sources, such as peers and subordinates, in addition to that of the supervisor. As London and Smithers (1995, p.804) noted, "multisource feedback has grown in popularity because organizations recognize the multi-dimensional nature of jobs as seen by different constituencies and the value of having perceptions of these constituencies to guide development and inform performance evaluations".

Citing from Facteau et al.'s (1998, p.428) review and compounding them with more recent extant research, the summarized benefits of MSF include better performance information (McLaughlin 2007; Mohrman et al. 1989); more reliable ratings than those from a single supervisor (DeLeon & Ewen 1997; Wohlers & London 1989) support for high involvement styles of management (Budman & Rice 1994; McGarvey & Smith 1993); and, improved leader (i.e., ratee) performance after receiving feedback (Atwater, Roush & Fischthal 1995; Smither, London & Reilly 2005a; Smither, London, Vasilopoulus, Reilly, Millsap & Salvemini 1995). Other positive outcomes are that employees generally perceive MSF as more fair, accurate, credible and motivating compared to evaluations from a single source (Becton & Schraeder 2004; Brockner 2006; DeLeon & Ewen 1997). Moreover, employees are motivated to change their behaviours to become more harmonious with their co-workers (Edwards & Ewen 1996) and MSF augurs well for those who strongly value achievement, as they gain multiple and comprehensive assessments that can lead to personal and professional development (Waldman 1997; Waldman & Atwater 2001).

In the early 1990s, the number of MSF off-the-shelf instruments sold in the United States nearly quadrupled compared to the previous decade; evidence of the surging popularity of 360-degree feedback systems (Van Velsor & Wall 1992). On a similar note in the 1990s, many organisations, including a majority of the Fortune 500 companies, were reported to utilize MSF and spend millions of dollars each year on the process (Cheung 1999; Church & Bracken 1997; Hazukha, Hezlett & Schneider 1993; London & Beatty 1993; Yammamarino & Atwater 1997). Furthermore, recent evidence supporting MSF popularity comes from the actual increase in the number of consulting companies specialising in MSF and continued research interest in the field (Bracken et al. 2001b; Carson 2006; Craig & Hannum 2006; Foster & Law 2006; van Hooft, van der Flier & Minne 2006); another indication that interest in MSF is high and shows no signs of levelling off.

2.3 MSF Process

This section on the MSF process is considered crucial in presenting a good overview of the nuts and bolts of most MSF systems; subsequently, a more specific preliminary understanding of the context of the research will be developed.

One of the initial process-models developed to depict the MSF system practice was by Antonioni (1996) when he researched the 360-degree program in four mid-sized American companies. The model attempted to describe the process and components of the 360-degree system, in the chronology of inputs, process and outputs. Figure 2-2 presented below, simply outlines a practitioner's model of factors to be considered when implementing a 360-degree program.

Due consideration should be given in utilising this model for explaining the MSF process since its development and intentions were based on the 360-degree feedback system. Distinction already had been made between differences in what can be interpreted as a 360-degree system as opposed to simply a MSF system. Nevertheless, for the purposes of the current research it was thought useful to present the model, as a food for thought and to channel one's attention to the salient

progression from inputs, process and outputs because it does resemble the typical process in most feedback systems.

Figure 2-2: A Typical 360-Degree Appraisal Process

INPUT	*PROCESS*	*OUTPUT*
1. Purpose of appraisal: developmental vs. evaluating	1. Self-appraisal	1. Increase awareness of others expectations
2. The appraisal form	2. Reactions to feedback	2. Improvements in appraisee work behaviours/performance
3. Written feedback	3. Coaching steps	
4. Appraiser anonymity	4. Targeting improvement	3. Reduction of undiscussables
5. Selecting peer appraisers	5. Action plans	
6. Appraiser training	6. Reporting results back to appraisers	4. Increase in periodic informal 360-degree performance reviews
7. Training for appraisees	7. Special goals/action	
8. Training for coaches	8. Just-in-time training	5. Management learning
9. Feedback report	9. Mini assessments/ follow-up	
	10. Recognition for improvements	
	11. Accountability	

Adapted from Antonioni (1996 p.25)

Bracken, Timmreck and Church (2001a) presented another version of the MSF system and the various elements making up the system. Their model, is considered a more comprehensive model of the MSF process for researchers, academics and practitioners alike. The process model which was presented in their Handbook for Multisource Feedback is considered to be the most ideally illustrated framework incorporating the various elements prevalent within the MSF system; hence, clearly depicting the links from one stage of the process to the next. A visual illustration of the process is presented in Figure 2-3. The model will then be explained accordingly to elucidate each step of the process (Bracken et al. 2001a, p.3).

Figure 2-3: Process Model of MSF
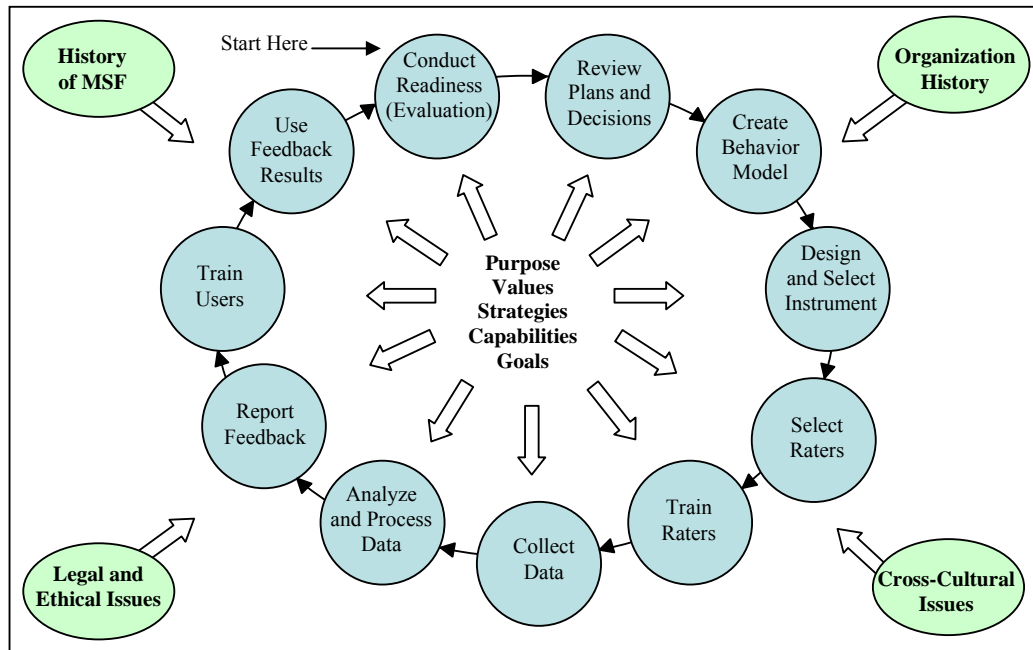
Adapted from Bracken, Timmreck & Church (2001 p.3)

Basically, readiness is the starting point where the organisation interested in the MSF process evaluates the feasibility of MSF implementation. By that, the organisation are able to gauge the success potential of the system to be implemented. Indeed, this is a critical step often missed as most organisations simply jump the band-wagon into implementing the MSF as with most other management tools which take the corporate world by storm.

Next, lies the planning and decision review phase which is purported to be by far the most salient phase in the MSF process; i.e., the purpose of the MSF system lays the foundation for the entire structure of the feedback system and determines its success or failure. In essence, MSF purpose has an interactive relationship with almost every other phase in the MSF process. Thus, the MSF purpose was put at the heart of the model in Figure 2-3.

The next stage involves development of a behavioural model to consolidate competencies, values, principles and practices to constitute a thorough and well-accepted behavioural model. Thus, it is critical for the behavioural model to be consistent with organisational objectives and strategies; in addition, the model has to

address validity and linkages issues. More importantly, behavioural models for MSF have to be formulated bearing in mind measurable targets rather than loosely defined concepts (Bracken et al. 2001a, p.6).

'Instrument development' exemplifies the importance of having well designed questionnaires or surveys to gather feedback from raters. Given the importance of collecting precise feedback on ratees being assessed, it is thought wise to include some open-ended questions; thereby, not limiting the possible feedback received. Questionnaires can be derived from template instruments or custom-designed ones.

Next, will be the sensitive issue of selecting the raters to participate in the MSF process. The choosing of raters has an impact on several other issues such as complexity of analysis, training intensity and other related concerns. Given the earlier comment on the importance of the MSF purpose, it is worthwhile to note the critical link that exists between the selection stage and that purpose. In the former, the issue that may arise is deciding on which of the many direct reports management or the ratee select to dispense feedback. The method of this selection, of course would be critical to the overall integrity of the MSF system.

Training serves to inform employees of the purpose and the mechanics behind the MSF system. As with performance appraisals, MSF training tends to sensitise employees to common rating errors such as leniency, halo, central tendency and so forth and, thus, reduces rating biases. Unfortunately, it has been suggested that rater training, more often than not, is regarded as "impractical" and written-off, particularly in developmental feedback efforts (Bracken et al. 2001a, p. 8).

The data collection stage follows the training of raters. Technological advancement has altered substantially the survey distribution and data collection process. Nevertheless, some organisations are still comfortable with the traditional paper and pencil survey method.

After feedback data have been collected, data processing commences; issues include the complexity and confidentiality of the data to be managed. On one side, use of external consultants to handle data will augur well in terms of expertise and data

management, but also may lead to employees questioning the confidentiality of the feedback provided. Thus, data processing decisions are far from straightforward as organisations contemplate balancing the pros and cons of the range of alternative variations in data processing.

Nor is the feeding back of results free of complexities; legal and ethical issues are noted in Figure 2-3. MSF systems generate huge amounts of information that can overwhelm the recipient/s; further, it is of utmost importance to ensure accuracy, and precision in delivering results and tailoring presentations to the specific needs of the user/s. To add to the intricacy, the purpose of the MSF process has to be injected at this stage to ensure the overriding feedback objectives are achieved. More often than not, organisations struggle to strike an equilibrium for a stipulated set of users; i.e., a balance between information overload in trying to be specific and too basic in trying to maintain ease of use.

The final step in the MSF cycle, evaluation, represents the first step of readiness in the following cycle, as seen in Figure 2-3. In effect, MSF systems are cyclical and on going rather than one-off events; hence, one cycle in the process-model corresponds to only one administration of the MSF cycle. The objectives of the evaluation phase are two-fold. Firstly, the organisation should ascertain whether the particular cycle met the intended results; e.g., performance enhancement, behaviour or culture change and production of useful information. Secondly, there is the evaluation of the elements of the process itself, which entails determining the quality and appropriateness of the MSF implementation methods.

In addition to the various elements within the process model discussed above, Bracken, Timmreck and Church (2001) suggest several core contexts, organisational values' forces; the framing forces of organisation history, cross-cultural issues, legal and ethical issues and history of MSF, are delimitations of the context in which the MSF system operates. The forces reflect the reality of organisations implementing MSF in a real-time environment and, as such, suggest different repercussions and results due to the varying circumstances surrounding each case.

In a nutshell, there are numerous permutations possible in implementing the MSF system process. Typically, the outcomes from MSF information should be able tell employees and management what needs to be done to improve individual performance and, consequently, organisational performance.

2.4   MSF – Major Debates

Earlier discussion noted that the underlying objective of MSF systems is to have a more comprehensive evaluation of employees' performance from all relevant constituencies; the argument being that such an evaluation is more thorough and representative of the true situation and, hence, better decisions can be made with regard to the developmental needs of employees individually and collectively. Unfortunately, from its outset, MSF has been saddled with multiple paradoxes and critics from practitioners and academics alike. Consequently, Section 2.4 is dedicated to scratching the surface of the major debates plaguing the implementation of MSF systems. Further in depth discussion on the specific issues addressed within the current research will be undertaken in the section on the hypothetical model development.

2.4.1   Psychometric Validity

The saying of 'Lies, Damned Lies and Statistics' draws attention to the misuse of statistics; one misuse is the danger of drawing conclusions based on small samples. Risher et al. (2001) reported that basic statistical caveats seem to have been neglected in the rush to institutionalize MSF systems. It was argued that the need to tap the views of supervisors and subordinates forced a compromise to the dangers of accepting the weaknesses of small samples in the MSF process. To illustrate, since a typical sample of subordinates or peers which are taken is three or four people, one outlying high or low score would skew the overall MSF assessment; such a phenomenon would render even more detrimental effects should the MSF be tied to workplace compensations, such as salary. Worse still, those particular assessment results are vulnerable to manipulation in that, inadvertently, they encourage a 'you scratch my back, I'll scratch yours' attitude (Binmore 1994) which reduces any chance of obtaining honest feedback.

Zeroing into the crux of the matter, psychometric validity relates to the inter-rater reliabilities of within source and between-source correlations. It is crucial to ensure the level of reliability is maintained within each source providing the ratings. The number of raters required to reach an acceptable level of reliability can be determined. For instance, Nunnally (1978) contends that a reliability level of 0.7 is acceptable. Without that reliability, the confidence in the MSF system may be jeopardized. MSF ratings from the multiple sources tend to include general areas such as interpersonal skills, problem solving, effort and overall performance (Conway & Huffcutt 1997, p.332), all of which can be rated subjectively rather than objectively. As such, different persons such as peers, subordinates, superiors and even one's self could produce results that vary substantially and have a unreliable impact on the psychometric quality of MSF ratings.

There is another issue of interest with regard to MSF psychometric ratings. The assumption that ratings through an MSF system produce unique perspectives from each of the relevant constituencies is sometimes rebutted due to high-level correlations between pairs of rating sources. Tornow (1993) argues that multiple sources should only be included in the feedback system if, potentially, they offer unique (i.e., a different) criterion domain of performance rather than redundant views of an employee's performance. If the latter were the case, the question lies in whether the very existence of MSF systems is actually warranted, since the multiple sources merely may provide an increased number of raters instead of truly different perspectives.

2.4.2   The Issue of Anonymity

Anonymity is one of the basic conditions of most MSF systems (London & Smither 1995); however, there are contradictory repercussions from the emphasis on anonymity. Examination of social- and performance-related consequences under the conditions of anonymity appears to lead to mixed results. Prevailing managerial theory points in the direction that anonymity reduces the risk of rating inflation (London et al. 1997). The assertion is based on the grounds that anonymity encourages honest feedback, thereby reducing the bias in ratings as the raters are

unidentifiable by the ratees. Also, experts have pointed out that anonymity helps protect raters of MSF that provide feedback to superiors who might have power over them (Romano 1993). An interesting finding was that London, Wohlers and Gallangher (1990), found that 24 percent of respondents in a MSF system indicated that they would have rated their bosses or peers differently if the feedback had not been given anonymously. Echoing the findings above, Van Veslor, Taylor and Leslie (1993) suggested that MSF ratings would be inflated if the raters knew that their responses were not confidential. Moreover, it was also found that "direct contributors who had to sign off their name to the upward appraisal rated their managers higher due to concerns over their managers' reactions to the evaluations" (Antonioni 1996, p.28).

On the other hand, drawing from game theory literature, anonymity also can jeopardize the psychological feedback environment by way of stimulating a biased assessment towards others. As has been demonstrated by some organisational studies (e.g. Bamberger, Erev, Kimmel & Oref-Chen 2005), an incentive to downwardly evaluate ratees in an MSF system, especially through the peer feedback component, could be manifested in an anonymous environment as it is difficult for peers or administrators to make out precisely who is giving the unfair evaluation. In studying effects of rater non-anonymity in peer assessments (a key component of MSF systems), Bamberger et al. (2005) espoused and found that removing the convention of anonymity may enhance the quality and results of peer assessment systems.

Ghorpade (2000, p.143) suggests yet another paradox for maintaining anonymity within the MSF system. He argues that "while conceding that anonymity can enhance honesty, it would be risky to equate honesty with validity of ratings". Ghorpade (2000) warns of the typical rating errors to which untrained raters may fall prey; e.g., halo, leniency, strictness and central tendency.

It is believed that the mixed results reflect two robust, but contradictory, behavioural effects of maintaining anonymity within the MSF system; one a merit and the other a disadvantage. Nevertheless, apart from London et al. (1990)'s study, there remains a lack of empirical support in giving clear direction to a definitive recommendation on the issue.

2.4.3 The Elusive Target of MSF to Change the Perceptions of Others

MSF aims at capturing perceptions of others towards a particular employee. Frequently, that does not translate into developmental plans aimed directly at changing those perceptions. It is a very difficult and elusive target to have (i.e. changing the perceptions of others) and too much power in the hands of others from the developmental perspective.

Fundamentally, if the principle behind the MSF system were to change the employee's behaviour based on the feedback received from *all* the constituents, it would be an extremely onerous task. At the end of the day, the employee may end up trying to adjust his/her behaviour to suit the many comments of others only to find the overall work performance jeopardized.

2.4.4 Multiple Constituents Paradox

MSF infers that broadening the scope of information available to the employee means improved feedback compared to traditional top-down feedback. However, more information does not necessarily mean better feedback. Additionally, MSF is plagued by the complications of the various components of the system; particularly peer feedback, subordinate feedback and self-assessment.

For instance, within MSF, the one key component of subordinate evaluation can be linked to a substantial pool of potential issues; e.g., Bernardin (1986, pp.429-431) summarizes difficulties as follows:

1. Subordinates lack the ability and/or information needed to provide valid ratings.
2. Subordinates may fear 'telling the truth' about poorly performing bosses.
3. Bosses may focus too heavily on pleasing subordinates.
4. Bosses being rated may engage in 'playing games'.
5. Management authority may be undermined.
6. The recruitment and retention of managers may be adversely affected.
7. Subordinate may inflate boss's rating in an attempt to gain influence.

8. Subordinates who are 'pushed' the hardest may be most strict in their ratings.

9. The evaluation may turn into a popularity contest.

With peer evaluation, the other main facet of MSF, problems such as gaming the system, using MSF as a platform to get back at others and exploiting the conditions of feedback anonymity may emerge (Facteau et al. 1998; Fedor, Bettenhausen & Davis 1999). Consequently, it can be argued that MSF systems are saddled by a range of issues related to multiple constituents participating in the system.

2.4.5   Utilizing MSF for Administrative Purposes

It is one issue for an employee to consent to the possibility of having subordinate and peer rating as facets within MSF feedback and being used for development purposes, but it is quite another issue for employees to feel comfortable about having part of their annual administrative performance feedback, and by extension, promotions and salary increments, determined by these constituents.

Endeavouring to get 'more bang for every buck invested' in the MSF systems, management sometimes makes the risky decision of tying MSF evaluations into compensation. In fact, countless academics and experts have cautioned against jumping onto the band-wagon and using the MSF information for immediate administrative purposes rather than for developmental purposes (Brutus et al. 2005; Church & Bracken 1997; Craig & Hannum 2006; Dalessio 1998; Greguras, Robie, Schleicher & Maynard Goff 2003; Hallam 2004; Toegel & Conger 2003). By doing so, employees lose trust in the MSF system as they feel threatened that the MSF results are tied into critical decisions such as compensation, promotions and succession planning. Organisations have been recommended to consider introducing the MSF system for purely developmental purposes, and then only gradually introduce administrative purposes much later once employees have grown to understand and become accustomed to the new performance feedback method. The major setback with this dilemma is the difficulty to convince the employees that the

MSF purpose is, in fact, for development as stated and, therefore, the evaluations will not interfere with merit decisions (Bernardin & Cooke 1992; Fedor et al. 1999).

In summary, the unresolved debates highlight the inconsistencies and paucity of knowledge with regard to the fundamental principles inherent in MSF systems. Nevertheless, despite all those pitfalls mentioned above, many researchers and practitioners assert the tangible developmental focus of the MSF system makes it all worthwhile. It is not surprising, then, that the popularity of the MSF system does not reveal any signs of reaching a plateau.

2.5 Parent Theories Related to MSF

"From its earliest days, as a distinct area within the behavioural and social sciences, industrial and organizational psychology has recognised 'performance' as perhaps the ultimate variable, if not its raison d'etre"

(Organ & Paine 1999, p.337)

Before delving into the heart of the issues surrounding implementation of a MSF system, it is considered worthwhile to gain some insight that prevalent parent theories may shed on the topic. Various theories have informed the practise of MSF and the current study. These theories were conceptualized within the schools of MSF in order to understand the possible repercussions such a system would have on employee reactions to MSF systems.

2.5.1 Role Theory

Role theory describes how others (role senders) prescribe, perceive and evaluate focal person behaviours. Fundamentally, MSF formally asks for assessment of focal-person behaviours; i.e., of self and others. The interpretation of Role Theory as elucidated by Biddle and Thomas (1966, p.58) defines roles as "behaviours characteristic of one or more persons in a context". For this reason, it can be argued that, by definition, the behavioural information requested in MSF systems is role information.

Furthermore, past research has indicated the potential presence of role conflict among MSF sources. For instance, research as early as 1978 by Schneier and Beatty demonstrated significant differences in the perceived importance of role behaviours between the superiors and those of focal persons, peers and subordinates; and Mount (1984) suggested that role conflict may influence MSF results. It was purported that MSF inconsistencies were due, possibly, to discrepancies in job requirements or expectations of behaviour standards. Arguing along the same lines, Bettenhausen and Fedor (1997) concur that receiving feedback from one's "subordinates violates hierarchical authority norms" regardless of the purpose of the MSF system.

2.5.2 Expectancy Theory of Work Motivation

The Expectancy theory of work motivation (Lawler 1971; Porter & Lawler 1968; Vroom 1964) has made explicit the issue called 'promise of reward' (Annett 1969). In many ways, an incentive is a promise of a reward which affects behaviour before the reward is given. According to the theory, individuals form cognitions about the degree of association between behaviour, such as performance level, and the attainment of each of a set of rewards. The stronger the perceived association between behaviours and rewards, the more the individual believes that the receipt of the reward in question depends upon behaviour. Another way of putting it, is that it is theorised that feedback serves as a motivational function when it provides information about outcomes associated with rewards. Therefore, if the feedback improves motivation by functioning as a promise of future rewards, it functions as an incentive (Annett 1969). Another related phenomenon is that, in field settings, feedback will actually have influences other than those merely representing an incentive; specifically relevant within the subject-matter is the reinforcement function of feedback by means of reward or punishment. This happens when, over a certain period of time, MSF feedback can be associated with certain positive and/or negative repercussions that lead to feedback taking on reinforcement properties in and of itself (Annett 1969).

2.5.3   Control Theory

Under Control theory (Carver & Schneier 1981; 1982), the crux of the problem is the discrepancy between standards (goals) and feedback which has affective consequences that direct changes in behaviour. Because feedback and goals are seen as imperatives to regulate behaviour under Control theory, it is argued that the reason for developing intentions to change is to eliminate the discrepancy. Specifically, in a MSF system, it is arguable that feedback from others is used to improve the self-awareness and thus improve performance in the eyes of others.

2.5.4   Goal Setting-Theory

Locke (Locke, Cartledge & Koeppel 1968; Locke & Latham 1990) posits that feedback does not always or necessarily improve performance. He explains that it is not feedback *per se* that affects performance, but rather the intentions or goals that people form as a result of receiving feedback. Several studies have supported this theory, in that performance reportedly improved only for areas where goals had been set (Locke & Latham 1990, p.179); i.e., performance improvement will depend on the extent to which employees use the feedback to set performance goals and monitor their progress toward those goals. Thus, when the accountability factor is absent, feedback can be a wasted effort if it leaves the ratee to act upon and set performance goals.

2.5.5   Attribution Theory

Attribution theory (Kelley & Michela, 1980; Shaver, 1975) is relevant when the rater makes judgments about the extent to which the cause of the performance outcome was due to factors either personal (e.g., ability and/or effort) or environmental (e.g., luck and/or situation). To illustrate, in the case of poor performance the rater may ask; did the ratee try hard enough? Did he or she have the competence to carry out the job? Is the job too difficult to perform? Also, the ratee would attempt to provide explanations for the evaluation. As Weiner (1980) suggested, this is the competence-seeking motive. In other words, individual employees need explanations for why their performance was high or low. Reasons are sought for their performance

evaluations to determine whether they are based on their own effort and ability or the difficulty of the job, or both. The assumption of attribution is that people will interpret their environment in such a way as to maintain a positive self-image. This probably places attribution theory as one of the most influential contemporary theories with implications for MSF acceptance.

2.5.6   Game Theory

Early game theoretical analysis (Luce & Raiffa 1957) helps in explaining the dynamics of a key component in MSF systems; i.e., peer feedback in particular. Game theory implies that from the position of a rational individual, the evaluation of a peer is behaviour in itself, just like the behaviour being assessed; hence, the raters' evaluative decisions will be guided by strategic considerations and raters may adopt a strategy in furnishing feedback to peers such that the feedback potentially will be harmful to the peers but beneficial to the incumbent (rater).

Luce and Raiffa (1957) demonstrated that, through a process of threat of defection by others, individuals would be motivated to take the best pre-emptive action against peers (in this case against the ratees in an MSF system) by adopting a defensive strategy before the peers adopt the same. In fact, it was espoused that even in the absence of any strategic defensive move, to give biased negative ratings on behalf of the peers, raters may be stirred to initiate the biased ratings first simply to minimize any damage potentially imposed on them; this gaming is what is expected within the MSF system, particularly in peer assessments (Bamberger et al. 2005; Budman & Rice 1994; Toegel & Conger 2003). Therefore, assumptions that MSF may be harmful by way of increasing candor, mistrust and a vicious cycle of gaming are far from unreasonable.

2.6   *MSF in Malaysia*

Organisations competing in a complex, globalised environment are perpetually emulating management tools (or fads) from larger organisations, or developed nations. Despite early concerns that MSF would turn out to be yet another management fad, the popularity of MSF has surpassed many other methods of

leadership development (Hernez-Broome & Hughes 2004) and, currently, is used in many countries across the globe (Chappelow 2004). Malaysia is no exception. Many organisations in Malaysia, particularly the multinational corporations and larger local companies are experimenting with alternatives to 'traditional' top-down feedback; namely, the multisource feedback system. At this juncture, it should be mentioned that there has been some hesitance in regard to MSF systems in Asian countries, as Asian workers are not used to 'sizing up the boss'. Culturally, it is well known in Malaysia that, generally employees have a great respect for authority and would be uncomfortable evaluating their supervisors, particularly if the evaluation is negative (Fontaine & Richardson 2005; Rose & Kumar 2006).

Several studies have attempted to research performance management systems in Malaysia in relation to various aspects such as cultural dimensions, individual-level and organisational-level constructs (Ahmad & Ali 2004; Balakrishnan 2000; Othman et al. 2006; Poon 2004; Shafie 1996; Shipper et al. 2004). The studies have been valuable in displaying the similarities and differences, successes and failures of human resource management strategies in Malaysia and several different Asian countries. However, there is a void of studies on the acceptance, or otherwise, of MSF in Malaysian organisations.

In a study on performance management systems in the Malaysian public sector, Shafie (1996) notes several main weaknesses such as no linkage between performance and reward, ill-defined performance objectives, confidential evaluations and lack of incentives for high performers. Nevertheless, the performance management agenda in the private sector may have a slightly different perspective. With the intensity of global competition and the need to remain competitive, organizations are forced to adopt the best-practices in all areas including performance management, to be able to attract, retain and secure the best human-capital possible (Kayani 2005).

The closest study addressing objectives related to the current research is by Shipper, Hoffman & Rotondo (2004). They suggest that the Malaysian participants to MSF systems display consistent decline in employee reaction, cognitions (e.g., self-awareness), and behaviors (e.g., skill development) following a MSF assessment.

The decline is attributable to the clash of values within Malaysian organisations and the values embedded within any MSF system. Hence, the findings draw attention to the impact of the host country's values on the success of any new management tools.

In a cross-cultural study on the effectiveness of upward feedback in a multinational corporation operating in ten different countries, Adsit et al. (1997) found differences between countries in the performance dimensions and items measuring overall effectiveness. They purport that interventions to decrease power distance (Hofstede 1980) may be ineffective in Asian countries, and thus, more formal structured input is required for systems such as MSF to succeed. Based on this rationale it is suggested that despite the apparent clash of cultures (MSF is a clear violation of the typical hierarchy against the high power distance deemed in Malaysian companies), MSF may succeed if structured mechanisms are put in place with regard to the design and implementation of the system.

Authorities in the field have commented on the myriad of issues that may transpire from applying a non-traditional system like the MSF in various cultures (Brutus et al. 2001). They called for additional research to explore the receptivity of MSF systems outside North America. Nevertheless, anecdotal evidence seems to suggest that an increasing number of Malaysian organizations are trying to implement some form of MSF system. Hence, the present study addresses the above concerns, using Malaysia as the background of the study. The over-arching objective is to broaden the underdeveloped empirical evidence on factors influencing employee acceptance of the MSF system.

2.7 Gaps in Literature: A Summary

A milestone in MSF literature occurred in the early 1990s when a special issue of the Human Resource Management journal was devoted to the topic of MSF *per se* (Tornow 1993). Indeed, the complexity of MSF springs from the many ways it can be implemented and the ultimate effect implementation has on the accuracy, usefulness, and acceptance of the feedback (Bracken et al. 2001b; Brutus & Derayeh 2002; Lepsinger & Lucia 1997).

In a similar vein, authors argue that the difficulty with evaluating MSF is that it is not a "categorically unique method" (London & Smither 1995, p.804). These experts in the field argue that the multiple rater nature of MSF aggravates the issues of anonymity, purpose and rater assignment. The most pressing decision in designing the MSF systems, then is the choice to apply the results for developmental only or administrative purposes as well (Dalessio 1998; Farh & Werbel 1986; Greguras et al. 2003; John, Stephen, Cherrie & Helen De 2002; Mannis 2001).

In a recent meta-analysis, Smither, London & Reilly (2005a) reported that the effects of MSF systems are modest at best. Rather than merely exploring the relationships between a large number of personality traits and reactions to MSF, a decision was made to use a construct-oriented approach similar to that advocated by Hough and colleagues (e.g., Schneider, Hough & Dunnette 1996). Based on the literature and extant research, it is hypothesized that several key perceptual constructs are associated with the climate for MSF development and several other perceptual constructs are associated with employee reaction to MSF.

A review of practitioner literature also reveals a similar dearth in MSF empirical research. Although there is a paucity of studies devoted to investigating the impact of MSF implementation strategies on employee reaction, acceptance and perceptions of usefulness, several studies suggest illuminating results that warrant further investigation. Put simply, some studies have demonstrated how implementation decisions and organizational-oriented constructs potentially generate disparities in acceptability of the MSF systems (Hazucha, Hezlett & Schneider 1993).

Two of the most contentious issues surrounding the adoption of MSF systems are those of issue of anonymity and purpose. The rater is the main party representing the potential problem source due to accountability. Church & Bracken (1997) highlight two possible approaches to the problem: the 'carrot' feel way or the 'stick' counterpart. With the former, raters are generally enticed to provide honest feedback by including them as much as possible in the design process. On the other hand, the more limited method (the 'stick') would be discarding the 'invalid' feedback, or

removing the high and low ratings that may imply (but not necessarily) the evaluations are invalid.

The current research takes on a similar approach to that of Funderberg & Levy (1997), whereby the focus of examination is on attitudes towards the MSF system instead of reactions towards specific feedback assessment results. These authors concluded that organizational factors had significantly greater impact on attitudes than individual factors and thus, the focus of future research should be on intervention at the organizational context with respect to improving success rate of feedback systems. Further to this, a recent study on predictors of attitudes towards MSF systems and post-feedback management activity (Maurer, Mitchell & Barbeite 2002), suggested that there are variables which are just as or more important than actual feedback ratings itself.

Addressing the auxiliary objectives of the current research, only one study was found focusing on the management's perspective on effectiveness of MSF programs (Brutus & Derayeh 2002). Clearly, despite the large investment organizations expend on MSF systems, there has been lack of consideration over aligning the strategic objectives of the program with prevalent HR practices. Such de-coupling warrants attention from those designing and administering the program to bring the MSF system to fruition.

2.8 A Literature Map of MSF Research Leading to the Current Research

During the earlier stages of research, in the mission of writing a review of literature, it was felt necessary to draw a 'literature map' of extant research under the broad umbrella of MSF as recommended by Creswell (2003). The visual presentation of extant literature on MSF was to provide a more holistic overview of existing literature, trace through the various branches of sub-topics within MSF literature and, hence, better illustrate how the current study relates to the larger body of knowledge. More importantly, the literature map enabled the researcher to navigate through the varied clusters of MSF studies connecting specific components within the literature and highlighting how the current study fits into the overall picture via a graphic illustration.

Figure 2-4: Literature Map for Current Research

**Multi-Source Feedback Systems
in Organizations**

**Psychometric Properties
of MSF Instruments**
Brutus et al. 2003
Conway R Huffcutt 1997
Tornow 1993

Readiness
Ewen & Edwards 2001

Climate
Bracken et al. 1998
Ewen & Edwards 2001
Koebelin 1999

**Design & Implementation
Issues/Paradoxes**
Atwater et al. 2005
Eicheinger & Lombardo 2003
Morgesun et al. 2005

Anonymity
Bamberger et al. 2005
Eicheinger & Lombardo 2003
London, Smither & Adsit 1997
Tourish 2005

Control and Understanding
Ford 2002
Tetrick La Rocco 1987
Todd & Jerry 1999
Wallis 2002

**Feedback Seeking
Environment**
Ashford 1986
Levy & Williams 2004
London & Smither 2002

**MSF Systems in an
International Context**
Adsit et al. 1997
Fontaine & Richardson 2005
Hoffman & Rotondo 2004

Purpose
Bettenhausen & Fedor 1997
Ewen & Edwards 2001
Fletcher & Baldry 2000
Lassiter 2003
London & Smither 1995
van Hooft et al. 2006

Organizational Support
Eisenberger et al. 1990
McCarthy & Garavan 2006

Self-Other Agreement
Atwater, Ostroff,
Yammamarino&
Fleenor. 1998
Johnson & Ferstl 1999
Ostroff et al. 2004

User Friendliness/Complexity
Fedor et al. 1999
Funderberg & Levy 1997

Rater Assignment
Becton & Schraeder 2004
Gilliland & Langdon 1998

Reaction
Atwater & Brett 2005
Fedor et al. 1999
Smither et al. 1995

Acceptance
Brett & Atwater 2001
Facteau et al. 1998

Perceptions of Usefulness
Brett & Atwater 2001
Facteau et al. 1998

Need for further study
Q   What are determinants to
employee reaction, acceptance and
perceptions of usefulness towards
multi-source feedback systems?

2.9   Hypothetical Model Development

2.9.1   Concepts, Constructs and Variables

Kerlinger (1992 pp.31-32) describes the difference between concepts and constructs as follows: "A concept is a word that expresses an abstraction formed by generalization from particulars. A construct is a concept. It has the added meaning, however, of having been deliberately and consciously invented or adopted for a special scientific purpose". On the other hand, a variable is an idea that can be observed and measured (Cavana, Delahaye & Sekaran 2001, p.78).

There were twelve constructs investigated in the current research, each proposed to have specific relationships within an integral conceptual model. Additionally, each construct was operationalised as a variable by translating it into observable and measurable elements to form an index of measurement of the construct (Cavana et al. 2001). Thus, the hypothetical model depicted was transformed to include the variables with hypothesized relationships to be tested, including the direction of relationship.

To commence generating the hypothetical model, it was necessary to frame an operational definition for the each of the constructs beginning with broader, more conceptual ideas and narrowing them to be useful in defining the intended meaning related to the objectives in the current research. Each construct will be discussed in the light of the current body of knowledge and, consequently, tied to the respective relationships hypothesized. Prior to that, two short sections on the three partial models and overview of proposed relationships within the model are presented.

2.9.2   The Hypothetical Model: Three Partial Models

The rationale behind developing a hypothetical model was to develop an initial model of employee perceptions towards implementation aspects of MSF systems, and relate that to their acceptance of the system. The model, which integrates

available literature from the broad area of performance appraisals and feedback and encompasses upward, peer and multisource feedback, is intended to provide a point of departure for future research endeavours. Therefore, the twelve constructs representing various aspects of employee perceptions were conceptualized and operationalised, and multiple indicators were adapted or generated for each construct.

The relationships among variables examined in the current research are presented in Figure 2-5. This is not intended to be a causal model but rather an exploratory model of hypothesized relationships to be investigated. In essence, the entire model can be viewed as comprising five partial models denoted by the different colour coding; overall, the model represents the modus operandi to be undertaken when running the regressions in testing the proposed hypotheses.

Figure 2-5: The Hypothetical Research Model
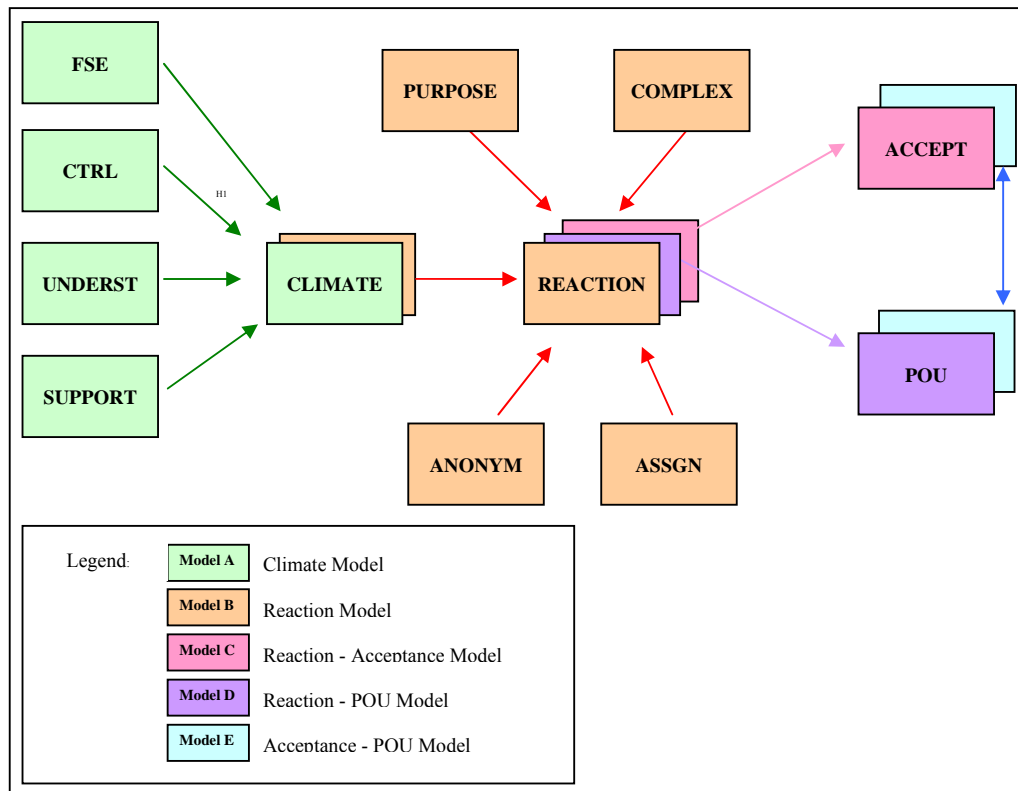
2.9.3 Overview of Proposed Relationships

The entire hypothetical model was to be tested in parts. In the Partial Model A, called the *Climate Model* hereafter, the constructs of feedback seeking environment (FSE), control over organisational processes (CTRL), understanding of organisational events (UNDERST) and Operational Support for MSF (SUPPORT) are all hypothesized as predictors to the psychological climate for MSF implementation (CLIMATE), the outcome variable. This first section to be tested is shaded green.

The next section of the model, Partial Model B called the *Reaction Model,* is shaded orange. The model is represented by several predictors postulated to have relationships with the outcome variable; i.e., the initial employee reaction to MSF (REACTION). The predictor variables comprise of CLIMATE itself (now treated as an independent variable), perceived purpose of MSF (PURPOSE), complexity of the process (COMPLEX), perceived anonymity of the rater (ANONYM) and perceptions of the rater assignment process (ASSGN).

The third partial model, shaded pink, depicts the relationship between REACTION and employee acceptance (ACCEPT). The fourth partial model, shaded purple, depicts the relationship between REACTION and perceptions of usefulness of the MSF system (POU). Finally, it was hypothesized also that the outcome variables ACCEPT and POU were correlated to an extent that would render them related, yet distinct, constructs. This represented the fifth partial model (shaded light blue) to be tested, as a part of the entire hypothetical model on *Critical Determinants Influencing Employee Reaction to MSF Systems*.

The following Table 2-2 provides the abbreviations used for the constructs within the research model.

Table 2-2: Construct Abbreviations

Psychological Climate Predictors	
FSE	Feedback Seeking Environment
CTRL	Control over Organizational Processes
UNDERST	Understanding of Organizational Events
SUPPORT	Operational Support
POLIT	Political Awareness within the Organization
Reaction Predictors	
CLIMATE	Psychological Climate for MSF Implementation
PURPOSE	Perceptions of the Purpose for the MSF System
COMPLEX	Perceived level of Complexity in the MSF Implementation
ANONYM	Perceptions of the Rater Anonymity
ASSGN	Perceptions of the Rater Assignment Process
Outcome Variables	
REACTION	Initial Reaction of Employees towards the MSF system
ACCEPT	Employee Acceptance of the MSF system
POU	Perceptions of Usefulness towards the MSF system

2.10 The Hypothetical Model Development: Hypotheses and Relationships

The research questions presented in Chapter One provides the foundation for the hypotheses and model development for the current research. The following sub-sections detail the critical literature for each set of relationships between the specific variables of interest, leading to the hypotheses to be tested within the model.

2.10.1 The Outcome Constructs: Reaction (REACTION), Acceptance (ACCEPT) and Perceptions of Usefulness (POU)

Extant research has gone in all directions studying the many facets of MSF systems. A number of researchers and reviewers have suggested various new solutions to persistent problems plaguing the MSF system, yet many paradoxes and 'grey areas' still remain.

Considerable research has been performed on the effectiveness of feedback on individual behaviour since the 1970s (Ilgen, Fisher & Taylor 1979). Included among

the seminal work in feedback literature are: the study by Katz and Kahn (1978) on the importance of feedback on role learning and the leadership function; Maslow (1954) on how feedback contributes to the higher order needs of self-esteem and self-actualization; and, Hackman and Oldham (1975, 1976) on how performance feedback achieves a motivational purpose by encouraging the right environment for task accomplishment. Nevertheless, the above-mentioned studies were on feedback in general, and serve primarily as a vehicle to a more focused discussion on studies more specific to MSF.

Bearing in mind the evolution of feedback systems from the earlier decades, encompassing the general top-down feedback, peer feedback and self-feedback to what is called the Multisource Feedback System today, reaction towards the actual feedback and the whole MSF system has always been the subject of strong interest due to the magnitude the latter construct conveys to the overall success of any feedback system (Bernardin & Beatty 1984; Church & Bracken 1997; DeLeon & Ewen 1997; Eichinger & Lombardo 2003). For instance, in the early 1980s, Carver and Schneier (1982) alleged that, in spite of any feedback system's psychometric soundness, it will be unsuccessful if the system has no support from the users. When referring to appraisal systems, Brett and Atwater (2001, p.380) eloquently noted "little is known about whether 360-degree developmental feedback has effects similar to performance appraisal in terms of reactions to feedback". Irrefutably, in order for any performance evaluation system to be used successfully, it must be both relevant and acceptable to the users. Therefore, reaction measures reflect appropriate dependent variables because they naturally specify an overall feedback system viability better than the more narrow leniency, halo, and discriminability psychometric indices (Bernardin & Beatty 1984, pp.179-183).

More recently, Morgan, Cannan and Cullinane (2005) noted that supportive empirical research on employee acceptance towards MSF systems has been slow to emerge. Unfortunately, similar to most other new management areas, research has lagged behind in defining an ideal, or even a 'best-practise' MSF system through the narrowed lens of maximising employee acceptance towards the system. The examination of employee reaction to MSF is proposed to be conducted via

examining aggregate reaction across rater groups, similar to the approach taken by Edwards, Ewen & Vendantam (2001).

In a similar vein, Smither, London and Reilly (2005) noted that two factors that determined MSF system effectiveness in terms of performance improvement following feedback were the receptivity of the recipient and possession of positive intentions to change. This finding supports an earlier one by Waldman and Bowen (1998) which claimed that acceptance included receptivity and intentions to use feedback. In a nutshell, literature indicates that is it pivotal from both the theoretical and practical standpoints to better understand the dynamics behind acceptance, perceptions of usefulness and even the immediate reaction to the MSF system. The initial reactions of employees towards the system are critical, not only because they are transitory towards the overall acceptance of the MSF system results, but that they are pertinent in explaining usefulness of feedback and, hence, lead to intention to use feedback (McCarthy & Garavan 2007).

The criticality of examining and understanding employee reactions to any feedback system is eloquently laid out as below, as described by Edwards et al. (2001, p.240)

- To identify how did users (leaders and individual contributors) react to the MSF process

- Provide intelligence that supports successful rollout of the MSF process to a broader segment of the organization

- Identify which process elements need to be improved

- Identify remaining obstacles to organizational acceptance of the MSF process

- Share important communication about process success in meeting MSF objectives

- Set the stage for wider use of the MSF data, such as for performance management

- Build organizational justification to continue the MSF process

- Create documentation for legal defensibility associated with fairness, accuracy, and reliability

At this juncture, a more sophisticated understanding of the relationship between reaction, acceptance and perceptions of usefulness needs to be developed. Indications are emerging from literature to suggest that the concept of reaction to MSF is taken as having two subsequent important ramifications relating to employee perceptions towards the system; *viz.*, employee acceptance of the overall system and perceptions of usefulness of the MSF system. It is worth noting the various hats employees can wear when associated with the MSF system. Employees can represent the raters and ratees, and also the administrators (often, management in the Human Resource Department). Having said this, it is important to bear in mind the fact that, as participants to the MSF system, a substantial number of employees can actually 'wear the hat' both of ratees and raters being subjected to the MSF system. This happens because, besides receiving feedback from the various sources, they also may be providing feedback on other constituents working around them; e.g., providing feedback to their bosses, peers and subordinates (Fedor et al. 1999). Recognising this circumstance, it is felt that a critical area of enquiry is to explore the perception of participants of the MSF system without discriminating between raters and ratees, and to better understand how various key determinants influence reaction and, consequently, acceptance and perceptions of usefulness of the MSF system. Fundamentally, MSF implementers and academics should be informed of best practices in MSF implementation from the perspective of maximising employee acceptance and perceptions of usefulness of the MSF system.

Since there is scarcity of MSF research investigating the effect on acceptability or reaction, a review over other performance management studies was done to explore the variations in the operationalization of the construct 'reaction'. Perusal of the current body of knowledge reveals that references to feedback reaction on the part of employees have emerged in many variations. Some studies have addressed reactions by way of feedback utility or value (Ivancevich 1982; Russell & Goode 1988), satisfaction with feedback information (Bannister 1986; Russell & Goode 1988; Silverman & Wexley 1984), and also acceptance of MSF (Maurer & Tarulli 1996; McCarthy & Garavan 2007; Ryan et al. 2000)

With specific reference to MSF, initial anecdotal evidence was noted by Bernardin, Dahmus and Redmon (1993) who investigated how employees react to receiving

feedback from subordinates and supervisors, two of the many possible constituents of the MSF system; this was a substantial change from the traditional top-down evaluations received from the supervisor only. Generally, their finding was positive in that employees reacted well to receiving feedback from both subordinate and supervisor as opposed to receiving feedback from only the supervisor; the rationale was that employees responded well to alternative evaluation methods entailing feedback provided from more than one perspective. Perceived helpfulness and a general attitude towards subordinate feedback was the modus operandi in operationalising the feedback reaction. A reactive questionnaire with 10 questions using a five-point scale of intensity sought perceptions of fairness, agreeableness, accuracy and several other related reaction indicators (Bernardin et al. 1993).

Although contrasting studies of discourse have shed light on the reaction to feedback from different perspectives, no known study has had the concept of employees' reaction to MSF conceptualized and operationalised by the initial reaction, followed by acceptance and perceived usefulness as determined for the current research..

As far as the criterion for reaction to MSF is concerned, and in modelling the entire theoretical framework, it seems logical to measure the two very crucial outcomes; acceptance and perceptions of usefulness of the MSF system. Although acceptance and perceived usefulness are really related, it has been argued that they should be treated separately because they are likely to represent related, but dissimilar constructs (Facteau et al. 1998). Borrowing from Control theory (Carver & Schneier 1981), which argues that a discrepancy between goals and feedback may initiate changes in behavior, it can be argued that MSF evaluations may well not be perceived as accurate (hence not accepted), yet the information may actually be useful for behavior change.

To illustrate, it is possible that an employee perceives the MSF system as producing acceptable, accurate results (Cawley, Keeping & Levy 1998), yet they may not prove valuable or useful for individual development. Likewise, should the employee not view the ratings as accurate, he/she could recognize that the ratings affect his/her development because the information would give that employee the prospect to change 'inaccurate perceptions' in the future. Bracken, Timmreck and Church (2001)

support this concept by suggesting that, regardless of perceived accuracy, employees will enhance their self-awareness of how they are viewed and try to influence people's perception of them. Thus, because perceptions of feedback acceptance and usefulness are unique, and in spite of possible relationships between these constructs, it is worthwhile to use two separate dependent measures. The treatment of the constructs acceptance and perceptions of usefulness follows the prescription of Facteau et al. (1998). A concurrent objective would be to test that acceptance and perceptions of usefulness are non-synonymous constructs.

Extending the rationale presented above, an additional dependant measure, *viz.*, the initial reaction to MSF, is seen as an antecedent to the two dependant measures acceptance and perceptions of usefulness. Initial reaction is conceptualized as the perceptions towards the system's design, goals and general predisposition towards the MSF system in the organisation. Acceptance, on the other hand, specifically addresses the perceptions of accuracy, agreeableness with the results from the MSF system and acceptability of the evaluations. The definition of acceptance adopted here is that from Ilgen, Fisher and Taylor (1979, p.356) where "acceptance refers to the recipient's belief that the feedback is an accurate portrayal of his or her performance. Whether or not this belief is in itself correct is inconsequential to acceptance". Finally, the construct of usefulness is conceptualized from the point of view of having inherent information utility, value-adding characteristics and highlighting areas that require performance improvement.

Changes to the status quo in organizations are liable to be resisted even if the prevailing processes are not favoured (Waldman 1997). It would be interesting to note how the employees' reaction towards whether the new MSF feedback system is superior compared to the traditional top-down feedback would tend to have repercussions on the acceptance of the system.

Interestingly, there is evidence of discrepancies in attitudes towards MSF systems between raters and ratees (Waldman 1997). The raters seemed to display a higher level of interest and receptivity towards MSF systems compared to the ratees; due to the apparent differential level of risk involved. The current research, however, takes an omnibus view of the participants to the MSF system without drawing the line

between raters and ratees, as it is recognized that these individuals are most likely to play dual roles.

A higher degree of faith placed on the MSF system has been argued to elicit greater perceptions of usefulness; for example, greater behavioral changes on part of employees have been observed compared to traditional ratings as MSF data are viewed as more reliable and valid (Maurer & Tarulli 1996). The Cognitive Dissonance Theory suggests that feedback that elicits negative reaction will tend to be perceived as having little value (Brett & Atwater 2001).

Accordingly, the literature and anecdotal evidence presented above lead to the following hypotheses:

Hypothesis 1: Reaction to MSF (REACTION) will be positively associated with acceptance of MSF systems (ACCEPT).

Hypothesis 2: Reaction to MSF (REACTION) will be positively associated with Perceptions of Usefulness of MSF (POU).

Hypothesis 3: There will be a positive relationship between Acceptance of MSF systems (ACCEPT) and Perceptions of Usefulness of the MSF system (POU), but statistically ACCEPT and POU will be distinct constructs.

The Reaction Model

2.10.2 Psychological Climate for MSF Implementation (CLIMATE) and Employee Reaction to MSF (REACTION)

The construct of climate can be viewed in the light of the issue of readiness as espoused by several authors, (e.g; Bracken, Summers & Fleenor 1998; Ewen & Edwards 2001; Koebelin 1999). The conventional understanding put forward was that a culturally ready organization (Ewen & Edwards 2001) would be more conducive as far as MSF implementation is concerned.

For successful implementation of MSF, the best psychological climate for MSF implementation is a suitable general working atmosphere within the organisation. Inherently, the general environment for MSF implementation is really a psychological evaluation of how the employees perceive the MSF environment at work to be suitable for MSF implementation (James & Jones 1974). The construct 'climate' can either be treated as an individual/psychological level construct or an organisational level construct (Scott & Bruce 1994). With the three different companies participating in the current research, the likelihood of finding a single organisational-level unified climate is almost impossible; nevertheless, one would expect the majority of the variance in perceptions to occur at the individual level.

Intuitively, it is expected that a fertile psychological climate for MSF implementation would render employees more receptive towards the system; a less favourable climate would have negative repercussions on their reactions towards the MSF system. This notion could be seen as relating to the Attribution theory of behaviour (Kelley & Michela 1980; Shaver 1975) whereby employees would attribute a good psychological climate for MSF to the possibility of the system succeeding in achieving its objectives and, consequently, improve their reaction towards the MSF system.

Notwithstanding the many factors that contribute to the psychological climate mentioned above, in terms of scope there are four contributors to MSF psychological climate seen as salient; *viz.*, feedback-seeking environment, control over organisational processes, understanding of organisational events and operational support.

Inevitably, one would expect that individual-level differences such as personality, thinking styles and cognitive processes affect users' perceptions of the degree to which they feel happy to use the MSF system, are trained to understand how to use it, are supported during it and comfortable with using it. With this perspective in mind, the intention of the current research is to minimise the exposure of factors impacting on the psychological climate for MSF determined by less systemic factors such as these individual differences. It is the organisational-level factors critical to the climate of the organisation that are viewed not as givens (as opposed to the

individual-level factors) and are addressed in the sense of independent variables to the climate for MSF.

Building on the arguments above, organizational-level variables exert a strong influence over MSF systems. London & Smither (2002) report that a strong feedback culture may increase the likelihood that the feedback recipients will be receptive towards feedback and generally have a positive perception towards the process.

Ewen & Edwards (2001) discussed the issue of readiness in terms of how an organization should manage the transition from single-source feedback to a multisource counterpart. Ironically, in one of their studies on MSF, organizations were noted to have a low instance of 'readiness' yet have high satisfaction scores. Authors have speculated that low-trust, hierarchical, autocratic organizations find adoption of MSF systems easier as employees "desperately desire change" (Ewen & Edwards 2001, p.46). Yet evidence for these claims remains largely at the anecdotal level.

Accordingly, the arguments above provide the underpinning for the following hypothesis:

Hypothesis 4: The Psychological Climate for MSF Implementation (CLIMATE)
will be positively associated with employee reaction to MSF (REACTION).

2.10.3 Purpose of MSF (PURPOSE) and Employee Reaction to MSF (REACTION)

A few years after its gaining popularity, researchers noted a trend in utilizing the MSF for administrative purposes instead of purely developmental only (Bettenhausen & Fedor 1997; Fletcher & Baldry 2000; London & Smither 1995).

MSF used for developmental purposes only represents a significant irony in terms of value received for administration, time and cost investment. From a managerial perspective, applying the MSF for solely developmental purposes would mean that organizations are forced to maintain two redundant processes in relation to

evaluation; i.e., the traditional performance appraisal, and MSF for developmental purposes only (Ewen & Edwards 2001). This phenomenon may release unintended gestures such that the traditional top-down feedback, possibly viewed as biased and unfair, is given precedence over the new MSF process that is portrayed to embody what is supposed to be a more 'comprehensive' feedback management tool.

Feedback received from MSF systems can be put to use, virtually, for any initiative that requires substantial information about the effectiveness of an employee's performance. One recent study on the reliability and validity of MSF ratings noted the four main purposes for performance reviews in general to be for: administrative purposes, employee development (or leadership development), assessment of potential and research purposes (van Hooft et al. 2006). By and large, initiatives can be categorized into two major purposes; MSF feedback for development purposes and MSF feedback for administrative purposes (Tornow 1993). The latter implies possible decisions on salary increments, promotions and other reward-related decisions based on the MSF evaluation. Essentially, the fundamental distinction between these two purposes (developmental and administrative) is the ownership of data and how they are used (Dalton 1996).

Arguably, the main points contesting the credibility of MSF relate to issues of the purpose of feedback. Lassiter (2003) classified performance appraisals and employee development as separate and distinct processes with different purposes and different measurement tools. Hence, he opposes the notion of the MSF for the dual purposes of development and administration; e.g., it is argued that for developmental purposes, MSF is broader and brings in multiple and more balanced perspectives. Also, it is designed to encourage employees to grow and develop by providing feedback on their proficiency in skills, competencies, behaviours and practices related to the conduct of their jobs (Lassiter 2003). As employees learn, grow and develop, the organisation increases its capacity to perform at higher levels. Lassiter (2002, pp.2-3) warns of the potential dangers that can result if MSF was used for administrative purposes. He argues that the work environment "becomes politicized, candour and honesty are compromised, trust and integrity are damaged, risks are avoided, motivation diminishes, morale drops, performance declines, and turnover rises".

Findings from research on 43 global organizations found most MSF systems were used for developmental and feedback use only (Rogers, Rogers & Metlay 2002, p.46); it was reported that organizations using MSF for administrative purposes had participants feeling "penalized if … feedback reports were linked to their success within the organization; others found the tie to compensation to be unfair."

Removed of its reward-linked implications, empirical research has tended to evidence employees perceiving feedback for development as more credible, sincere and valuable as well as more acceptable (Fedor et al. 1999; McEvoy & Buller 1987). Aptly put, Bettenhausen & colleagues (1999, p.95) contrast the connotations inherent with developmental purposes as opposed to administrative purposes as "helping than judging". For this reason, the developmental purpose would appear more acceptable in the eyes of employees. Even though most experts posit that developmental and administrative purposes should be kept separate, having the MSF information on hand, managers will be inclined to use it (Jackson & Greller 1998). Even if they did not, it may be tough to convince the MSF participants that the evaluations were confidential and would not influence the actual appraisals. Drawing from John's (1999) Self-serving Theory, administrative purposes for MSF are argued not to be favored by employees as such a use would trigger an identity motive (in other words ego-protection) and a resource motive (rewards in terms of compensation etc).

Integrating the general, widely held view on the issue of purpose, it is argued that when MSF is linked to compensation decisions, it loses power and benefit as a developmental tool (Dalessio 1998; Garavan, Morley & Flynn 1997; Koebelin 1999; Lassiter 2003; Romano 1993). When employees know that financial rewards are based on MSF ratings, they quickly see how the new game is played; realising what is required to achieve a good appraisal, employees can manipulate the process to ensure the desired result. The system becomes tainted as trust and honesty are compromised in favour of getting a good review. Lassiter (2003) argues that implementing MSF for administrative decisions may result in deteriorated skill proficiencies that lead to weakened ability to compete or deliver, and a performance environment of mediocrity; this can result in defensiveness, denial, conflict, accusations and loss of trust. Relationships within the workgroup, then, are jeopardized and can lead to significant reduction in productivity and performance.

An interesting finding that acknowledges the paradox within the issue of purpose, lies in the results published by Edwards, Ewen and Verdini (1995) which found employees to prefer MSF over the traditional top-down feedback to be applied for administrative purposes, claiming that the administrative versions of MSF were more fair compared to the administrative versions of top-down feedback. However, from a managerial perspective, whether MSF would be accepted for both administrative and developmental purposes remains a grey area in empirical research.

Interestingly, despite the fact that Toegel & Conger (2003) have acknowledged the potential of MSF to be used for administrative as well as developmental purposes, the authors also counselled against applying it for both purposes simultaneously. A noteworthy observation from extant research on MSF is that the majority of concerns about its administrative applications are based on logical arguments instead of empirical substantiation (Craig & Hannum 2006). Nevertheless, a study by Boswell & Boudreau (2002) on the traditional top-down feedback found that feedback for a combined administrative and development purpose reported a higher level of employee satisfaction compared to feedback for a single purpose. The authors attributed the motivation factor to results reported. Another study by Antonioni (2000), also attributed motivation for the reason behind why MSF failed to initiate behavioural change when used only for developmental purposes. These results call for additional research to delve into the prevailing paradoxes.

On a related note, Kluger and DeNisi (1996) posit that individuals accept or reject feedback depending on their perceptions of feedback consequences. Thus, individuals are less likely to reject negative feedback if it is clear that the long-term benefits of responding outweigh the immediate negative emotions (Korsgaard, Meglino & Lester 1997) and, based on experts' findings, employees are likely to be more receptive to MSF when used purely for developmental purposes rather than for decision-making (Greguras et al. 2003; Mannis 2001). With studies contrasting feedback purposes as 'developmental only' or 'administrative only', it is important to note the concept of 'feedback for administrative purposes only'. The latter phrase appears to put pointless characterisation on the choice as administrative (decision-making) uses usually tend to have a developmental component, too (Lawler, Mohrman & Resnick-West 1984). Despite the demand for characteristics of the task

of making comparisons, it was of interest to determine whether the phenomenon could be identified in the current study.

Practitioner experts are watchful over the stated purpose for MSF systems as great confusion may arise at the expense of the system's effectiveness (Wimer & Nowack 1998). Employees fear the repercussions of feedback that may have an influence over administrative decisions even if the policy states that it is not the case. Hence, the issue of salience is the vital distinction between the stated purpose of feedback and perceived purpose of feedback. Experts have pointed out that having no clear purpose for the process was a common mistake as far as implementing MSF systems are concerned (Tornow & London 1998; Wimer & Nowack 1998). In the words of the authors Wimer & Nowack (1998, p.70), "performing an intervention without a clear purpose is like prescribing an antibiotic for a virus; it doesn't treat the underlying problems and may lead to undesirable outcomes". The ambiguity with the use of the MSF system has been argued to impact on employees' reaction towards the system. Nevertheless, Fedor et al. (1999) posit that even if the management clearly communicates the purpose of feedback, the ultimate result will depend on what employees perceive the purpose of the system to be.

Bernardin and Cooke (1992) is an example of a study that used a 'stated' feedback purpose when analysing employee reaction to peer appraisals. One of the limitations highlighted was that they should have solicited employees' perceptions of the purpose for the feedback rather than focus on the purpose stated by the organisation. However, the point alludes to the inevitable ambiguities associated with administering the feedback system, the employees' efforts to make sense of the entire process and leads employees to perceive differently the extent to which the feedback is used for developmental vs. administrative purposes. Fedor, Bettenhausen and Davis (1999), arguing along the same lines, infer that empirical studies have clearly neglected exploring perceptions of purpose in relation to feedback acceptance. For this reason, in the perusal of feedback acceptance, perceived feedback purpose should be the construct under contention rather than stated purpose. In other words, the perceived feedback purpose is seen to have influence over employee reaction to MSF.

Moreover, as Fedor, Bettenhausen and Davis (1996, p.96) note,

> *Even when an organization clearly states how it intends to use performance appraisal information, the inevitable ambiguities associated with administering the system and employees' efforts to make sense of the entire process can lead employees to perceive differently the extent to which the appraisal system is used for developmental feedback purposes.*

Accordingly, the following hypothesis is generated:

Hypothesis 5: Perceived MSF purpose (PURPOSE) will be associated with employee reaction to MSF (REACTION), such that a non-administrative purpose will be positively associated with REACTION.

2.10.4 Perceived Anonymity of Raters (ANONYM) and Employee Reaction to MSF (REACTION)

The underlying assumption of anonymity prevalent in MSF systems has triggered strong debate and controversy in academia as it requires an understanding of two other particularly salient issues; namely, accountability and confidentiality. Researchers suggest that the three constructs of 'anonymity', 'accountability' and 'confidentiality' with regard to MSF are connected in some way or other (London et al. 1997). Accountability refers to "taking responsibility over an action taken and applying the process in a serious and meaningful way" (London et al. 1997, p.163). In discussing how critical factors contribute to successful implementation, Bracken et al. (2001c) warn of the dangers of confusing the concepts underlying the issues of anonymity and confidentiality. Confidentiality refers to the ownership of data whereas anonymity entails the hidden identity of the raters from the ratees. Anonymity of ratings may promote candor, but it works against rating accountability (Tornow & Tornow 2001, p.53).

Ideally, anonymity would augur well for raters who provide honest feedback so they would not feel anxious or threatened. Yet, the problem arises that they may be inclined to complete the rating with 'one eye closed' since they are not accountable

for the feedback. After all, under the pre-text of an anonymous rating, the ratees will not know who provided the rating for them. On the contrary, indicators are emerging from literature to suggest that removing anonymity might force raters to be serious whilst conducting rating (hence, an argument for increased accountability) but might also expose raters in subordinate positions to subsequent, unfair treatment especially if they pass negative feedback to their employer (London et al. 1997). Romano (1993) points out that employees may be putting themselves at risk by providing information about a manager who has power over them. Thus, the fear of reprisal hampers the reliability of honest rating.

On a similar note, the upward component within the MSF system may render the system less effective. Extending the rationale presented by Tourish (2005), if subordinates were identifiable by their supervisors then it would be a case of inflated ratings to suck up to the bosses. In Tourish's article, it was suggested that rater non-anonymity might prove to be a reason why most upward communication may be more flattering than critical in nature. Eloquently put, Tourish (2005, p.486) argues, "Most of us are more vulnerable to the seductive power of flattery than we like to think". As a result, the MSF may prove ineffective in improving the competencies of decision makers. This, makes another case for rater-anonymity to be maintained in MSF systems.

Borrowing from the five bases of power (French & Raven 1959), the fear of retaliation from a superior receiving negative feedback from subordinates emerges from the legitimate power to reward or punish. As such, the potential benefits of MSF may be reduced substantially due to the lack of candour. Bettenhausen & Fedor (1997) extended the argument above by proposing that bosses will definitely 'lose face' to get feedback on their performance deficiencies from their subordinates. This heightens the salience of anonymity in MSF evaluations.

Hence, prevailing managerial theory proposes that anonymous evaluation "promotes feedback candor" (Tornow & London 1998, p.7) and reduces dishonest ratings which are artificially inflated (London et al. 1997). On the related issue of confidentiality, Van Veslor, Taylor and Leslie (1993) suggested that when employees are aware that their responses are not confidential, ratings may be inflated. Similarly, London,

Wohlers and Gallangher (1990) found that 24 percent of respondents indicated that they would have rated their boss and/or peers differently if the feedback had not been given anonymously. Integrating the general logic about the issue of anonymity, the importance of anonymity lies in the fact that MSF was meant to overcome the difficulty for the various stakeholders like peers, bosses and subordinates to be candid and honest about their feedback to one another, especially when addressing weaknesses (Eichinger & Lombardo 2003).

Opponents of rater anonymity argue that anonymity should not be a requirement in furnishing feedback but, instead, face-to-face feedback would be far superior in achieving the typical objectives of feedback systems (Dalton 1996). Also erring on the opponents side of the debate, Bamberger et al. (2005) highlighted the contradictory effects of rater anonymity on managerial effectiveness. The study focused on peer assessment, one of the most common sources within a MSF system. In such circumstances it was proposed that employees may feel motivated to negatively bias evaluations of others since they will not be held accountable for the evaluations. Negative outcomes such as these would be less under conditions of rater non-anonymity as the raters fear that they may be held individually accountable for any self-serving evaluations of others. Game theory (Luce & Raiffa 1957), seems to provide a simple yet natural reasoning behind the negative effects of rater anonymity in MSF assessments. Simply put, the actions of employees will be guided by strategic considerations; hence downward biasing of others would happen more if raters are not identifiable (Bamberger et al. 2005).

Another related paradox regarding the anonymity issue pertains to use of the ratings as part of documentation for a personnel action involving a manager; e.g., dismissal or demotion (Waldman, Atwater & Antonioni 1998). Validity of responses is an issue when there is no consideration of whether a rating made anonymously to protect the raters from being identified maybe used in court cases for the decisions listed above.

Furthermore, whereas the limited research on the issue of rater anonymity has focused on assessment accuracy and user acceptability (Antonioni 1994; London et al. 1997) as well as behavioral consequences of peer assessment (Bamberger et al.

2005), the current research focused on the general predisposition employees have towards the anonymity issue in relation to their reaction towards the MSF system.

Given the contradictory repercussions anonymity has on MSF acceptance, and the limited empirical research specifically addressing the issue of anonymity, accountability and confidentiality (Antonioni 1994; Bamberger et al. 2005; London et al. 1997; London et al. 1990; Van Veslor et al. 1993), it is felt necessary to explore the issue further to shed more light on practical recommendations, and to investigate the dynamics of anonymity when interacting with other critical constructs hypothesized in the model.

The argument presented above leads to the following hypothesis:

Hypothesis 6: Perceptions of rater anonymity (ANONYM) are positively associated with employee reaction to MSF (REACTION).

2.10.5 Perceptions of the Rater Assignment Process (ASSGN) and Employee Reaction to MSF (REACTION)

The motive potentially underlying the perceptions of employees over the rater assignment process may be based in employees' motivation to assess how well they will be evaluated. This may be related in part to the Self-enhancement Theory and follows argument set forth by Stepanski and Fisicaro (1999) who argued that some ratees may attempt to influence the valence of information collected in MSF systems or may favour the system only if they are convinced the system will produce positive outcome. This view supports other findings that ratees will endeavour to support systems that promote a positive view of them (Tsui & Ashford 1994).

With regard to assignment of raters, further valuable prompts are sourced from the seminal studies of McEvoy and Buller (1987) and Greenberg (1986). In the former, the survey results of user acceptance on peer appraisals produced a pattern of comments consistent with the earlier research by Greenberg (1986). The consistency lay in that employees disliked peer appraisals when they perceived the raters as having limited understanding of their job requirements. McEvoy and Buller (1987)

rationalised that the tendency was higher for senior employees to feel that way when the raters were newer to the organisation. It was inferred that the selection of well-informed raters in a superior position to evaluate the ratees' job performance is of vital importance in the overall performance management system.

On a similar note, a study on peer appraisals by Barclay and Harland (1995) suggested certain managerial implications that stressed the importance of organisations in the selection of raters; *viz.*, which particular attention should be paid to the perceptions of the ratees of the raters chosen, such that the raters are viewed as competent in providing assessments.

Scholars have suggested that organizations should give priority to selecting raters perceived as capable by ratees (Barclay & Harland 1995). Further, London et al. (1990) suggested that ratees should select their own raters and that participation in an MSF program should be voluntary. More recently, Becton & Schraeder (2004) highlighted yet another paradox within the rater selection process. They argue that organizations are faced with a Catch-22 situation: should the organization allow for a relaxed rater selection method with ample input on the part of the ratees whereby it is more likely that the MSF feedback will be inflated, but on a positive note, more acceptable. On the other hand, if ratees were not allowed much input into the rater selection process, the possible advantage will be a higher variability in ratings, but organizations may have to put up with the ratings being rejected.

More specific to the proposed construct of rater assignment, Gilliland & Langdon (1998) posit that procedural factors influence overall perceptions of the feedback system's fairness. Extending from the rationale presented here, and borrowing from the Theory of Procedural Fairness (Greenberg 1986), the process of rater selection in a MSF system is proposed to be associated with employee reaction, acceptance and perceptions of usefulness of MSF systems.

In sum, suggestions from field experts emphasize the salience of the rater selection process (Vinson 1996; Yukl & Lepsinger 1995). It remains to be seen how the perceptions of the rater assignment process can be related to specific facets of feedback reactions such as acceptance and perceptions of usefulness.

As such, the following hypothesis is proposed:

Hypothesis 7: An acceptable process of assignment of raters (ASSGN) will positively influence Reaction to MSF (REACTION), such that a favourable ASSGN will have favourable impact on REACTION

2.10.6 Complexity of the MSF Process (COMPLEX) and Employee Reaction to MSF (REACTION)

Complexity is operationalized as the degree to which the MSF system is perceived as difficult to understand or to use. The major challenge facing the introduction of MSF is that employees may feel threatened by assessment (London et al. 1990). One of the complexities with regard to MSF application would stem from the divergence from the usual organizational hierarchy. Having to evaluate individuals in a more superior position violates the usual job responsibility and may place both raters and ratees in unfamiliar and uncomfortable situations (Funderburg & Levy 1997; Murphy & Cleveland 1995). Problems can be inflated if the organisational culture has been conventionally bureaucratic and hierarchical. A shift away from traditional methods and processes used by employees can lead to fear and rejection of new programs (Murphy & Cleveland, 1995).

The success of MSF systems is subject to contextual influences because of the fact that there is a high possibility that MSF goes against the traditional hierarchical power structures and may put supervisors and subordinates in an uncomfortable, awkward position. It is argued that, potentially, problems are created by violating the organisational hierarchy by soliciting feedback from sources other than the supervisor. Typically, employees are not accustomed to receive feedback from others at their own, or a lower, level even when they are done for constructive and developmental reasons. Also, problems can stem from the fact that having to perform peer and subordinate feedback adds responsibilities to the employees beyond the usual psychological contract (Fedor, Bettenhausen & Davis 1999).

With regard to system complexity, it appears desirable to involve future users of a feedback system in its development. There will be a higher chance of participants

considering user-friendly issues when they know that they will be using the system in the future (Giles & Mossholder 1990). Employee participation in system development would be critical, particularly in departments and organisations judged most likely to perceive the system as overly complex. The problem will be amplified further when MSF system users have educational levels and language competencies below those of the average system users.

Survey fatigue is another problem that arises with the adoption of MSF (Bracken 1996; Kaplan 1993; London & Beatty 1993); it adds weight to the constraints side of the equation, as time and cost already present major stumbling blocks. Although it is common for organisations to utilize numerous surveys and questionnaires to evaluate customer and/or employee satisfaction, widespread adoption of MSF within an organisation may result in employees having to fill out numerous questionnaires for their employer, their peers and their subordinates; survey fatigue may result in less than accurate and valid ratings.

In summary, the foregoing discussion points to the fact that the difficulties experienced by employees logically pose a major stumbling block to MSF implementation. While there has been little research with regard to reactions to feedback, there has been even less, if any, specifically addressing perceived complexity as one of the factors influencing employee feedback reaction.

Based on these findings and from the rationale presented above, it is hypothesized that:

Hypothesis 8: Perceptions of the level of complexity related to MSF process (COMPLEX) will be negatively associated with employee reaction to MSF (REACTION).

Drawing on the entire set of individual hypothesis associated with REACTION, a further hypothesis is developed:

Hypothesis 9: The combination of Psychological climate for MSF implementation (CLIMATE), Perceived MSF purpose (PURPOSE), Perceptions of the level of

complexity related to MSF process (COMPLEX), Perceptions of rater anonymity (ANONYM), and Perceptions of the rater assignment process (ASSGN) will collectively explain the employee reaction to MSF (REACTION).

The Climate Model

2.10.7 Feedback Seeking Environment (FSE) and Psychological Climate for MSF Implementation (CLIMATE)

Having an environment in an organisation that is conducive to feedback being given, or sought after, is imperative to the success of an MSF system. Researchers have identified a myriad of antecedents to climate, such as elements in the socio-cultural environment, structural characteristics, culture, leadership behaviours and management policies (Funderburg & Levy 1997; James & Jones 1974). With explicit reference to MSF, organisations will vary in their reaction and ease with which their employees can seek and feel comfortable seeking feedback, particularly from the non-traditional sources such as peers and subordinates. This view is supported by Levy and Steelman (1994) who contend that individuals who feel encouraged and rewarded to ask for feedback by the organisation were more prone to do so than those who believed seeking feedback was not supported by the organisation. Clearly, this is a self-perpetuating cycle, as the more supportive the organisation is in encouraging feedback seeking behaviour, the more comfortable employees will be in seeking and giving feedback. Consequently, as employees get used to seeking and giving feedback as part of their work routine, the atmosphere at the organisation will appear to have a better feedback seeking environment.

Earlier, Ilgen (1993) posited that an organisation must expend effort to understand, change and suit the context of the organisation to improve the feedback-seeking environment. Given this, it should be construed that the organisation must present a fertile atmosphere to feedback seekers as well as facilitate the sharing of feedback information to the rightful employees who want to learn about their strengths and weaknesses.

The perceptions of the organizational environment have great influence over the suitability of MSF implementation. Contrasted with the issue of operational support, which more reflects the perceptions of direct support provided in managing the MSF system, the feedback-seeking environment refers to the attitudes prevalent within the organization towards seeking and providing feedback. Eventually, this feedback seeking climate is sought after so as to increase the "receptivity or ease with which employees can seek, and feel comfortable seeking, performance-relevant information" (Funderburg & Levy 1997, p.218).

Advancement in the area of understanding the feedback-seeking environment found the development of scales to tap the extent to which an organization supports the use of feedback (Ashford 1986; Ashford & Northcraft 1992a; Ashford & Tsui 1991; Steelman & Levy 2001; Steelman, Levy & Snell 2002).

Based on the rationale above, researchers found that a favourable environment for feedback would have positive repercussions on employees attitudes and behaviours toward the feedback system (Ashford & Northcraft 1992b; Levy & Steelman 1994; Levy & Williams 2004) and, subsequently, improve the extent of organizational learning (Chan & Scott-Ladd 2004).

Based on the discussion above, the following hypothesis is formulated:

Hypothesis 10: Feedback seeking environment (FSE) will be positively associated with the psychological climate to MSF implementation (CLIMATE).

2.10.8 Control over Organisational Processes (CTRL) and Psychological Climate for MSF Implementation (CLIMATE)

Control can be defined as the extent to which employees have the ability to exercise influence over their organisational environment (Sutton & Kahn 1986). Researchers contend that employees who experience high levels of control within their organisations are likely to present less aversive outcomes compared to their counterparts who display lower levels of control (Lind, Kanfer & Earley 1990; Todd & Jerry 1999; Wallis 2002). Hence, it can be rationalised that employees who feel a

sense of control over organisational processes are likely to perceive the psychological climate for MSF implementation to be more favourable compared to those who have less sense of control.

The definition of 'control' in the current research was adapted from the study of Tetrick & La Rocco (1987) which, in turn, was adapted from Sutton & Kahn (1986). In the former study, it was established that control over organizational processes and a related construct of understanding over organizational events were found to be distinct from one another. However, Tetrick & La Rocco found partial support for control as a moderating variable variable between a set of different outcome variables being role stress and satisfaction. In consideration of the differential approaches control has been tested for in past studies, and considering the preliminary nature of the framework proposed under the present study, control is hypothesized as a predictor to Climate.

A study on effects of ratings purpose on quality of MSF ratings (Greguras et al. 2003) suggested that control within the job context may have some influence over the outcome of MSF ratings. It is suggested that the construct of control over organizational processes be linked to climate for MSF implementation which, in turn, is linked to employees reaction towards the system.

Based on the discussion above, the following hypothesis is formulated:

Hypothesis 11: Control over organisational processes (CTRL) will be positively associated with the psychological climate to MSF implementation (CLIMATE).

2.10.9 Understanding of Organisational Events (UNDERST) and Psychological Climate for MSF Implementation (CLIMATE)

Another construct related to control is 'understanding over organizational events'. Understanding refers to knowledge concerning how or why things happen in the organizational environment (Sutton & Kahn 1986). Employees understanding of the connections between feedback, development, any possible salary adjustments,

rewards and other related repercussions are often indistinct or illusive. These linkages, referred to by Greenberg (1986) as distributive justice factors, are often poorly articulated in organisations. From the standpoint of MSF systems, a better understanding of organisational events will have repercussions on the overall psychological climate.

Based on these findings and extending the rationale presented above, employees who understand the events around the organisation might be expected to perceive the psychological climate for MSF implementation to be more favourable than do employees with lower levels of understanding.

Hence, the following hypothesis is formulated:

Hypothesis 12: Understanding of organisational events (UNDERST) will be positively associated with the psychological climate to MSF implementation (CLIMATE).

2.10.10 Operational Support (SUPPORT) and Psychological Climate for MSF Implementation (CLIMATE)

Several known studies have focused on the influence of organizational support perceptions on feedback effectiveness (e.g. Maurer & Tarulli 1996; McCarthy & Garavan 2006). No known study has focused on a narrower aspect of organizational support, namely operational support as addressed in this study. Operational support is defined as the perceived level of support provided by the organization to ensure the smooth implementation of the MSF system. It taps into the specific measures taken by the organization to assist in the realization of an MSF system.

Contextual variables play their part as far as operational support is concerned, as employees will feel more supported in activities such as MSF with encouragement in terms of time provided to participate, guidance and training, as well as support from executives. Due to an apparent void in literature on operational support, prompts are taken from studies that encompassed organizational support as a variable.

Studies have evidenced that perceived organizational support relates to important behavioral outcomes like job attendance, organizational citizenship and performance (Eisenberger, Fasolop & Davis-Lamastro 1990; Shore & Wayne 1993). Additionally, job-related attitudes such as satisfaction and involvement has been investigated (Eisenberger et al. 1990; Shore & Tetrick 1991). Based on the evidence in these studies, it could be construed that perceptions of organizational support would relate to other attitudinal variables such as acceptance and perceptions of usefulness.

However, a few studies have reported contradictory repercussions of organizational support on acceptance. For instance, London, Larsen & Thisted (1999) espoused that a supportive environment, one stemming from better organizational support, may not necessarily encourage self-development. It could be inferred that operational support for MSF may not necessarily result in better acceptance even though, potentially, a better climate for MSF implementation is observed. Additionally, Facteau et al. (1998) found that perceptions of organizational support were not positively related to acceptance of feedback from peers and subordinates.

The current research takes an omnibus view investigating reactions towards the MSF system as a whole, and not towards each subset of stakeholder views solicited, for instance, from the peers, superior or subordinates. It would be interesting to see how operational support contributes to the perceptions of climate for MSF implementation, which, in turn, would relate to acceptance and perceptions of usefulness of the MSF system. Although the findings for the impact of operational support on employee reaction are inconclusive, a positive association is hypothesized between operational support and climate, based on theory of planned behaviour (Maurer & Palmer 1999).

Further to that, many other scholars have noted that support by the supervisor and colleagues will contribute to an atmosphere that increases the perceived capability for employee development (Hazucha et al. 1993; Kudisch, Fortunato & Smith 2006; Wallis 2002). Drawing on a related body of knowledge, Maurer & Tarulli (1996) reported greater acceptance of peer and upward feedback when employees perceived greater levels of social and organisational support. Employees who reported higher level of perceived organizational support from executives and peers for development

purposes displayed more positive attitudes towards the MSF system (Maurer et al. 2002). The claims above support the case that operational support will facilitate development of a favourable psychological climate for MSF implementation.

With the rationale presented above, the following hypothesis is generated:

Hypothesis 13: Perceptions of operational support (SUPPORT) will be positively associated with the psychological climate to MSF implementation (CLIMATE).

Drawing on the entire set of individual hypothesis associated with CLIMATE, a further hypothesis is developed:

Hypothesis 14: The combination of Feedback seeking environment (FSE), control over organisational processes (CTRL), understanding of organisational events (UNDERST), and perceptions of operational support (SUPPORT) will collectively explain the psychological climate for MSF implementation (CLIMATE).

2.10.11 Influence of Demographic Factors

Research findings on certain demographic factors in predicting reaction, acceptance or perceptions of usefulness to MSF systems are rather contradictory. Evidence on the influence of demographic variables seems to point in various different directions Research by Fedor, Bettenhausen and Davis (1999) suggested longer organisational tenure does not lead to a lower acceptance of feedback. However, McEvoy and Buller (1987) found that tenure was negatively related to acceptance in that, the longer the employee has served the organisation, the more difficult it was to accept the feedback provided. It should be noted, however, that the latter finding was based on peer appraisals and not MSF.

Early research conducted by Ilgen et al. (1979) noted that age might be related to feedback acceptance since age is positively correlated with experience in the work

environment. Older employees were found to use feedback more than younger employees. Ashford (1986) evidenced similar findings in a study when she found that tenure within an organization had impact over the perceived value of feedback. Ashford reported that feedback was seen as useful in adapting to new jobs but of less use to longer-serving employees who are more comfortable in their positions. McEvoy (1990) found modest negative correlations between years of service and acceptance of subordinate evaluations. Fedor et al. (1999) discovered that employee acceptance of peer feedback was not influenced by age; this was opposed to the findings of another study that had partial support for a hypothesis that, in general, older managers responded less to feedback (Ryan et al. 2000). Overall, position level has not been well-researched as a predictor of MSF acceptance.

It should be noted that some experts (McEvoy & Buller 1987) have reported that demographic variables are less predictive of reactions towards the systems as compared to the stronger influence of perceived characteristics of the user system. Such a contention laid the backdrop for the consolidation of the perceptual constructs for the hypothetical model; and the demographic variables were not included as any part of the main model depicting the secondary role played as explained above. As such, no pre-planned comparisons were made, but instead some post-hoc analyses were proposed to surface any prevalent relationships between the demographic variables and the outcome constructs.

2.11 Summary of Hypotheses

The following Table 2-3 provides a summary of the hypotheses developed following the review of literature:

Table 2-3: Table of Hypotheses

1.	Reaction to MSF (REACTION) will be positively associated with Acceptance of MSF systems (ACCEPT)
2.	Reaction to MSF (REACTION) will be positively associated with Perceptions of Usefulness of MSF (POU)
3.	There will be a positive relationship between Acceptance of MSF systems (ACCEPT) and Perceptions of Usefulness of the MSF system (POU), but statistically ACCEPT and POU will be distinct constructs

4.	The Psychological Climate for MSF Implementation (CLIMATE) will be positively associated with employee reaction to MSF (REACTION)
5.	Perceived MSF purpose (PURPOSE) will be associated with employee reaction to MSF (REACTION), such that a non-administrative purpose will be positively associated with REACTION
6.	Perceptions of rater anonymity (ANONYM) are positively associated with employee reaction to MSF (REACTION)
7.	An acceptable process of assignment of raters (ASSGN) will positively influence Reaction to MSF (REACTION), such that a favourable ASSGN will have favourable impact on REACTION
8.	Perceptions of the level of complexity related to MSF process (COMPLEX) will be negatively associated with employee reaction to MSF (REACTION)
9.	The combination of Psychological climate for MSF implementation (CLIMATE), Perceived MSF purpose (PURPOSE), Perceptions of the level of complexity related to MSF process (COMPLEX), Perceptions of rater anonymity (ANONYM), and Perceptions of the rater assignment process (ASSGN) will collectively explain the employee reaction to MSF (REACTION).
10.	Feedback seeking environment (FSE) will be positively associated with the psychological climate to MSF implementation (CLIMATE)
11.	Control over organisational processes (CTRL) will be positively associated with the psychological climate to MSF implementation (CLIMATE)
12.	Understanding of organisational events (UNDERST) will be positively associated with the psychological climate to MSF implementation (CLIMATE)
13.	Perceptions of operational support (SUPPORT) will be positively associated with the psychological climate to MSF implementation (CLIMATE)
14.	The combination of Feedback seeking environment (FSE), control over organisational processes (CTRL), understanding of organisational events (UNDERST), and perceptions of operational support (SUPPORT) will collectively explain the psychological climate for MSF implementation (CLIMATE)

2.12 MSF Policy versus Practice

Extending the review within the same broad domain of reaction towards MSF systems, it was thought worthwhile to explore management's perceptions in addition to employees' perceptions towards the specific parameters thought to pose significant influence over employee reaction. After all, in the true spirit of the 'multisource' aspect of MSF, it would be meaningful to address issues from more than one perspective. This concept set the stage for addressing the ancillary objectives for the study.

Primarily, the concern was one of aligning organisational objectives with those of employees as far as feedback systems such as MSF are concerned. Authors Morgan,

Cannan & Cullinane (2005, p.678), in referring to the aligning MSF objectives to the organizational objectives, espoused the need for "a closing of the loop and ensuring that development and culture change are linked". This stems back to a recent alarm raised by these authors when a gap was revealed between the role of MSF as perceived by employees, and the role intended by the organisation; significant divergence was found in what the employees viewed and what the implementers intended. Over a decade earlier, London and Beatty (1993) had warned of similar dangers of misalignment between the MSF and the organisation's competitive advantage. Thus, the findings have strong implications for studies to be directed to the possibility of the de-coupling between policy and practice in MSF.

Experts in the field have emphasized the need for additional research to increase the understanding over the differences and similarities between employees' and organization's views when investigating the effectiveness of the system (Rogers et al. 2002). Some noteworthy cautions have been identified about the possibility of de-coupling between organizational processes and MSF systems (Waldman & Atwater 1998). Echoing the warnings issued, a unique study of the insider's perspective on MSF programs highlighted the astounding misalignment between prevalent organizational processes in an organization and the objectives of the MSF system (Brutus & Derayeh 2002). Clearly most organizations simply jump on the bandwagon in adopting the MSF system to keep up with what their competitors are doing, without realizing that such a clash of objectives in the HR processes may jeopardize their competiveness even more.

In a similar vein, Schneider et al. (cited in McCarthy & Garavan 2001) claimed that many MSF programs are carried out in the absence of a strategic context and are not focused on contributions to an organisation's competitive advantage, or aligned to other HR policies. Earlier, Kanouse (1998) suggested that the success of many MSF programs is constrained because raters often are instructed inadequately in the task of furnishing feedback. Although the current list of studies is not exhaustive, these are salient issues that warrant further attention.

There is also a paucity of knowledge over how well the employees' judgment of their acceptability and perceptions of usefulness match with others' ratings of their

reaction; a gap highlighted in Ryan et al. (2000). Acknowledging and closing this potential gap may produce a more complete picture of the successful application of the MSF system. Investing in MSF systems, then, will have more value since there is recognition of the need to close the gap between employees' acceptability and what others (implementers) perceive to be the acceptability level of employees; an approach that offers new insights into the implementation of MSF systems. Conventional wisdom suggests that the frustrations many organizations suffer with the MSF systems result from the poor fit between MSF objectives and organizational culture. Clearly, aligning the underlying goals would be a worthy exercise.

In the spirit of increasing variability in feedback of MSF, and echoing Toegel & Conga's (2003, p.3) "proposition that quantitative feedback alone (i.e. the survey) may miss subtleties and nuances that written feedback may not", it was decided to include an open-ended question at the end of the survey soliciting the participants' views on how to improve the feedback. This is intended to supplement the quantitative results by providing a richer understanding over the underlying issues with MSF implementation and also suggests further avenues for research.

The following diagram, Figure 2-6 illustrates the gap which might exist between policy (how implementers intend the system to be perceived), and practice (how the employees actually perceive the system). As mentioned earlier, this section of the current research addresses the ancillary objectives as outlined in Chapter One.

Figure 2-6: MSF Policy & Practice
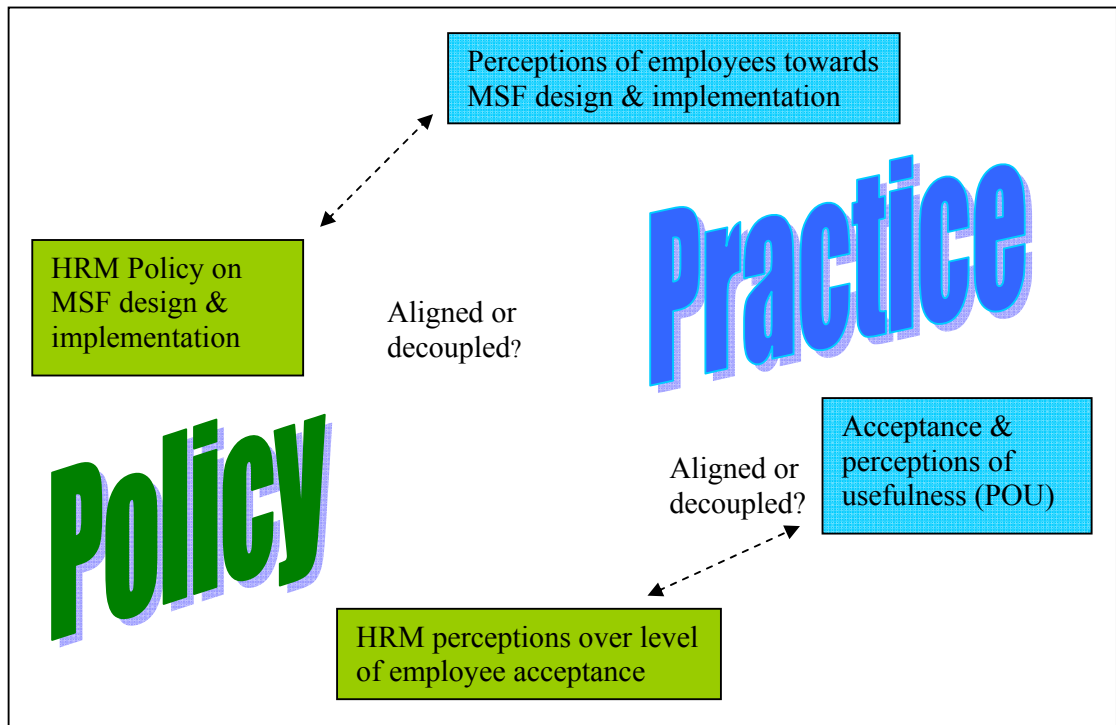
2.13 Chapter Summary

In this chapter, the MSF literature pertaining to the various design and implementation issues has been presented and its importance highlighted. An introduction to MSF was followed by the various debates surrounding how the management tool was presented, with mention of a few parent theories which could be useful in understanding MSF systems. More importantly, the outcome variables of reaction, acceptance and perceptions of usefulness were discussed. The independent variables of psychological climate, feedback seeking environment, control over organisational processes, and understanding over organisational events, operational support, purpose, anonymity, assignment of raters and complexity of the system, were all discussed in the light of extant literature, drawing in extant research and understanding to propose a hypothetical model for the current research. Finally, the auxiliary objectives for the research were addressed by mapping out the potential issues that warrant attention.

In the following Chapter Three, the overall research design is presented to clarify the objectives of the current research, the preferred research paradigm, description of the survey samples and procedures as well as details of the planned data analysis procedures. The chapter is concluded with a section on methodological consideration such as relevant ethical issues and research limitations.

3 RESEARCH METHODOLOGY

Mixed-methods research has come of age.

(Creswell 2003, p.4).

3.1 Chapter Introduction

Chapter Two reviewed the relevant literature linking the various design and implementation issues about employee reaction, acceptance and perceptions of usefulness of the MSF system. Fourteen hypotheses were developed from the literature addressing the main research questions for the study. Chapter Three, then, presents the methods used to conduct the research and investigate those hypotheses and the proposed hypothetical model.

Chapter Three is organized in the following manner, as shown in Figure 3-1. Firstly, an introduction to the chapter is presented and the research objectives for the current study as presented in Chapter One are re-visited. Secondly, there is a discussion of the justification for the selected research paradigm alongside justification for the methodology adopted for the current research to answer the research questions. Thirdly, a description of the study site and respondents is provided, followed by a detailed account of the six-tier approach to research design, outlining the step-by-step methodology for the current study. This section also incorporates a description for use of a pilot study. Fourthly, the justifications of the instruments employed to measure the independent and dependant variables are put forward. Fifth, the chapter details the data analysis procedures that were employed to evaluate the quantitative and qualitative data. At the end, there is a section incorporating the methodological considerations, ethical issues contended and limitations inherent in the methodological approach and research design for the current study. A short summary concludes the chapter.

Figure 3-1: Chapter Three Outline
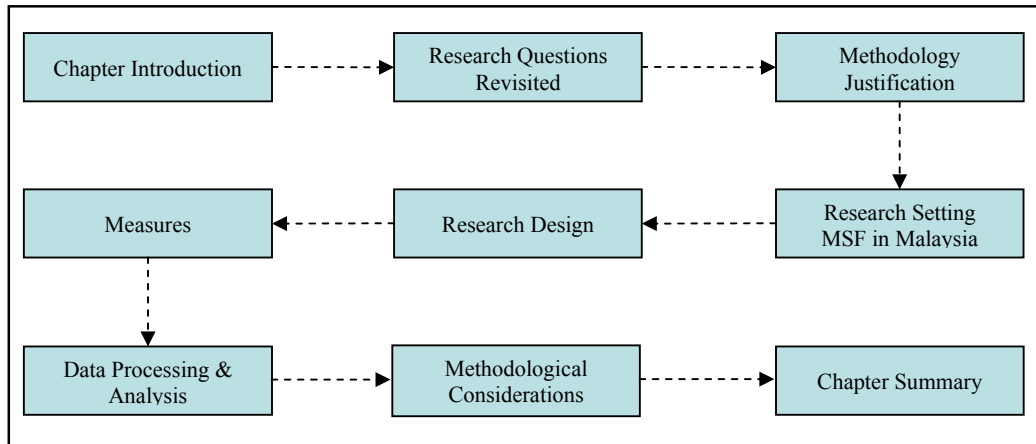
3.2   Research Questions Revisited

The objectives and research questions as listed earlier in Chapter One are re-visited to provide a link with the appropriate discussion in research methods utilized for the respective facets of study.

Fundamental Research Objective:

> To advance the understanding of what is currently known and what still needs to be learned about effectively implementing multisource feedback systems to maximize employee favourable reaction, acceptance and perceptions of usefulness towards MSF systems.

Major Research Questions (Quantitative Research Approach):

To achieve the overarching research objective, the following research questions were formulated. Being a pre-dominantly quantitative research, the hypothetical model for the research as presented in Chapter Two illustrates the relationships hypothesized, simultaneously addressing the research questions formulated for the study.

The main research questions were:

1. Are the constructs of feedback seeking environment (FSE), control over organizational processes (CTRL), understanding of organizational events (UNDERST) and operational support (SUPPORT); individually associated with the psychological climate for MSF implementation (CLIMATE)? *(Relationship Model)*

And to what extent do constructs of feedback seeking environment (FSE), control over organizational processes (CTRL), understanding of organizational events (UNDERST) and operational support (SUPPORT); collectively predict the psychological climate for MSF implementation (CLIMATE)? *(Predictive Model)*

2. Are the constructs of psychological climate (CLIMATE), perceived MSF purpose (PURPOSE), complexity (COMPLEX), perceived rater anonymity (ANONYM) and assignment of raters (ASSGN), individually associated with employee reaction to MSF (REACTION)? *(Relationship Model)*
   And to what extent do constructs of psychological climate (CLIMATE), perceived MSF purpose (PURPOSE), complexity (COMPLEX), perceived rater anonymity (ANONYM) and assignment of raters (ASSGN), collectively predict employee reaction to MSF (REACTION)? *(Predictive Model)*

3. To what extent does employee reaction towards MSF (REACTION) predict employee acceptance (ACCEPTANCE) and perceptions of usefulness (POU)?

4. Are the constructs of acceptance (ACCEPT) and perceptions of usefulness (POU) distinct constructs as far as employee reactions to MSF systems are concerned?

The ancillary research questions were:

1. What are the issues that are perceived as pertinent to the overall success of MSF implementation?

2. Are employee perceptions of the MSF system aligned with or de-coupled from the original intention of management?

3. To what extent is management aware of the employees' acceptance of the MSF system and perceptions of its usefulness?

3.3 Justification for the Positivist Paradigm

Establishing the groundwork for research using Crotty's (1998) ideas, the current research is presented as having an objective epistemology, a positivist-philosophical stance being the theoretical perspective, together with a pre-dominantly quantitative methodology; with a web-based survey adopted as the main research method.

With regard to the methodological choice for the current study, a quantitative, positivist paradigm is adopted. Wicks and Freeman (1998) explain that the three principles on which the positivist approach is based include findings the facts, documenting the facts and the use of scientific methods. The main advantage for the scientific method is that it "allows researchers to test their hypotheses and rely on objective measures (data) to support their findings" (Wicks & Freeman 1998, p.125). Besides avoiding speculation and bias, quantitative scientific methods are more adept at generating empirically robust conclusions as opposed to certain qualitative techniques such as participant observation and ethnography (Sekaran 2003).

By seeking to investigate the importance of the various design and implementation determinants on employee reaction, acceptance and perceptions of usefulness (as explained in the preceding chapter) using a positivist approach, the current study is aimed at contributing to the quantifiable empirical research base on MSF systems. Arguing along these lines, the current study addresses the need for scientific facts for testing the postulated hypotheses within the hypothetical model derived from past research, as well as for generating results that may be utilized in future research endeavours for replication and verification purposes in similar or different settings.

Notwithstanding the pre-dominantly quantitative approach for the study, qualitative techniques were not dismissed; the supplementary value they could offer to elucidate findings from the quantitative techniques was acknowledged. As such, interviews and open-ended questions were employed to achieve the above.

3.4 Description of Research Setting

The site for the current research was Malaysia, one of the most rapidly developing economies in South-east Asia; a total of three large multi-national organizations with head-offices located in the heart of Kuala Lumpur, Malaysia's capital city were used for the collection of data.

Indeed, to develop the sample, the exploratory nature of the current research necessitated particular parameters for sample selection. The sampling strategy was

one of convenience for selection of the organizations, and stratified sampling from within the organization. The parameters for selecting the organization were straightforward: organizations were required to have already an MSF system in place with at least three cycles of MSF administration. Nevertheless, the three organizations were purposely selected in such a way that they represented different industries (to reduce industry-bias) and of comparable size; i.e., they were chosen from multi-national organizations listed on the Malaysian stock exchange.

The researcher used already established networks (contacts) to twenty large organizations, out of which only three agreed to whole-heartedly participate in the research. Initially, the researcher had contacted the Human Resource Departments (via telephone) of those twenty different large organizations after being introduced by the respective contacts within the organizations, to enquire about and confirm the presence of any form of MSF system within the respective organizations. These well-respected organizations were briefed about the background and potential theoretical and practical contributions of the research project. Out of those twenty organizations, eight responded as having MSF as an on-going process. However, there was a difficulty in obtaining agreement to participate in the research from all of them. The researcher communicated with the MSF administrator or HR representative from eight organizations. Three organizations finally accepted the invitation to participate in the research. The researcher then anchored respective main HR persons who are referred to as the 'key informants' representing the researcher's gateway and voice into the organization to the respective target sample. These key informants played the crucial role as the middle-person between the researcher and the participants of the survey and interviews. They sent out emails to lower level administrators, supervisors and employees encouraging participation in, and support for, the web-survey. Although the completion of the survey was voluntary, it was strongly encouraged by the key informants.

From a methodological standpoint, the approach of using networks for sampling represents a possible limitation in the current research. However, the decision was made after due consideration of past research experience and dealing with Malaysian organizations (Fontaine & Richardson 2005). It was a well-known fact that a research culture was not yet particularly well ingrained into industry or society. The

importance of research, however, is slowly gaining recognition especially in organizations high on the so-called 'corporate social responsibility' image (Ahmad & Ali 2004; Balakrishnan 2000; Poon 2004). Nevertheless, the researcher was wary of the difficulty of gaining access to Malaysian organizations for research purposes without having internal networks available. It is also important to note that the researcher's Candidacy Committee had also expressed concern over this potential difficulty as a result of past research experiences of CBS researchers in Asian countries.

To add further, quoting Fontaine and Richardson (2005, p.76), "Theoretically, the method chosen should reflect the problem being investigated". Bearing in mind the objectives of the study, it should be pointed out that the population of the study was in fact already narrowed into a niche of organizations having MSF as part of their performance management systems as an on-going process. Hence, the necessity of the use of networks was amplified due to the limited organizations available. Nevertheless, the resulting response rate of the study of 46.7% (calculated as the number of surveys completed over number of email invitations sent out) from the conscious research strategy involving the key informants was above a satisfactory level.

The unit of analysis was the employees within those organizations who have participated in the MSF system, either as ratees only or ratees and raters as well. However, no distinction was made for the feedback solicited from the different workplace categories, as the main aim was to gauge an omnibus view of the reaction of employees towards the MSF system taken as a whole. It was noted that maintaining a consistent unit of analysis was salient for industrial psychological studies (Cooksey 2007). Crossing unit of analysis boundaries from individual to organizational levels had the potential to threaten the internal consistency of studies.

In terms of sample size, a total of 300 surveys were emailed out to employees within each of the three organizations. Hence, there was an aggregated sample of 900. The key informants were requested to administer the emails to the respective employees based on a sample distributed to all categories of employees based on position levels limited to Executive to Senior General Managers from various departments. The

reason being responses solicited were meant to be representative of the population within the organizations participating in the MSF systems. The salience of the respondent selection process was noted as Phillips (1981) and Rose and Kumar (2006) advised that respondents must have adequate knowledge and motivation to answer survey-type research questions. As such, diligent effort and care was exercised in discussing and following-up regarding the email distribution strategy with the respective key informants from the organizations.

To sum up, the present research uses three multi-national organizations to test for the relationships hypothesized. The large sample size of 900 and industry diversity provided external validity (Sekaran 2003). It should be noted that all three organizations that participated in this research had initiated the MSF systems in the organizations at different times, hence have gone through a different number of cycles, and had varying purposes intended for the MSF system. Nevertheless, the essence of the MSF system as confirmed from the initial discussions remained the same; i.e., a tool used to gather feedback from additional sources other than the typical top-down feedback for use in the performance management system. Besides that, respondents were specifically solicited within equivalent position levels from the different organizations to render more meaning.

The next three sub-sections present a snapshot of the MSF systems prevalent at the organizations participating in the current research.

3.4.1   MSF System at Company A

Since 2004, the MSF system at Company A replaced the previous performance management system (PMS). At the time the survey was conducted, the MSF system had been in place for three years. The MSF evaluation was used in the administrative decisions that impacted on pay, annual bonuses and annual increments. It was tied into rewards one year after implementation. Raters were assured of their anonymity and the selection of raters was partly made by the ratees. Employees had to nominate five names of staff each within the respective categories of peers and subordinates working in the same department. The PMS team from the human resource

department then made the selection of the raters, and allocated the raters randomly for ratees who failed to nominate enough or any names. Employees were not provided the actual results of the feedback. As such ratees were informed of any development plans that transpired after the PMS evaluations. They were able to gauge how well or badly they performed individually based on the salary increments and annual bonus declared.

3.4.2   MSF System at Company B

The MSF system at this organization was in place for eight years before the survey was conducted. At the time of the survey, which was in June 2007, the MSF assessment was being conducted. The system was referred to as the 360-degree feedback system but just like the other two organizations, it solicited views from peers, subordinates and the usual superiors. As with the other organizations, there was no formal system in place to incorporate external customers' feedback as part of the MSF system. The purpose for the 360-degree feedback system was for developmental and administrative purposes. The views from the peers and subordinates were given a lower weighting as compared to assessment from the bosses. Ratees were furnished with feedback results after they have been 'moderated' by the immediate bosses. The assessment results were consolidated with employee development plans at the individual departments.

3.4.3   MSF System at Company C

As a part of a leadership program, the MSF evaluation system was introduced at Company C five years prior to the current survey. The stated purpose of the program was purely for development and had no implications for administrative purposes; i.e. no impact on salary and promotion. The main objective was to develop employees' capacity to perform more effectively and efficiently by way of improving leadership and people management skills. The MSF system was rolled out at higher management level initially then introduced at middle and lower management levels. The training session comprised a set of two briefings. The first introduced the system and the objectives thereof, and the second part provided the detailed instructions on

how the process would be carried out. Participation in the MSF program was mandatory. Managers were nominated by senior management to provide ratings of others (superiors, subordinates and peers) and ratees had no say in selecting the raters who rated them. Raters participating in the process were assured of their anonymity. There were a total of three subordinate ratings and three peer ratings apart from the usual two top-down feedback received from the performance appraisal. The strategic development unit within the Human Resource Department processed the MSF data and the results were given in an aggregate form as an index individually to the ratees during the development program. Results of the ratings also were shared with the immediate superiors to follow up on the individual development plans for each employee. Ironically, the performance appraisal system to evaluate the performances of individual employees was performed at the same time of the year. These programs were conducted on a yearly basis during the financial year-end in March.

Following a discussion with the key informants from the three organizations and with the supervisor, and a few academics, it was decided that the sample would be comparable based on the following: number of years the MSF systems were in place (reflecting the employees' experience with the system), level of employees participating in the system, the general description and respective job titles for those employees, and the size of the organizations. Although there were differences in terms of organizations' stated purposes for the MSF systems, this phenomenon was not an issue. The study was designed into tap on the employees' perceived purpose of the MSF systems to identify whether their perceptions were aligned with intentions of management.

3.5   Research Design: The Six-Tier Approach

This section details the six-tier structured procedural approach employed to conduct the current study. All the methodological and design details are incorporated within this section. The following visual model (Figure 3-2) illustrates this six-tier approach specifying each step.

Figure 3-2: Six-Tier Procedural Approach

Step 1: The Literature Map
Step 2: The Theoretical Framework Development
Step 3: Development of the Survey Instrument
Step 4: Pilot Study
Step 5: Web-survey
Step 6: Open-ended Questions & Post-hoc Discussions
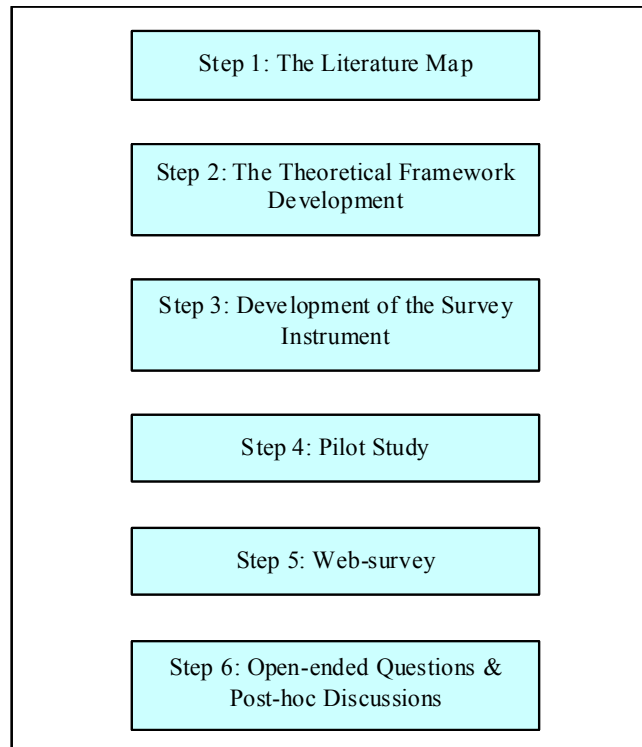
3.5.1 Step One: The Literature Map

At the heart of the current study was the attempt to organize the scattered research on MSF, specifically those pertaining to employee reaction on the various MSF design and implementation factors. This can be seen in Chapter Two, where an in-depth review and critique was conducted over the extant research relevant through the lens of the current study; and summarized through the literature map produced which suggested the springboard for the current research. Indicators selected to be included within the scope of the framework were delimited by those factors either having inconclusive if not contradictory findings in the literature. Attention was also given to indicators identified as having scant attention in past research.

The literature map proved a useful visual guide to the researcher in considering the relevant gaps in empirical research in an organized manner and, subsequently, in narrowing the gaps into workable research questions for exploration in the current study (Creswell 2003). The literature map also represents a part of the broader nomological network of organizing findings from research under the specified topic

of reactions to MSF as well as the various paradoxes inherent in MSF design and implementation; hence it can be extended to related focus areas and updated to include recent findings from similar research.

The modus operandi for the major literature search included preliminary searches via Google and the Malaysian search engine, 'Cari' for general information and more non-academic publications such as online newspapers and company web-sites. Subsequently, the researcher continued with the more important academic searches with several databases such as ProQuest 5000, Business Source Premier, Web of Knowledge, Emerald Insight and Science Direct. These searches lead the researcher to various categories of references including books, edited books, journal articles, theses, other newspaper articles, trade articles, conference proceedings and some unpublished work. The academic literature mostly encompassed references from the Industrial-Organizational Psychology and Academy of Management communities, and expanded into other sources such as professional conference proceedings, the American Society of Training & Development, and even the broader area of psychology as well.

To conclude, the literature search process was made possible pre-dominantly by the electronic searches, and supplemented by several inter-library loans, document requests services, and limited archival data from the participant organizations.

3.5.2 Step Two: The Theoretical Framework Development

A framework of employees' reactions to MSF (see Figure 2-6) was developed from the relevant literature with feedback from academic and practitioners from a number of universities and organizations respectively. On occasions when there occurred significant contradictions on the influence of certain indicators under contention during the process of model development, the predictors were still included within the framework; however, they were hypothesized as having a relationship with the direction informed by recent literature and anecdotal evidence. The contradictory results were interpreted with extra caution.

As discussed in Chapter Two, the researcher deliberately isolated the demographic variables from the framework so as to stress the enhanced scrutiny over the main elements as being the more important area for examination. After all, variables such as age, gender, length of service and so forth are variables that should be viewed as givens that cannot be influenced, altered or regarded as independent variables (Bracken et al. 2001b). At most, the only option of treating them as moderating variables would be to to remove some valuable attention away from the more critical variables to be considered. In addition, due to a limited sample size and potential statistical difficulties of running tests, the researcher chose to maintain parsimony (Cavana et al. 2001) within the theoretical framework by way of accommodating only independent and dependent variables. The hypothetical model had twelve constructs in its entirety to begin with, which could be divided further into five partial models for testing purposes. The demographic variables were investigated last to examine any patterns that emerged following the main analysis.

3.5.3   Step Three: Development of the Survey Instrument

At this stage of the methodology, the survey instrument was developed and uploaded on to an Internet survey website. Initially, the survey instrument was designed based on the theory underpinning the area of research, and further refined following discussions with the principal supervisor and a few statisticians. Valuable feedback was also provided by Malaysian academics and practitioners as to the survey items and their presentation. A substantial number of the scales and items employed within the questionnaire were adapted and piloted as they had been developed originally in the United States. Nevertheless, there were certain scales and additional items that were designed specifically for the current study, based on existing theory and feedback from scholars in Australia and Malaysia. This necessitated a pilot study to ensure items were measuring what was intended.

Questionnaires written in English were the most appropriate choice for the current study. First of all, English is the corporate language and the common language of daily business used in Malaysia. Especially, this is the case in the capital city of Kuala Lumpur where all three organizations are located. Secondly, most employees

surveyed, if not all, were university graduates, which suggested there would be no problem in communicating in English. In fact, proficient English communicating skills (both written and spoken) are required since English forms an integral part of the daily activities in multinational organizations listed on the stock exchange. The relevancy of using English language questionnaires was discussed with the respondents of the pilot study and feedback regarding the choice of the survey language was also solicited from the organizations participating in the current study. The representatives indicated that they would not anticipate any problem regarding the use of English.

The survey incorporated Likert-type scale questions and demographic type information. This was felt appropriate to measure differences of perceptions towards the various MSF design and implementation issues. Sekaran (2003) supported the use of either a 5-point scale or a 7-point scale, noting the increases in the number of scales do not increase the quality of information gathered. She argues that reliability only increases with the increased number of points on the scale but only up to 5 points. A wider scale should only be used when respondents have more training with giving feedback on such surveys. The mid-point (3) was retained to accommodate those who may not have any pre-disposition on a particular issue or those who choose to give a neutral or indifferent response. Given this, the researcher fixed the 5-point scale to be the Likert level chosen for the current study. Moreover, most of the instruments adapted had the 5-point scale as well (for example, Bartle 2001; Facteau et al. 1998; Ford 2002; McDonald 1997; Thurston 2001).

In terms of sequencing of questions, a decision was taken to ask questions pertaining to the outcome constructs last, similar to the study by Fedor, Bettenhausen & Davis (1999). Although it can be argued that the sequence of items leading to the outcome constructs items may serve as a cueing function, this cueing was considered to be neutral and hence reasonable. The actual items in the survey comprising the measures of the constructs will be discussed in detail in Section 3.6.

3.5.4   Step Four: The Pilot Study

Subsequent to the survey instrument development, a pilot test of the survey instrument was conducted. This test was deemed crucial to the methodological process since the survey instrument compiled was partly adapted from past instruments developed mostly in the United States with several scales and additional items developed for the current research. The main objective for the pilot study was to identify strengths and weaknesses of the compiled survey instrument, to ensure face validity and to provide suggestions to improve the item-wording, overall presentation and look and feel of the device.

In reality, an ideal research design would require at least a ratio of respondent to item of between 4:1 to 10:1 to conduct the factor analysis statistical procedures for it to make sense (Cavana et al. 2001, p.238). The current study had 54 items in total, which infers that at least 216 (54x4) respondents were required, in the pilot study. Unfortunately, conducting a pilot study of this scale was not possible due to the limited number of respondents accessible in the actual target population for the current research. There were only three large organizations identified (representing three different yet similar industries) that already had MSF systems as part of their performance management programs. Besides, the researcher did not want to 'use-up' a significant number of respondents in the pilot study at the expense of a lower number of final responses in the actual survey exercise. Hence, the researcher decided to conduct the pilot study on Malaysian academics and practitioners working in Western Australia, to at least have a representative population of the target population with the same cultural mindset. The respondents were generally academics from Malaysia pursuing doctoral studies in Australia or middle to lower level managers and executives representing a range of industries. All of these respondents were Malaysians with recent experience within the past five years working in an organization in Malaysia.

A total of 50 surveys both via the online survey (email invitations) and also the 'paper and pencil' form of the survey were distributed to pilot study participants. Participants were informed that they had a two forms of the identical survey sent to

them, and that they had to only fill out one. The researcher also included an additional question to solicit the participants' preference towards the traditional survey versus the online counter-part. To eliminate any bias due to misinformation (as not all participants had prior knowledge of, or experience with, the MSF system), the group of people were given brief information about MSF prior to the administration of the surveys. Despite the lack of numbers, the pilot data was loaded into the SPSS software to run the exploratory factor analysis and regression analysis. Recognising the reality of inadequacy of numbers, the researcher accepted the reliability and factor analysis results and ran the analysis to test the use of the software despite results being merely indicative.

A more important component of the pilot study was to analyse the face and content validity of the survey instrument. Face validity simply explored whether the items within the survey were clearly understood, and this was achieved via obtaining feedback from respondents of the pilot study. On the other hand, the content validity was determined prior to the actual pilot study through an in-depth literature search that drew out the relevant theoretical constructs and their respective measurement scales. This ensured the items and scales selected, in fact did measure the theoretical constructs nominated for the current study (Cavana et al. 2001). Changes to, and reframing of, survey items were based on discussions with the supervisor and statistical expert, the key informants from the three organizations, the qualitative feedback from the pilot group, and the expertise from the web-survey provider, especially as to the changes to the look and feel of the survey instrument. It should be noted that there were certain useful verbal comments from the random selection of the pilot study group that provided some pointers on elimination of potential ambiguities and enhancement of completeness in the areas of terminology usage, general appeal, introduction, presentation and readability. Only then was the instrument administered to participants in the current study.

The analysis of the robustness of the survey instrument employed was left to the actual factor analysis and reliability tests on the raw data gathered from the study itself. With a final data set of 420 responses, it was feasible to conduct these statistical tests and expect meaningful results. Another point of saliency was that the pilot study gave positive indications towards the feasibility of using the web-based

survey as opposed to the traditional paper and pencil one. This piece of information came from the question about the preference of survey format, and also the fact that over 90% responses came via the online survey instead of the 'paper and pencil' one.

3.5.5   Step Five: The Web-Survey (Data Collection)

To test the posited hypotheses within the hypothetical model, a cross-sectional field study of the three participant organizations was used. The relations among variables within the real social structures were explored well with such research (Kerlinger 1992). Additionally, it has been argued that cross-sectional field research information obtained from field studies surveys often results in very accurate information as the instruments are usually designed specifically to address the research questions (Kerlinger 1992).

The survey method was used in this research because it provided a quick, efficient and accurate means of assessing information about a relatively large population given the time constraint. Out of all survey methods available, the web-based survey method appeared most suitable considering the numerous benefits it had to offer (Dillman 2000).

The benefits included cost (a minimal fee charged monthly by the web-provider), logistics (all surveys could reach a geographically dispersed sample across all subsidiaries within the three organizations), survey accessibility (all employees surveyed had access to individual computers with work e-mail accounts), accuracy (responses were downloaded into an automatic Microsoft Excel format that minimized any manual data entry errors), reminders (reminders could be sent easily to participants regarding the deadline for surveys) and better response rate (an overall 46.7% response rate was noted indicating better response for web-based surveys compared to the traditional paper-and-pencil method). However, there were some impediments to the web-based survey. Penetrating the organizations had to be done tactfully and all invitations to the participants had to be preceded by an intra-mail from Human Resource Management to endorse support for the current study to be conducted in the respective organizations. The other main problem was the a

technical issue experienced by Company C caused by the fire-walls prevalent in their organization's computer network, which prevented direct access to the Web-survey link provided in the email invitations.

With the rapid advancement of the information-communication technology, the typical 'paper and pencil' or mail-out survey has become somewhat obsolete. The general assumption is that 'technology-savvy' employees would rather face the computer monitor and fill out a survey online, rather than scribble on a piece of paper even if it meant reducing the stack of papers in his/her in-tray. This was the perceived case in the three large participant organizations recruited for the current study. Based on the fact that the companies were the leaders in their respective industries, feedback received from the pilot study enhanced the preference for the web-based survey, plus the reality was that the respondents were all executive level and above with their own personal workstations (verified from the initial discussions with the key informants from the organizations), the decision to proceed with a web-based survey was made. Additionally, it should be mentioned that the ordinary mail-survey was given only cursory consideration since Malaysians were noted to be very suspicious of anonymous surveys through the post (Fontaine & Tan 2003).

It was noted that, although the research culture was not particularly well ingrained into Malaysian organizations, the three participant organizations were exceptions as they placed significant emphasis on education, training and evaluation; plus, they placed a high-level of emphasis on the image of their corporate social responsibility by way of supporting national and international research and development. The researcher capitalized on this reality and used networks already established within the organizations to anchor three crucial key informants who represented gateways to the employees in the three respective organizations. The key informants, all higher-ranking executives involved with human resource functions in the organizations, played the critical middle-person role; right from the onset of gaining endorsement from upper management for research, to sampling the employees with the specified criteria from the dispersed departments and operating units, circulating emails of research introduction and initial information, disseminating actual emails of invitations to participate in survey, follow-up emails for reminders and arranging for the post-hoc discussions towards the end. Earlier studies had reported that unless

there was an endorsement from higher-level authorities within the organization, response rates would be relatively poor (Husain, Abdullah, Idris & Sagir 2001; Othman, Domil, Senik, Abdullah & Hamzah 2006).

Despite early set-backs with a substantial number of declines to participate from five out of eight organizations, the current study received considerable support and feedback from respondents and their organizations. Administering the survey and the data collection process was easier than anticipated. The final response rate of 46.7% was proof that the technique adopted to penetrate into the organizations, i.e., via the key informants and established networks was successful. In terms of sample size, the total number of usable surveys was 420, with 121, 207 and 92 from each of the organizations. The response rate of 46.7% as mentioned above was calculated as the sum of usable responses from all three organizations over the total number of surveys emailed out.

3.5.6 Step Six: Open-ended Questions Content Analysis and Post-hoc Discussions

The final step in the research design was content analysis over the open-ended questions as well as the one-on-one post-feedback sessions conducted with the respective representative managers from the Human Resource departments, specifically those responsible for the introduction and implementation of the MSF systems within the three respective organizations (the administrators for the MSF system). This step was conducted after the completion of the quantitative data collection and analysis, to gain the 'insiders perspective' about the issues pertaining to MSF systems addressed in the current study. As discussed in Chapter One, the ancillary objectives included amongst others, to gauge whether there was alignment between the intentions of HR management for the MSF system and how the employees perceived it under the system. Specifically, the researcher investigated the management's understanding over their respective employees' reaction towards the MSF system and the various issues addressed. Evidence relating to the degree of de-coupling between policy and practice, if any was sought.

Besides the ancillary objectives, the qualitative data collection was employed to enrich understanding and enhance the interpretation of the quantitative analysis findings. There was a need to gain insights into why certain patterns in the quantitative analysis emerged. The qualitative feedback sessions provided first hand experiential evidence of systems, structures, processes and strategies employed by Malaysian organizations from the three different industries. The researcher also took to the opportunity to discuss with these representatives of top management issues pertaining to MSF system implementation that emerged before or from the current research. Being senior, top management interviewees in HR, with schedules and time constraints, most of the feedback sessions had to be one-on-one sessions instead of focus group discussions, as originally intended. Discussions were conducted with three representatives from the organizations, two of which were via several telephone conversations, and one in a face-to-face discussion. Questions asked were semi-structured following the order of the quantitative patterns that emerged from the survey instrument, followed by a summary on the content analysis for the feedback on the open-ended questions and, finally, specific questions confirmed policy behind the MSF system. A copy of the questions can be found in the Appendices section of the thesis.

3.6   Measures

The survey instrument was designed to introduce the research focus and significance, and even more importantly to capture perceptual and demographic information from the participants of the MSF system. The survey consisted of fifty-four (54) items divided into twelve sections representing the twelve variables in the hypothetical model. The majority of the items for the survey instrument had been developed in previous studies and were either adopted directly or adapted to suit the particular context under consideration. First, during the process of item selection and construct index calculation, item reliability (where available) was checked to ensure that it met the minimum acceptable threshold (e.g., Cronbach Alpha of 7.0 or greater). Second, both convergent and discriminant validity were examined (where available) to ensure that items meant to measure a particular construct do in fact measure that construct (Cavana et al. 2001; Sekaran 2003). Finally, theoretical direction and judgment were

used to filter through and consolidate the items that best measure the construct as defined in the current study. In appropriate and relevant instances, items were encapsulated in the original form in order to maintain consistency. Detailed discussion on the psychometric properties testing will follow in Chapter Four.

It has been noted that questionnaires should be designed in such a way to maintain simplicity, written in fundamental English that is easy to read (Frazer & Lawley 2000). To start off, the pilot study was designed with item language developed at high-school level with terminology familiar to Malaysian executives. For this reason, feedback from Malaysian academics and practitioners were solicited from the onset of the instrument design with item wording further refined following feedback from pilot study participants.

There were a few studies central to the development of the instruments for the current study (Ashford 1986; Bartle 2001; Facteau et al. 1998; Ford 2002; McDonald 1997; Tetrick & LaRocco 1987; Thurston 2001). The researcher identified these studies as having similar constructs operationalised and most of them had scales adapted, with a few modified to improve reliability estimates from previously established studies. Given that all of the studies were carried out in varying contexts and settings, meticulous care and vigorous testing was performed to ensure the goodness of measures used (Sekaran 2003). This includes ensuring content, criterion-related and construct validity in the psychometric evaluation in the analysis stage. The following section describes the rationale for the choice of the measures whilst linked to the definition of each construct. Several measures were developed or items added to pre-existing scales as decided appropriate in order to fully tap the construct intended in the current study.

For the qualitative section, as mentioned earlier semi-structured questions were designed to have a focus on elucidating the findings from the survey findings, besides having a list of pre-set questions on the managements' intentions (insider's perspective) for the MSF system at the respective organizations.

As noted in the earlier section, all scale items were rated using a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). There were two

questions that measured 'extent' and thus the corresponding values were 1 for 'very little' and 5 for 'to a great extent'. Approximately 25 % of items were reverse coded. Discussion on the demographics and scales adapted or developed are provided next (A sample of the survey instrument is in the Appendices).

3.6.1   Demographics

The measured demographic variables in the current study include age, gender, department in organization, position level and organizational tenure. The age information is collected with a single item response to allow for a later decision on the range of ages for statistical analysis. Gender included the two categories of male, and female, and a single item response was sought for the department of the respondent. This was done so as to accommodate the potentially diverse responses coming from the various employees in the three organizations. The current job level was identified using a self-reporting measure of six categories comprising Senior General Manager, General Manager, Senior Manager, Manager, Senior Executive and Executive. The researcher ascertained during the initial discussions that these categories were comparable across all three organizations. In one organization, the job level code was printed beside these positions to help respondents correctly identify their level, as the codes were a more commonly used point of reference. The duration of service to the organization was measured by a self-reporting measure of six possible ranges spanning from 'less than one year' to '15 years and above'. An open-ended question to solicit comments and suggestions to improve the MSF system in their respective organizations concluded the survey instrument.

3.6.2   Employee Acceptance (ACCEPT)

Acceptance of the MSF system is defined as the extent of agreement employees have with the assessments produced by the MSF system. Given the variations in the operationalization of the construct acceptance in past research, for instance relating to fairness, utility and agreeableness (as previously discussed in Chapter Two), the researcher developed a scale to tap into the intended meaning of acceptance as described in the current study. The three-item scale was consistent with Ilgen et al.'s

(1979), and Facteau (1998) et al.'s conception of feedback acceptance. The carefully worded items sought to tap into the extent of agreement with the results and outcomes of the MSF assessments. Sample items included 'Overall, the MSF assessments have been giving a reasonably accurate picture of my performance' and 'Generally, I concur with the assessments produced by the MSF system'. The internal consistency reliability estimate for this scale in the current study was $\alpha=0.9$.

3.6.3   Perceptions of Usefulness (POU)

The content overlap between the operational definition of acceptance and perceptions of usefulness may lead to spurious correlations between the measured variables (Stone-Romero 1994). Consequently, while based on constructs identified previously in the literature (Brett & Atwater 2001; Ewen 1994; Facteau et al. 1998; Kudisch et al. 2006; McDonald 1997), the researcher modified the operationalization of these constructs (perceptions of usefulness and acceptance) so that they are as distinct as possible from one another. Whilst acceptance addressed the issue of agreeableness, perception of usefulness was defined to address exclusively the issue of perceived utility in relation to the employee's development. Perceptions of usefulness were measured with a five-item scale with one item "MSF assessments provide me with valuable information that I would not have otherwise" which was adapted from Facteau's (1998) measure of perceived usefulness. The remaining items were developed for the current study. The internal consistency reliability estimate for this scale in the current study was $\alpha=0.79$.

3.6.4   Reaction to MSF (REACTION)

Reaction to MSF is defined as the employees' initial response or outlook towards the MSF system in relation to the potential for achieving its objectives. To evaluate this construct a four-item scale was developed. Items concentrated on statements over the potential, design, general experience and preference to previous feedback systems. Sample items included are 'I believe the MSF system has potential to achieve the intended goals' and 'I prefer to receive feedback the traditional top down way rather

than via MSF'. The internal consistency reliability estimate for this scale in the current study was α=0.71.

3.6.5   Psychological Climate for MSF Implementation (CLIMATE)

Psychological Climate for MSF implementation represents an index of the employees' perception of the organization's climate in supporting the MSF system implementation. Given the absence of a suitable scale to assess this construct, the researcher developed a three-item scale based on expert advice from the HR practitioners within the participating organizations. Authorities in the field (for instance, James , Mulaik & Brett 1982) advocate that at least three if not four items should be used to make certain of construct validity of a new variable. As such, the researcher developed four items, which was later reduced to three following the feedback from the pilot study. The item 'The climate at my organization is not conducive to MSF implementation' was deleted, as comments from a few pilot study participants were that the item was redundant. Sample items included in the scale were 'The environment I work in is suitable for MSF system implementation' and 'The values inculcated at my workplace support MSF system success'. The internal consistency reliability estimate for this scale in the current study was α=0.86.

3.6.6   Feedback Seeking Environment (FSE)

Feedback seeking environment is defined as the extent to which the atmosphere within the organization supports receiving and seeking feedback. Five items were adapted from Ashford (1986) in relation to the feedback seeking environment of the organizations. The construct measures two specific elements: the environment measuring effort required to receive feedback, and risk in seeking feedback. The questions sought to gauge the sentiment within the organizations in relation to ease of receiving and seeking feedback. Sample items from the scale include 'I can get feedback from others with little effort whenever I want it' and 'At Company A (name of the organization), it is better to try figure out what you are doing on your own rather than ask others for feedback'. While based on the construct identified in Ashford (1986), the researcher modified three of the five questions to include the

name of the organization simply to customize the survey to the respective respondent organizations. Apart from this modification, the items were adapted verbatim (See Appendices for a sample the survey with all items without organization names). The internal consistency reliability estimate for this scale in the current study was $\alpha=0.7$.

3.6.7 Control over Organizational Processes (CTRL)

Control over organizational processes is defined as the extent of control felt by employees over organizational processes within their organization. The control over organizational processes was assessed using a six-item scale using Tetrick and LaRocco's (1987) 'Control over Work Environment Scale'. These questions were pertinent to assessing employees' observations over the level of control they can exercise at their workplace. The sample items from this scale include 'To what extent do you have influence over the things that affect you on the job?' and 'To what extent does your job allow you the opportunity for independent thought and action?' The internal consistency reliability estimate for this scale in the current study was $\alpha=0.83$.

3.6.8 Understanding of Organizational Events (UNDERST)

The understanding of organizational events is defined as the levels of understanding employees have over the events occurring within their work environment; specifically, employees' perceptions over the various aspects of the operations are tapped. A six-item scale was adapted verbatim from Ford (2002) who, in turn, adapted three items from Tetrick and La Rocco (1987). As the original scale called the 'Understanding of Events Scale' produced marginal reliability estimates of $\alpha=0.75$ in Tetrick and La Rocco (1987) and another study by Ferris et al. (1996). Ford (2002) added three new items which managed to improve the Cronbach Alpha to 0.82. The researcher decided to adopt this scale in the original form to maintain consistency in measuring similar constructs. Sample items used in this scale include 'To what extent do you understand how Z (the organization) works?', 'To what extent do you understand why most things happen in Z (the organization)?' and 'To what extent do you know what information your employer uses when making

decisions?' The internal consistency reliability estimate for this scale in the current study was $\alpha=0.86$.

3.6.9 Operational Support (SUPPORT)

Operational Support is defined as the extent to which the organization provides support towards the smooth implementation of the MSF system. While based on constructs identified previously in literature, this construct encompasses issues surrounding user support, time, communication and encouragement from management (Bartle 2001). A five-item scale was used to assess perceived operational support. Four of the items were adapted from Bartle (2001) which, in turn, was adapted from Klein, Hall and Laiberte (1990). It should be noted that the definition encapsulated for operational support in the current research is synonymous with Bartle's (2001) definition for climate for 360-degree implementation. Bartle, however, adapted Klein et al.'s measure of implementation policy and procedures which encompassed four sub-scales on availability of training, user support, time to experiment and reward for using the system. The current research used a condensed form of the four items of Klein's measure above to capture the perceived operational support. The researcher, to tap into the perceived guidance provided prior to the system's implementation, developed an additional item. Sample items used in this scale include 'Overall, I had enough time to use the MSF system and to perform my regular job tasks', 'I am well-informed about the MSF process' and 'My boss/manager has encouraged me to use the MSF system'. The internal consistency reliability estimate for this scale in the current study was $\alpha=0.86$.

3.6.10 MSF Purpose (PURPOSE)

Perceived purpose is defined as the extent to which the employees perceive the MSF system as being used for administrative purposes as opposed to purely development purposes. Avis and Kudisch (2000) measured rating purpose using a two-item scale, with one question directly addressing the issue of using MSF exclusively for developmental purposes, and the other measuring the extent to which it is used for administrative purposes. The latter incorporated all administrative uses such as

promotion, retention and pay in one item. For the current research, MSF purpose was assessed using a five-item scale developed specifically to tap into employees' perception of whether the MSF system influences each of the possible administrative components such as salary increments, promotions, transfers, rewards and the developmental component, training. Sample items used in this scale include 'The MSF system influences whether or not I get an increase in my salary' and 'The MSF system influences my chances for getting promoted'. The internal consistency reliability estimate for this scale in the current study was $\alpha=0.61$. It was found that item #29 addressing the developmental component, 'The MSF system increases my chance for training that may help me in the future' contributed to reduced reliability estimate of this measure. Deleting item #29 improved the Cronbach Alpha to an acceptable 0.89. Further discussion on this will continue in the following chapter under the section 4.4 (exploratory factor analysis and reliability analysis).

3.6.11 Perceived Anonymity of Raters (ANONYM)

Perceived anonymity of raters is defined as the extent within the MSF system, to which a rater can furnish feedback on a ratee, without the possibility of being identified by that ratee. A three-item scale was developed specifically to assess this construct. The questions sought to ascertain the extent to which employees believed that the organization maintained anonymity within MSF system. Specifically, the scale probed whether raters were anonymous to the ratees. The ability of employees to override the anonymity within the system was also addressed. Sample items used include 'The MSF system is carried out in such a way that the rater is anonymous to the ratee' and 'With reasonable effort taken, I could find out who my raters for an MSF assessment were.' The internal consistency reliability estimate for this scale in the current study was $\alpha=0.6$. The item #37 'With reasonable effort taken, I could find out who my raters for an MSF assessment were' contributed to the low reliability estimate; its deletion increased the Cronbach Alpha to an acceptable 0.85.

3.6.12 Perceptions of the Rater Assignment Process (ASSGN)

The assignment of raters is defined as the extent to which the procedures in assigning the raters for an MSF assessment promotes accuracy, suppress bias, and represents ratees' concerns. A five-item scale was adapted from Leventhal (1980) in his taxonomy of justice criteria in evaluating performance appraisal systems. Even though Leventhal's model has been replaced by more recent developments such as Greenberg's (1993) justice taxonomy, the scale in evaluating the rater assignment matches the operational definition of the construct for the current research. Minor alterations were made to the items to standardize the tone of the questions with the other scales for consistency. For instance 'The organization assigns raters that are qualified to evaluate their employees' work' was changed to 'My organization ensures that I am assigned raters who are qualified to evaluate my performance in my role'. Sample of other items included in this scale include 'Procedures ensure that I am assigned raters who know what I am supposed to be doing' and 'My organization ensures that my assigned raters are familiar with the rating format and procedures'. The internal consistency reliability estimate for this scale in the current study was α=0.91.

3.6.13 Complexity of the MSF Process (COMPLEX)

The complexity of the process is defined as the extent to which employees' perceive the MSF system to be easy or cumbersome to use. Since the MSF system was found to be all automated, i.e. powered by software which collected, managed, analysed and disseminated data and information, it was felt appropriate to prioritize issues of user-friendliness and system-complexity. In doing so, two-items pertinent to the focus of the current study were adapted from Bartle (2001), who, in turn, adapted his measure of system complexity from Klein et al.'s (1999) hardware and software quality and accessibility scale. Following suggestions from the pilot study participants, changes were made to the wording of one item which was 'In general 360-degree system is easy to use' to 'I find the MSF system too cumbersome to use' since there was already an item reading 'The MSF system is user-friendly' which appears to render the former statement redundant. Two other items were developed

to further tap into the definition of the construct as put forward in the current study. The internal consistency reliability estimate for this scale in the current study was $\alpha=0.65$. The item #31 'The MSF system violates the typical organizational hierarchy, in that it sources feedback from people below one's position level' contributed to the low reliability estimate. Originally, inclusion of this item was initiated from the discussion with the HR representatives, and subsequently supported by pilot study participants on the relevance of the item in relation to the construct. It was argued that the violation of the typical organizational hierarchy represented a complexity in itself for the MSF system. Deletion of the item improved the Cronbach Alpha to 0.72.

3.7 Data Processing and Analysis

This section summarizes the data analysis techniques adopted to make meaning out of the data collected for the current research. Patterns of the sample from the survey respondents were examined and tabulated using the descriptive statistics and frequency distribution. In the earlier stages of the data analysis, in assessing the psychometric properties of the data, exploratory factor analysis and the reliability analysis were examined. Following that, correlation analysis was conducted to establish the relationships between the constructs of contention. The main research questions were addressed using several data analysis techniques such as correlation analysis, analysis of variance as well as simple and multiple regression statistical procedures. Some post-hoc tests were conducted using the Tukey's HSD test to assess whether any unexpected patterns emerged from the demographic information and the outcome constructs. For the qualitative segment of the research, content analysis was used to analyse the open-ended question solicited from the survey respondents. The post-hoc discussions conducted with the HR representatives from the respective organizations were utilized to elucidate the findings from the quantitative segment of the study.

In order to test the research hypotheses without ambiguity, it was salient to apply a variety of analysis techniques. Specifically, reliable and valid measures were critical for the study since the outcome measures of reaction are notoriously value-laden

especially as they are self-assessed (Sacket & Larson 1991). There was a necessity to use different ways of viewing the phenomena under investigation to obtain a robust evaluation of the determinants of employee reaction, acceptance and perceptions of usefulness to MSF systems. As such, the triangulation of methods, a popular research technique in social science, was applied by way of supplementing the quantitative data with qualitative information from the open-ended questions and post-hoc discussions.

Exploratory Factor Analysis was conducted before modifying or deleting any redundant items for the construct measures. The data collected from the three organizations were analysed individually and in their entirety to assess the underlying factor structure of the twelve scales of perceptions of MSF systems. The patterns of factor loadings that emerged from the collective sample did not portray any significant differences compared to that from the individual companies. Indexes for each construct were calculated by using the average score for the respective scale items for the specific measure. For instance, there were five items for the feedback-seeking environment (FSE) scale, and the values for the five items were added, and then divided by five to get the index for FSE. The index measures, then were used for the correlation analysis, ANOVA and in the regressions.

Multiple regressions were run using the backward method as opposed to the enter method as used by Ryan et al. (2000) in a related study on MSF receptivity for management development. The hierarchical strategy was considered because previous studies have indicated this strategy to regressions would assist the researcher to identify the incremental effect of each subsequent predictor entered into the regression equation. However, a main weakness of the strategy is that the sequence of predictor entry has to be logical and informed by literature; i.e., the more established the predictor should be entered first before the newer predictors under scrutiny. After running the multiple regressions on the Climate model and the Reaction model using several strategies (hierarchical, backward, forward and enter), the weakness of the hierarchical method (see Field 2005) became apparent. The output for backward, forward and enter had the same predictors remaining in the equation, but the hierarchical method would suggest different predictors as

significant depending on the order they were placed in the blocks. As such, the backward method of regression was determined to be adequate.

3.8   Methodological Considerations

This section scrutinizes the methodological constraints of the current study.

Quantitative social science research has well documented limitations. Inevitably there were methodological constraints inherent in the design of the current research, which relied primarily on cross-sectional, survey data. The sampling frame was constrained to managers from three large multi-national organizations in Malaysia. Despite the satisfactory number of surveys received, an even larger more diverse sample would have improved the statistical power of the study.

Longitudinal information would be useful to establish whether the flow of information was from initial reaction to MSF systems, to their acceptance and perceptions of usefulness. However, there were practical impediments to collecting longitudinal data for the study. Managers involved in this study may not be performing the same job for the duration of a longitudinal study. Besides, the MSF process tends to evolve through the years and, hence, the perception measures of certain constructs may not be valid over the same constructs since there may be many other factors that potentially may influence employees' reactions towards the MSF system over time. Additionally, the desire for additional data had to be balanced with the possibility that more data collection had the potential to antagonize some managers, which could jeopardize the validity of the data collected. Informal discussions with participating organizations indicated that a second round of data collection would have received an unfavourable reception from employees. Overall, there was no clear advantage in a possible longitudinal design.

The difficulty in conducting the current study on reaction to MSF systems was compounded by the fact that many reaction constructs are unobservable, if not unbounded by a certain domain. Reaction could have been taken to mean, and subsequently operationalised as, a plethora of definitions as identified earlier in

Chapter Two. To address this problem, the researcher formulated the hypothetical model derived from extant literature and the researcher's comprehension of the problem based on intuition and discussion with the various academics and practitioners.

The current study also relied heavily on self-report surveys of reaction to MSF systems, a method used in more than half of published studies in Organizational Behaviour and Industrial and Organizational Psychology (Sacket & Larson 1991).

3.9   Chapter Summary

Chapter Three started with a brief section on the re-visited research questions followed by a justification of research paradigms. A description of the research settings in each of the three organizations was then furnished. Next, a discussion on the six-step to the research detailed the research design and process in chronological order. The next section incorporated a discussion of the instruments used to measure the constructs included in the study. The data analysis procedures that were employed to evaluate the quantitative and qualitative data were identified. The methodological considerations, then, were presented to highlight the issues contended during the research duration.

4 QUANTITATIVE DATA RESULTS AND ANALYSIS

It is better to imperfectly measure relevant dimensions than to perfectly measure irrelevant ones.

(Bommer, Johnson, Rich, Posakoff & McKenzie 1995, p. 602)

4.1 Chapter Introduction

In Chapter Four, outlined in Figure 4-1, the results of the empirical analyses are presented. The chapter is divided into four broad sections: the preliminary data analysis, evaluation of the psychometric properties, bi-variate linkages and mean comparisons and, finally, multiple regressions. In the preliminary assessments section, there is discussion of the demographic profile of respondents, treatment of missing values, testing of parametric assumptions and non-response bias. Next, the psychometric properties are evaluated to test the overall validity and reliability of the survey instrument by means of exploratory factor analysis (EFA) and reliability assessments. Third, the correlation analysis is used to accentuate the critical relationships prevalent between the variables; also, the t-tests and ANOVA are reported to highlight differences between groups within the sample in relation to the outcome variables. In the final section of the chapter, the hypothesized research model is tested in sections, with the partial models examined using simple and multiple regressions. The chapter concludes with a summary of the results of the quantitative analyses.

Figure 4-1: Chapter Four Outline
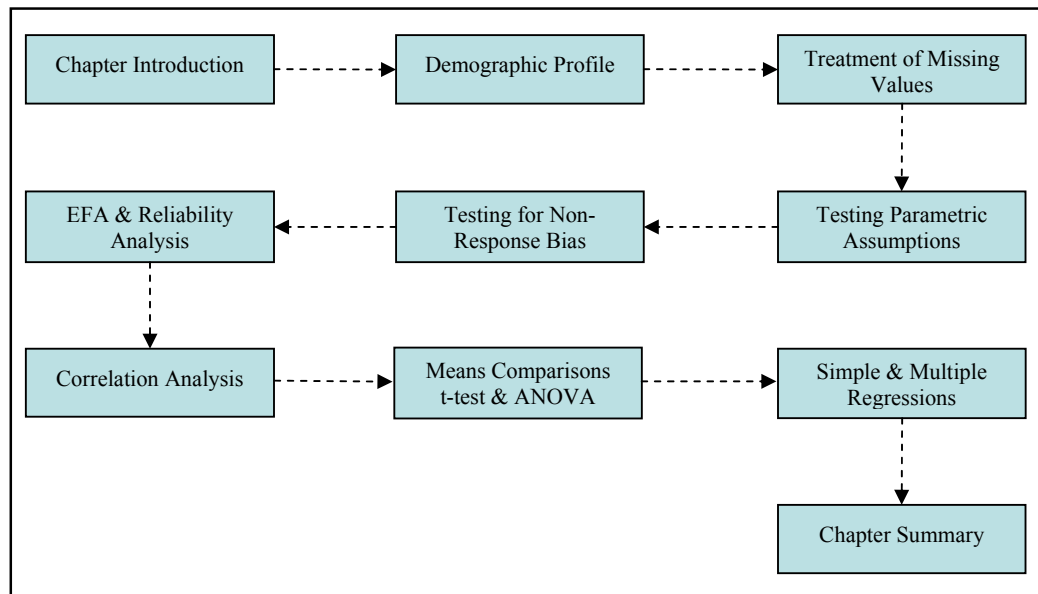
4.2 Preliminary Data Assessment

4.2.1 Response Rates

The data gathered from the web-surveys of the three participating organizations were downloaded from the web-survey database into the .csv raw data format which, then, was exported to the SPSS version 15.0 for data analysis. Although extensive attention was paid to checking the accuracy of the exported files, another level of testing was conducted via the presence of outliers. For this, the data were examined to ensure the entries did not exceed the specified ranges. Secondly, the presence of missing data was investigated, and surveys returned without any values at all were disregarded.

A total of 506 surveys were received, out of which only 420 were usable, hence a useable rate of 83%. A total of 86 surveys had no entries at all, and this phenomenon was probably attributable to the fact that some respondents merely opened the link to the survey from the email invitation, but chose not to proceed with completing it. Nevertheless, the response rate of useable over distributed surveys was rounded to 47%; deemed a very satisfactory response. In considering the results of preliminary data assessments, a tabular presentation of the demographic profile of respondents was considered suitable for further analysis.

Table 4-1: Response Rates

Company	Surveys Distributed (emailed)	Surveys Returned	Useable Surveys	% of total useable	Response Rate (Useable/ Distributed)
A	300	138	121	28.8%	40.3%
B	300	245	207	49.3%	69.0%
C	300	123	92	21.9%	30.7%
	900	506	420	100	(Ave) 46.7%

Statistical details of the sample are provided in this section. Table 4-1 above shows the response rate from each organization. The surveys distributed to the three companies, A, B, and C, provided unequal respondents in terms of numbers. In total, 506 emailed surveys were returned of the 900 distributed, 300 to each company. An unexpectedly large number of surveys were emailed back without any responses at all. This occurrence resulted in a balance of 420 surveys that were useable, with 121 surveys that came from Company A (28.8%), 207 from Company B (49.3%), and 92 from Company C (21.9%). Even though about only 22 percent of respondents came from the third company, the number of 92 surveys was statistically adequate to carry on with the analyses. The HR representatives of the companies randomly distributed the emailed surveys to employees across key departments which are, or have been, part of the MSF system in the past.

4.2.2   Demographic Profile of Respondents

The demographic profile of respondents is summarized in Table 4-2. A prominent feature of the sample was that the ratio balance between genders was approximately 3:2 for each of the three companies, with 60% male and 40 % female. A second feature of the sample was the average age spread across the total sample being almost equally distributed across 20-29 and 30-39 years' ranges (33% and 39% respectively). The representation is diminished in the 40-49 years age group (23%) and drops seriously in the 50+ range (4.5%). Besides suggesting a similarity between the three large Malaysian multinational organizations, the results demonstrate the changing role of women in the corporate arena in what was deemed to be a traditionally male-dominated society.

Table 4-2: Profile of Respondents from the Three Companies A, B & C

Company	A	B	C	Average
Managerial Level	*%*	*%*	*%*	*%*
Executive	49.4	27.8	61.9	37.1
Senior Executive	12.4	27.3	28.6	22.7
Manager	20.2	31.3	9.5	26.2
Senior Manager	15.7	13.6	0	13.3
General Manager	2.2	0	0	0.7
	100	100	100	100
Age (in years)	*%*	*%*	*%*	*%*
20-29	40.2	16.1	66.7	33.0
30-39	35.6	47.1	23.2	39.1
40-49	21.8	29.3	10.1	23.3
50+	2.3	7.5	0	4.5
	100	100	100	100
Gender	*%*	*%*	*%*	*%*
Female	40.4	36.2	45.7	39.3
Male	59.6	63.8	54.3	60.7
	100	100	100	100
Tenure (in years)	*%*	*%*	*%*	*%*
Less than 1 year	1.1	0.6	32.4	7.5
1 to < 3 years	9.2	7.9	29.6	12.8
3 to < 5 years	14.9	7.9	2.8	8.7
5 to < 10 years	24.1	21.5	18.3	21.5
10 to < 15 years	21.8	36.7	2.8	25.7
15 years +	28.7	25.4	14.1	23.9
	100	**100**	**100**	**100**

Note: Total number of respondents (N) =420; with 121 from
Company A, 207 from Company B and 92 from Company C

Another feature of the sample indicates the average of 70% of the employees have worked for their respective organization for five years or more. This fact points to organizations having a majority of respondents who are longer serving employees and would have had prior experience with performance management systems other than the MSF.

An examination of the gender distribution of persons in managerial positions provided a confirmation of the role of women in the organizations. Table 4.3 indicates that at executive/senior executive levels there was a larger proportion of female respondents; at the manager/senior manager levels the number of men respondents exceeded that of women. Similarly, the percentages reflected in the

average managerial levels are consistent with the general make-up in a typical large Malaysian multinational.

Table 4-3: Respondent Gender Across Managerial Position

	% Male	% Female
Executive	33.1	44.9
Senior Executive	21.7	24.3
Manager	30.3	19.6
Senior Manager	14.9	9.3
General Manager	0	1.9
	100 %	100 %

In Table 4-4, the pattern depicted by the respondents' age cross-tabulated against position level reveals some interesting insights. In the youngest age group, about 80% are holding executive positions. The assumption here is that the employees probably joined the company at entry level upon graduation. However, the next level age group of 30-39 years is well represented across managerial levels up to the Manager's position. An even spread can be seen in the third age group (40-49 years) up to the Senior Manager's position. This feature may be regarded as a characteristic of the general workforce of executives in Malaysia today, as seniority-based performance systems are still prominent despite efforts to slowly supersede them by use of merit-based counterparts.

Table 4-4: Age Range and Roles of Respondents

	Ages 20-29	Ages 30-39	Ages 40-49	Ages 50 +
Executive	81.6 %	31.8 %	16.5 %	43.5 %
Senior Executive	10.2 %	31.8 %	20.3 %	8.7 %
Manager	8.2 %	28.7 %	35.4 %	21.7 %
Senior Manager	0 %	7.8 %	25.3 %	26.1 %
General Manager	0 %	0 %	2.5 %	0 %
	100 %	100 %	100 %	100 %

4.2.3 Multi-sample

Merging the responses from the three organizations involved in the study enabled the formation of the multi-sample used in the current research. Responses from each organization's manager were combined to avoid the statistical problems inherent when analysing small samples; e.g., there are methodological problems in cross-validating samples using small individual organization samples and large and independent samples are required when testing for invariance. This limitation was acknowledged in this study because the model had a large number of variables. In such cases, combining constructs from pairs of variable constructs in different companies may fail to find a good-fitting model.

To date, empirical studies in MSF tend to have been conducted with samples drawn from a similar population. In the same way, the three organizations involved in this study had a similar demographic make-up, including the structure of job classifications which were very comparable to one another. The useable samples drawn from the companies varied in terms of percentages from one category to another but, nonetheless, were not an issue as far as comparisons were concerned. The ANOVA tests, described later in the chapter, suggest that there were minimal differences between companies as far as the Outcome variables were concerned. Hence, combining the samples was not seen as a problem.

4.2.4 Missing Data

Research involving human beings is usually plagued with the issue of missing data; the current study was no exception. Part of the 420 surveys evaluated as 'usable' had missing values for one or more items. An initial evaluation of missing data was conducted using the 'descriptives' function in SPSS to identify any unexpected patterns of missing data. Specifically, the analysis was conducted to compare percentages of missing data for each item (question) in the survey, as well as to compare the missing data in terms of constructs being measured. It was found that the percentages of missing data increased according to the order of the items; i.e., the later the item occurred in the survey instrument the higher the percentage of missing

data. There were no significant differences in the profile of respondents as far as missing values in the survey items were concerned, allowing the researcher to attribute the problem to survey fatigue, an expected event in most survey type research. Some respondents may have opted to submit the survey before completing the entire survey, though other missing data were assessed as having no systematic pattern and, hence, were considered reasonably random.

To address the issue of missing data, the decision was to use the list-wise deletion under the Options menu with most of the statistical tests conducted; basically, this meant that a case with a missing value for any of the variables would be excluded from the whole analysis. Even though this method of treating missing data has the effect of severely limiting the sample size (Pallant 2003), it was chosen carefully and determined to be the best option over the other alternatives of the Pair-wise option which may end up in absurd values for R^2 in regression or the mean-replacement option which would distort the standard deviations.

Out of 420 usable surveys, 176 had responses to the open ended-question at the end of the survey which requested comments and suggestions on how to improve the MSF Feedback system at the respective organizations. Even though this number represented only 42% of the sample, the feedback given was considered useful and salient in improving understanding of the quantitative results. There were no inferences made from the occurrence of missing data from the open ended questions. Additionally, and more importantly, a follow-up investigation was conducted to trace the respective qualitative comments relevant to the few quantitative outliers that were identified in the exploratory stage. As advised by statistical experts, outliers should be investigated further instead of simply discounted for not falling nicely into the bell-shaped curve (Field 2005; Sekaran 2003). Discussion on the findings of these is presented in Chapter Five.

4.2.5   Testing the Assumptions of Parametric Data

In the initial stage of data analysis, effort was taken address the assumptions of the parametric tests, including the assumptions of normality, independence and

homogeneity of variance. The 'examine' function in SPSS was used to produce the relevant statistics required to check whether the assumptions were tenable. Testing the assumptions was vital to help draw inferences on the basis of the sample and identify potential constraints on the interpretation of results. Additional assumptions such as homoscedasticity and multicollinearity were tested in relation to other statistical tests such as multiple regression. The issue of assumptions will be considered in association with the respective analyses.

Statistical normality can be assessed in a number of ways. Since a normal distribution takes the form of a symmetric bell-shaped curve, primarily it was assessed visually by looking at the histogram of frequencies and normal probability plot output produced by SPSS. Descriptive statistics were run to check for Skewness and Kurtosis, with the criterion used being that the value should fall between the +2 and -2 range. Also, the Shapiro-Wilks test was examined under the descriptives–explore section in SPSS and the tests results were significant in indicating a deviation from normality. However, the Shapiro-Wilks test suffers the notoriety of producing significant results for minor deviations from normality due to large sample sizes (Field 2005).

The Durbin-Watson statistic was used to test for independence; i.e., the assumption that one data point does not influence another. Using studentized residuals, tests checked for values falling out of the 1.5 to 2.5 range; a value available from the model summary in the regression output. Further, as a counter check, the graphical method was used to check for independence where no patterns were observable with residuals plotted against the case numbers.

Levene's test for homogeneity of variances, based on deviations from the group mean when running the t-test and ANOVA, was used to test that each group or category within the sample has the same variance across the Outcome variables.

4.2.6 Non-Response Bias

Non-response bias (Armstrong and Overton 1977) was used to test whether respondents are any different from those in the sample who did not respond. To test for non-response bias, early versus late respondents are compared on key demographic variables on the basis that late respondents are more similar to the general population than the early respondents. Since reminders were sent out following the first deadline set for the web-surveys, analysing the means of responses from the later responses was checked to determine whether or not they may better represent the broader population targeted for feedback.

The sample was split according to the time stamp and sequence numbers on the surveys received, with the mid-point being set at the date when the 1st reminders were sent out following the initial deadline for submission of surveys. The figures were available and accurate, with cases split according to the return sequence numbers registered according to each organization.

An independent samples t-test was conducted to compare the mean scores for the three outcome variables of REACTION, ACCEPT and POU. There were 192 cases before the mid-point and 228 cases after the mid-point. The results of the independent samples t-test suggested there was no significant difference between the two groups for all the three outcome variables. For instance, the t-test for the variable ACCEPT revealed (M=3.32, SE=.68 and M=3.25, SE=.73). Levene's test of equality of variance revealed that $F=.879$, $p>.05$; suggesting that the assumption of homogeneity of variances has been met. Table 4-5 that follows details the results of the independent samples t-test.

Table 4-5: Independent Samples Test

ACCEPT	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	Sig. (2-tailed)	Mean Difference
Equal variances assumed	.879	.349	.940	.348	.07084
Equal variances not assumed			.933	.351	.07084

Having established that the assumption of homogeneity of variances has been met, the t-test statistics were found to be not significant at the .05 significance level (p>.05) indicating that there was no significant difference between the means of the two samples tested.

Thus, there was no evidence to suggest that those who failed to respond by the initial nominated deadline were substantially different than those who met the deadline, suggesting a lack of non-response bias and that respondents were representative of the broader population.

4.3 Abbreviations

The following Table 4-6 provides the abbreviations used for the constructs within the research model. The abbreviations are used to refer to the constructs within the results tables and figures, as well as within the discussion.

Table 4-6: Construct Abbreviations

Psychological Climate Predictors	
FSE	Feedback Seeking Environment
CTRL	Control over Organizational Processes
UNDERST	Understanding of Organizational Events
SUPPORT	Operational Support
POLIT	Political Awareness within the Organization
Reaction Predictors	
CLIMATE	Psychological Climate for MSF Implementation
PURPOSE	Perceptions of the Purpose for the MSF System

COMPLEX	Perceived level of Complexity in the MSF Implementation
ANONYM	Perceptions of the Rater Anonymity
ASSGN	Perceptions of the Rater Assignment Process
Outcome Variables	
REACTION	Initial Reaction of Employees towards the MSF system
ACCEPT	Employee Acceptance of the MSF system
POU	Perceptions of Usefulness towards the MSF system

4.4   Exploratory Factor Analysis and Reliability Analysis

The psychometric properties of the overall sample were assessed using factor analyses and reliability assessments. The exploratory factor analyses (EFA) helped establish the underlying structure and robustness of the assessed variables in the model. Since the model and the hypotheses had already been developed, and scales adapted and developed to operationalise the constructs pertinent to the model, the EFA was conducted in a confirmatory mode (Jacob 2008). The rationale behind this strategy was to make a comparison between what emerged and what was hypothesized as factors within the model. Assessments, then, were made to examine the internal consistency of all the scales. In general, the scales were found to have acceptable validities and reliabilities, and the data were shown to be robust.

The EFA procedure employed the principal components method for extraction and factors with eigenvalues greater than one were retained. Initially, the orthogonal rotations were performed with the Varimax option because of the technique's success in obtaining a more interpretable cluster of factors (Field 2005; Hair, Anderson & Tatham 1998). Although interpretation becomes easier for the Quartimax rotation, it was not selected initially as it had the notoriety of loading multiple variables onto a single factor (Field 2005). A decision was made to use both methods of rotation to establish the preferred method for the data. Given that the total sample numbered 420, Hair, Andersen & Tatham (1998) suggested that the conservative factor loadings of greater than ±.40 were to be considered at the .05 level. Once the dimensionalities of the instruments were verified, the internal consistencies of the scales were assessed regarding reliability.

The reliability for each construct was estimated using Cronbach's alpha coefficient (Cronbach 1951). Nunally's (1978) seminal work has been utilized widely for estimating the reliability of multi-item scales. Generally, items were retained in the scale when the item-to-total correlation was at least .3, when there were at least three items in the scale and a coefficient alpha in the order of .70 was obtained (Nunally 1978). All alpha coefficients for the constructs employed in this study were above .70 indicating acceptable internal consistency. Based on these results, the subsequent statistical analyses were conducted with confidence.

4.4.1 EFA of Psychological Climate (CLIMATE) Predictors

The dimensionalities of psychological climate were investigated using principal component analysis. As discussed in the previous chapter, based on extant empirical research and anecdotal evidence, four contributors to psychological climate were seen as salient; *viz*., feedback-seeking environment (FSE), control over organisational processes (CTRL), understanding of organisational events (UNDERST) and operational support (SUPPORT). Bearing in mind the contentions from authorities in the field (such as, James et al. 1982) who advocate that at least three, if not four, items should be used to ensure the construct validity of a new variable, extreme care was undertaken to meet this condition. Careful attention was paid to scales and additional items measuring constructs of interest within the hypothetical model. Besides the initial efforts of consulting with experts, piloting the instrument and getting feedback from the participating organisations, the researcher persevered by carrying out the Principal Component Method for extraction under the EFA. The reason for this choice was that the principle component analysis is a conceptually sound procedure and less complex than other factor analyses (Field 2005, p.631). As such, the robustness of the hypothetical model could be verified. Based on the items adapted and devised to encapsulate the four dimensions of the psychological climate of MSF, four factors were expected following the EFA; however, five factors emerged.

To start the EFA using Principal Component Method for extraction, the correlation matrix produced between all pairs of items were visually checked to note the patterns of relationships. The significance values were scanned for any values greater than .05 and the correlation coefficients themselves were scanned for any values exceeding .9. This was done to eliminate the possibility of singularity within the data. It was found that all items in this section of the data correlated well with each other and the determinant of the correlation matrix figure was greater than the required value of .00001. Consequently, this ruled out the multicollinearity problem as well. At this juncture, it was unnecessary to eliminate any items.

With the KMO statistic, Kaiser (1974) recommends a bare minimum of .5 and contends that values between .8 and .9 are great; the current data (see Table 4-7) fitted this category as the KMO value was .862. As well as checking the overall KMO statistic, the diagonal elements of the anti-image correlation matrix indicated that all levels were above the minimum of .5. At this juncture it appeared that there was still no need to eliminate any factors. The Bartlett's measure tested as significant with a value less than .5 indicated that there were some relationships within the data and that the R-matrix is not an identity matrix and, technically, factor analysis is appropriate (Field 2005).

Table 4-7: KMO and Bartlett's Test

KAISER-MEYER-OLKIN MEASURE OF SAMPLING ADEQUACY		.862
Bartlett's Test of Sphericity	Approx. Chi-Square	3231.464
	df	231
	Sig.	.000

Factor Extraction

Next, in the factor extraction process the magnitude of the eigenvalues in the R-matrix was determined. The eigenvalues for each factor correspond to the variance explained by that particular component. It was found that five factors produced eigenvalues greater than one. Table 4-8 presents the findings from the factor

extraction (values for the five factors are in bold). However, bearing in mind that factor analysis is an exploratory tool used to direct the researcher; the decision on the number of factors to extract was not finalized based on this first extraction. It should be mentioned here that Kaiser's criterion to extract all factors with eigenvalues greater than one (used as the default in SPSS) was satisfied, as the average communality was .620 and the number of cases was 420. Research has indicated that Kaiser's recommendation of accepting all factors with eigenvalues of over one is accurate when average communality after extraction is greater than .6 for sample sizes exceeding 250 cases (Kaiser 1960 cited in Field 2005). The total variance explained by the five factors was approximately 62% (Table 4-8).

Table 4-8: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total (eigenvalues)	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.197	28.168	28.168	**6.197**	28.168	28.168	3.566	16.208	16.208
2	2.580	11.727	39.896	**2.580**	11.727	39.896	3.314	15.064	31.273
3	2.302	10.465	50.360	**2.302**	10.465	50.360	3.309	15.040	46.313
4	1.537	6.985	57.345	**1.537**	6.985	57.345	2.427	11.032	57.345
5	1.013	4.606	61.951	**1.013**	4.606	61.951	1.828	8.307	61.951
6	.992	4.511	66.462						
7	.846	3.846	70.307						
8	.692	3.148	73.455						
9	.626	2.846	76.301						
10	.590	2.682	78.983						
11	.567	2.575	81.558						
12	.535	2.431	83.989						
13	.485	2.202	86.192						
14	.427	1.943	88.134						
15	.423	1.922	90.056						
16	.392	1.783	91.839						
17	.358	1.627	93.466						
18	.329	1.495	94.961						
19	.311	1.414	96.375						
20	.292	1.329	97.704						
21	.255	1.159	98.863						
22	.250	1.137	100.000						

Extraction Method: Principal Component Analysis.

Finally, as a guide to factor selection, a Scree plot of eigenvalues was used to identify the point of inflexion on the curve. Cattell (1966) argued that the cut-off point in the number of factors to retain should be at this point of inflexion; this

criterion was found to be reliable for samples of more than 200 (Stevens 1992). The Scree plot (see Figure 4-2) indicated a sharp drop after the first factor as 28% of the variance was contributed by it alone, and then the next most noticeable kink in the plot is at the fifth factor.

Figure 4-2: Scree Plot
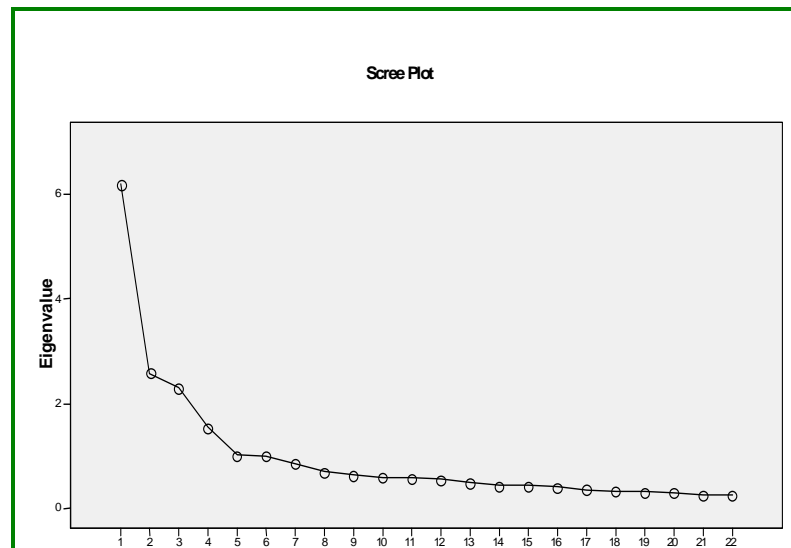
Before moving on to the factor rotations, another important value taken into consideration was the residual values in the reproduced correlations matrix. These values helped assess the fit of the model by comparing the differences between the observed correlations and the correlations based on the model. Although there is no rule of thumb suggesting what this value should be, Field (2005) proposed that there should be no more than 50% of the proportion of residuals that have an absolute value greater than .05. With the research data, the value was 27%, which suggested a reasonable fit.

Factor rotations were conducted to help interpret the EFA. Only then were the decisions made on which factors were to be retained for further analysis.

Factor Rotation

The selection of the rotation method depends on whether there exists a sound theoretical inference that the factors are either related or independent (Field 2005). Theoretically, the constructs to be measured, such as operational support,

understanding of organizational events and control over organizational processes, would have a certain level of interaction with one another. Pedhazur & Schmelkin (1991) proposed that if the oblique rotation displays insignificant correlation between the extracted factors, then the orthogonal counterpart technique would suffice. Hence, the approach taken was to run the EFA using both the orthogonal rotation and oblique rotation. A comparison of the results helped determine the more appropriate rotation to be used. It was found that the Oblique rotation was more suitable as the factors were correlated to one another.

Orthogonal Rotation

The Orthogonal Rotation with the Varimax solution produced the rotated component matrix in Table 4-9. Four factors were expected (from the items for the scales of CTRL, UNDERST, FSE and SUPPORT) but five emerged. Close inspection of the matrix, revealed the following. Items (known as variables in SPSS) loaded onto the respective factors almost perfectly, with a few exceptions. The item (q2.6) in the 'Control over Organizational Processes' (CTRL) construct adapted from Tetrick and LaRocco's (1987) 'Control over Work Environment Scale' loaded onto the unexpected fifth factor totally with a factor score of .612. Additionally, two items (q2.7 & q2.8) were cross-loaded across two factors. However, the latter (q2.8) had a higher factor loading in the group in which it had been expected to emerge. The former (q2.7) seemed to fall into the fifth factor.

Another finding was that item q3.12 from the 'Understanding over Organizational Events' (UNDERST) scale also cross-loaded across two factors, the higher one being the fifth factor. This item is one of six from the scale that was adapted verbatim from Ford (2002) which, in turn, adapted three items from Tetrick and La Rocco (1987). The wordings and themes within the items that loaded onto the fifth factor were re-scrutinized to identify any hidden dimensions. (See Appendix C for an unabbreviated list of items in the original survey questionnaire used). Items with the asterisk* in Table 4-9, were accepted as loaded onto the fifth factor.

Table 4-9: Rotated Component Matrix A

Abbreviated list of items	Component/Factor				
	1	2	3	4	5
q1.1rev It would take a lot of effort to get feedback from others				.612	
q1.2 I can get feedback from other with little effort				.437	
q1.3rev My boss will think worse of me if I ask for feedback				.721	
q1.4rev Not a good idea to ask coworkers for feedback				.801	
q1.5rev Better to figure out what you are doing on your own				.733	
q2.6 Extent have influence over the things on the job					.612*
q2.7 Extent have input on decisions			.459		.671*
q2.8 Extent have opportunity to take part in job related decisions			.540		.498
q2.9 Extent can set out own work deadlines			.757		
q2.10 Extent job allows opportunity for independent thought			.767		
q2.11 Extent can control own pace and scheduling			.791		
q3.12 Extent know why others act the way they do	.434				.584*
q3.13 Extent understand the way organization changes occur	.738				
q3.14 Extent understand why job related decisions are made	.697				
q3.15 Extent understand how organization works	.752				
q3.16 Extent understand why most things happen	.853				
q3.17 Extent understand what information influences decisions	.739				
q4.18 Sufficient guidance given prior to MSF implementation		.737			
q4.19 Easily find someone to help with MSF system problems		.788			
q4.20 Had enough time to use MSF and perform regular tasks		.802			
q4.21 Well informed about the MSF process		.825			
q4.22 Manager has encouraged use of MSF system		.720			

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
* denotes the loading onto fifth factor

A second round of factor analysis was run with the same items, but this time by restraining the factor structure as per the original pattern to only the four factors (as the items were adapted and developed to capture four constructs predicting the climate outcome). The reason for this was to verify the factor structure as hypothetically understood. The rotated component matrix results are listed in Table 4-10. All 22 items from the set of psychological climate predictors loaded precisely into four distinct factors without any evidence of cross loading of factors.

Table 4-10: Rotated Component Matrix B

	Component			
	1	**2**	**3**	**4**
q3.16 Extent understand why most things happen	.849			
q3.13 Extent understand the way organisation changes occur	.751			
q3.15 Extent understand how organisation works	.737			
q3.17 Extent understand what information influences decisions	.732			
q3.14 Extent understand why job related decisions are made	.730			
q3.12 Extent know why others act the way they do	.513			
q2.7 Extent have input on decisions		.733		
q2.10 Extent job allows opportunity for independent thought		.712		
q2.8 Extent have opportunity to take part in job related decisions		.711		
q2.9 Extent can set out own work deadlines		.709		
q2.11 Extent can control own pace and scheduling		.708		
q2.6 Extent have influence over the things on the job		.657		
q4.21 Well informed about the MSF process			.823	
q4.20 Had enough time to use MSF and perform regular tasks			.802	
q4.19 Easily find someone to help with MSF system problems			.786	
q4.18 Sufficient guidance given prior to MSF implementation			.736	
q4.22 Manager has encouraged use of MSF system			.719	
q1.4rev Not a good idea to ask coworkers for feedback				.805
q1.3rev My boss will think worse of me if I ask for feedback				.751
q1.5rev Better to figure out what you are doing on your own				.708
q1.1rev It would take a lot of effort to get feedback from others				.615
q1.2 I can get feedback from other with little effort				.417

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Oblique Rotation

Under the Oblique Rotation method with Kaiser Normalisation, the structure matrix was interpreted along with the pattern matrix as a double-checking procedure recommended by Graham et al. (2003). For the pattern matrix (Table 4-11) the same five factors as in the earlier rotation emerged. Unlike the pattern matrix, which indicated the unique contribution of an item to a factor, the structure matrix highlighted the shared variance between factors (Table 4-12). As a result, many cross-loadings of factors could be seen on this matrix indicating inherent relationships between the factors under contention. The correlation matrix between

factors confirmed that there is some degree of interrelationship among the factors with the exception of factor three (refer Table 4-13). Nonetheless, the correlation coefficients were medium to low with the highest being .308. No major difference was noted between the rotation results from the two methods. However, the Oblique method is preferable for these factors as they appear to be related to each other to a degree. This is evident from an unsymmetrical factor transformation matrix. For the reasons above, generally with this set of data the obliquely rotated solution was taken as more meaningful compared to the orthogonally rotated counterpart.

<table>
<tr><th colspan="6" align="center">Table 4-11: Pattern Matrix</th><th colspan="6" align="center">Table 4-12: Structure Matrix</th></tr>
<tr><td></td><td colspan="5" align="center">Component</td><td></td><td colspan="5" align="center">Component</td></tr>
<tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td>q3.16</td><td>.878</td><td></td><td></td><td></td><td></td><td>q3.16</td><td>.873</td><td></td><td></td><td></td><td></td></tr>
<tr><td>q3.17</td><td>.755</td><td></td><td></td><td></td><td></td><td>q3.15</td><td>.793</td><td>.419</td><td></td><td></td><td></td></tr>
<tr><td>q3.15</td><td>.750</td><td></td><td></td><td></td><td></td><td>q3.13</td><td>.791</td><td></td><td></td><td></td><td></td></tr>
<tr><td>q3.13</td><td>.723</td><td></td><td></td><td></td><td></td><td>q3.14</td><td>.768</td><td></td><td></td><td></td><td>.433</td></tr>
<tr><td>q3.14</td><td>.664</td><td></td><td></td><td></td><td></td><td>q3.17</td><td>.764</td><td></td><td></td><td></td><td></td></tr>
<tr><td>q4.21</td><td></td><td>.838</td><td></td><td></td><td></td><td>q4.21</td><td></td><td>.847</td><td></td><td></td><td></td></tr>
<tr><td>q4.20</td><td></td><td>.825</td><td></td><td></td><td></td><td>q4.19</td><td></td><td>.815</td><td></td><td></td><td></td></tr>
<tr><td>q4.19</td><td></td><td>.791</td><td></td><td></td><td></td><td>q4.20</td><td></td><td>.810</td><td></td><td></td><td></td></tr>
<tr><td>q4.18</td><td></td><td>.741</td><td></td><td></td><td></td><td>q4.18</td><td></td><td>.765</td><td></td><td></td><td></td></tr>
<tr><td>q4.22</td><td></td><td>.739</td><td></td><td></td><td></td><td>q4.22</td><td></td><td>.741</td><td></td><td></td><td></td></tr>
<tr><td>q1.4rev</td><td></td><td></td><td>.798</td><td></td><td></td><td>q1.4rev</td><td></td><td></td><td>.814</td><td></td><td></td></tr>
<tr><td>q1.5rev</td><td></td><td></td><td>.745</td><td></td><td></td><td>q1.5rev</td><td></td><td></td><td>.745</td><td></td><td></td></tr>
<tr><td>q1.3rev</td><td></td><td></td><td>.707</td><td></td><td></td><td>q1.3rev</td><td></td><td></td><td>.728</td><td></td><td></td></tr>
<tr><td>q1.1rev</td><td></td><td></td><td>.611</td><td></td><td></td><td>q1.1rev</td><td></td><td></td><td>.621</td><td></td><td></td></tr>
<tr><td>q1.2</td><td></td><td></td><td>.444</td><td></td><td></td><td>q1.2</td><td></td><td></td><td>.458</td><td></td><td></td></tr>
<tr><td>q2.11</td><td></td><td></td><td></td><td>-.798</td><td></td><td>q2.11</td><td></td><td></td><td></td><td>-.820</td><td></td></tr>
<tr><td>q2.10</td><td></td><td></td><td></td><td>-.771</td><td></td><td>q2.10</td><td></td><td></td><td></td><td>-.801</td><td></td></tr>
<tr><td>q2.9</td><td></td><td></td><td></td><td>-.768</td><td></td><td>q2.9</td><td></td><td></td><td></td><td>-.780</td><td></td></tr>
<tr><td>q2.8</td><td></td><td></td><td></td><td>-.501</td><td>.417</td><td>q2.8</td><td></td><td></td><td></td><td>-.630</td><td>.568</td></tr>
<tr><td>q2.7</td><td></td><td></td><td></td><td>-.407</td><td>.614</td><td>q2.7</td><td></td><td></td><td></td><td>-.570</td><td>.724</td></tr>
<tr><td>2.6</td><td></td><td></td><td></td><td></td><td>.569</td><td>q2.6</td><td></td><td></td><td></td><td>-.495</td><td>.646</td></tr>
<tr><td>q3.12</td><td></td><td></td><td></td><td></td><td>.565</td><td>q3.12</td><td>.494</td><td></td><td></td><td></td><td>.623</td></tr>
</table>

Extraction Method: Principal Component Analysis
Rotation Method: Oblimin with Kaiser Normalization
Rotation converged in 21 iterations

Table 4-13: Component Correlation Matrix

Component	1	2	3	4	5
1	1.000	.308	.127	-.247	.246
2	.308	1.000	.200	-.165	.092
3	.127	.200	1.000	-.174	.076
4	-.247	-.165	-.174	1.000	-.239
5	.246	.092	.076	-.239	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

The Fifth Factor

A possible explanation for the observed fifth factor phenomenon is that the combination of dimensions suggested by the researcher in the hypothetical model may have induced the emergence of another significant factor. The complete wordings of the three items (q2.6, q2.7 and q3.12) were:

"To what extent do you have influence over the things that affect you on the job?"
"To what extent do you have input in deciding what tasks or part of tasks you will do?"
"To what extent do you know why others at work at the way they do?"

From the consensus of the three items above, and after critically comparing them to the other items in the original factor structure, the fifth factor emerges as the connotation of **political awareness** within the organization. However, since only three items loaded onto this factor, it is uncertain how adequately it can be measured within the current study. As with most research of this nature it should be pointed out that the climate for MSF is influenced by a large number of factors, many of which would be impossible to cover within a single study. In the true spirit of EFA, the researcher decided to proceed with the five factors that emerged in the current study as predictors to the psychological climate to MSF rather than restricting the factor structure to the original four. An additional dimension to the climate was added with the factor named as 'political awareness within the organization' (POLIT). Nevertheless, a degree of caution was employed when interpreting the results of this section of the model, recognizing the possible inadequacy of scope within the new factor.

Summing up the EFA results, five factors emerged from the set of items measuring various dimensions comprising predictors to the psychological climate for MSF implementation. Table 4-14 below summarizes the EFA results, which loaded onto the five factors respectively.

Table 4-14: Initial Summary of EFA Results on Climate Predictors

| | Factors | | | | |
	1(FSE)	2(CTRL)	3(UNDERST)	4(SUPPORT)	5(POLIT)
Items	q1.4rev	q2.11	q3.16	q4.21	q2.7
	q1.5rev	q2.10	q3.17	q4.20	q2.6
	q1.3rev	q2.9	q3.15	q4.19	q3.12
	q1.1rev	q2.8	q3.13	q4.18	
	q1.2		q3.14	q4.22	
Total Items	5	4	5	5	3

Notes: FSE=Feedback Seeking Environment, CTRL= Control over Organizational Processes, UNDERST= Understanding over SUPPORT= Operational Support and POLIT= Political awareness within Organization. Items are ordered according to factor loading scores in a descending order.

4.4.2 Reliability Analysis of Psychological Climate Predictors

The reliability analysis was conducted to ascertain whether the items attributed to the set of factors from the factor analysis really were reliable measures of the intended constructs. It is worth mentioning that the reverse-phrased items were reversed from the way they were scored so that calculations correctly reflected the scale reliability. Another point of caution was the use of the reliability estimate to interpret the overall reliability within a particular sub-scale. Cortina (1993) cautioned against using Cronbach's α as a measure of 'unidimensionality'. In other words, the calculation for the Cronbach's α must be applied to sub-scales separately instead of aggregating all items and calculating only one reliability estimate. As such, a reliability estimate was calculated for each of the reaction predictors. For scales which had items removed to improve the reliability estimate, the corresponding factor analysis was re-run to check whether the factor structure still held unchanged.

<u>Feedback Seeking Environment (FSE)</u>

With the initial five items, the reliability estimate was .698. Kline (1999) proposes that although the value of .7 is a generally acceptable value for the reliability estimate, values below .7 realistically can be acceptable for psychological constructs due to the diversity of constructs being measured. However, the values for the Corrected Item-Total Correlation indicated that item q1.2 had a poor internal consistency as the value fell below .3 at .249 (see Table 4-15). This identified the item q1.2 as a potential problem to the total measure of Feedback seeking Environment. If that item were to be deleted, the value of Cronbach's α would improve from .698 to .727. The possibility of omitting the item from the scale was considered. Item q1.2 was positively phrased compared to all the other items on the scale, which were worded in the opposite manner; thus, the possibility of response bias was not overlooked, although q1.2 clearly had a relative lack of consistency with the other scale items. The factor analysis was re-run without the item q1.2 in order to check on the factor structure, which appeared constant. Consequently, it was decided to omit the item from further analysis.

Table 4-15: Reliability Analysis for Feedback Seeking Environment Scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q1.1rev It would take a lot of effort to get feedback from others	13.78	7.047	.429	.193	.656
*q1.2 I can get feedback from other with little effort	13.44	7.926	.249*	.094	.727
q1.3rev My boss will think worse of me if I ask for feedback	12.89	6.751	.500	.332	.626
q1.4rev Not a good idea to ask coworkers for feedback	12.75	6.632	.603	.458	.586
q1.5rev Better to figure out what you are doing on your own	13.04	6.544	.504	.342	.624

* Denotes the item that has a poor Item-Total Correlation

Control over Organisational Processes (CTRL)

This scale was taken as having only four items based on the outcomes from the EFA. Two items (q2.6 and q2.7), which were originally part of this scale, loaded onto a different factor. The reliability analysis for the remaining four items resulted in a Cronbach's α of .796. All items had a good item-total correlation of above .3 (see Table 4-16). Nevertheless, reliability figures were calculated with the original six-item scale for 'Control over Organizational Processes' as adapted from Ford 2001 and that gave a Cronbach's α of .831. Although this indicated a slightly better reliability estimate, the researcher recognized that the value of Cronbach's α actually increases with the number of items since the formula for α actually includes the number of items squared in the top half of the equation.

Therefore, the improvement in the Cronbach α may have been partly attributable to this inherent fact. More importantly, since the EFA indicated a lack of congruence between other items and both q2.6 and q2.7, the researcher made a decision to follow the lead from the EFA as opposed to the reliability estimates. Therefore, items q2.6 and q2.7 were omitted from the 'Control over Organizational Processes' scale in further analysis.

Table 4-16: Reliability Analysis for Control Over Organizational Processes Scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q2.8 Extent have opportunity to take part in job related decisions	10.53	4.753	.524	.280	.784
q2.9 Extent can set out own work deadlines	10.58	4.275	.630	.419	.733
q2.10 Extent job allows opportunity for independent thought	10.45	4.500	.620	.396	.738
q2.11 Extent can control own pace and scheduling	10.46	4.415	.656	.460	.721

Understanding over Organisational Events (UNDERST)

The overall α for 'Understanding over Organisational Events' items was .873, indicating good reliability. The total number of items was five. None of the items in

the scale would increase the reliability if the item were deleted (see Table 4-17); as such, all items contributed well to the overall reliability of the scale. Note that the item q3.12 was not included in this scale as it leaked significantly into the fifth factor as discovered in the EFA (See Table 4-9). The Cronbach's α for the scale with item q3.12 in it (6 items altogether) was .859. However, the apparent marginal decline in the reliability figure was not the rationale behind the exclusion of this item. From the EFA analysis earlier on, it was found that q3.12 had a different underlying theme compared to other items for this construct, thereby justifying the reduction of the measure to a five-item scale.

Table 4-17: Reliability Analysis for Understanding Over Organizational Events Scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q3.13 Extent understand the way organisation changes occur	13.22	7.686	.694	.492	.846
q3.14 Extent understand why job related decisions are made	13.04	8.252	.671	.459	.852
q3.15 Extent understand how organisation works	12.95	7.819	.704	.521	.843
q3.16 Extent understand why most things happen	13.25	7.445	.784	.625	.823
q3.17 Extent understand what information influences decisions	13.48	7.828	.646	.448	.858

Operational Support (SUPPORT)

The scale for 'Operational Support' resulted in a Cronbach's α of .861. This figure was excellent and deletion of none of the items would result in a higher reliability estimate. From the EFA, it should be mentioned that the five-item scale had all items loaded well onto the same factor without any cross-loading onto any other factors, indicating good validity.

Table 4-18: Reliability Analysis for Operational Support Scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q4.18 Sufficient guidance given prior to MSF implementation	13.35	8.932	.649	.446	.839
q4.19 Easily find someone to help with MSF system problems	13.27	8.565	.713	.537	.822
q4.20 Had enough time to use MSF and perform regular tasks	13.20	9.369	.672	.468	.834
q4.21 Well informed about the MSF process	13.37	8.456	.757	.583	.810
q4.22 Manager has encouraged use of MSF system	13.31	9.194	.604	.404	.850

Political Awareness within Organisation (POLIT)

The political awareness construct was a factor that emerged following the EFA. Two items originally from the 'Control over Organizational Processes' scale and one item from the 'Understanding over Organizational Events' scale distinctly loaded onto this factor, which appeared to have an inherent political connotation. For this reason, and for further analysis within the current research, the new construct 'Political Awareness within the Organization' was included. The reliability estimate with the three items produced a Cronbach's α of .607. Unlike previous sub-scales within this part of the model, the overall α was quite low. Although Kline (1999) suggests that lower levels of α can be expected for social science data, the figure is well below the other scales. A possible explanation is the lower number of items compared to the other scales; the formula for α actually involves the number of items squared in the top half of the equation. A close investigation of the Item-Total Correlation statistics in Table 4-17 reveals that potentially item q3.12 may be problematic in that deletion of it will increase the reliability estimate to an acceptable level of .7 (α increases to .702). Even though such a decision would leave the measurement of this construct with a two-item scale, the researcher decided to proceed with the omission of q3.12 based on the rationale of having a more consistent measure. Thus, the new construct of 'Political Awareness' (POLIT) was measured using the two items q2.6 and q2.7. Recognizing the potential limitations of this measurement, which include a

condensed two-item scale, and the possible lack of scope in the construct, a high degree of vigilance was exercised in interpreting the results.

Table 4-19: Reliability Analysis for Political Awareness Within the Organization Scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q2.6 Extent have influence over the things on the job	6.74	1.322	.466	.298	.431
q2.7 Extent have input on decisions	6.62	1.344	.532	.323	.337
*q3.12 Extent know why others act the way they do	6.89	1.701	.271	.080	.702

* denotes the item which had to be deleted.

<u>Summary EFA results and Reliability Analysis for the Psychological Climate Predictors</u>

Table 4-20 below summarizes the results for the EFA and reliability analysis. New variables were created using the composite mean score of the respective items corresponding to the construct of interest. The following analysis which includes the correlation, t-tests, ANOVA and multiple regression were conducted with these new variables as measures for the constructs under contention.

Table 4-20: Final Summary of Accepted EFA Results for Climate Predictors

	Factors				
	1(FSE)	2(CTRL)	3(UNDERST)	4(SUPPORT)	5(POLIT)
Items Included in Scale	q1.4rev	q2.11	q3.16	q4.21	q2.7
	q1.5rev	q2.10	q3.17	q4.20	q2.6
	q1.3rev	q2.9	q3.15	q4.19	
	q1.1rev	q2.8	q3.13	q4.18	
			q3.14	q4.22	
Total Items	4	4	5	5	2
Cronbach's α	.727	.796	.873	.861	.702

Notes: FSE=Feedback Seeking Environment, CTRL= Control over Organizational Processes, UNDERST= Understanding over SUPPORT= Operational Support and POLIT= Political awareness within Organization.
Items are ordered according to factor loading scores

4.4.3 EFA of Employee Reaction (REACTION) Predictors

Preliminary Analysis

Using the principle component method of extraction, EFA was conducted on the items for the predictors to employee reaction to MSF (CLIMATE, ANONYM, COMPLEX, PURPOSE, ASSGN). The correlation matrix produced by all pairs of items was visually checked for patterns of relationship. The initial analysis of correlation coefficients and significance values revealed that the data were well correlated and none of the correlation coefficients was particularly large (>.9). The determinant of the correlation matrix figure was greater than the required value of .00001 (2.15E-005). Thus, it was unnecessary to eliminate any items at this stage.

The KMO statistic (Table 4-21) for the data was .813 indicating a 'great' value (Kaiser 1974) so factor analysis was appropriate to use. All the diagonal elements of the anti-image correlation matrix had a value above the minimum of .5, which supported the case for the exploratory factor analysis on the data.

Table 4-21: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.813
Bartlett's Test of Sphericity	Approx. Chi-Square	3606.043
	Df	190
	Sig.	.000

Factor Extraction

As with the EFA conducted earlier on the first part of the overall model, the factor analysis here was performed in a confirmatory mode to ascertain the number of factors that emerged based on the eigenvalues calculated. Only factors that had eigenvalues (corresponding to total variance explained) of greater than one were retained for further analysis. The total variance explained by the five factors amounted to 68%. Table 4-22 depicts the factor extraction results.

Table 4-22: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.542	27.711	27.711	5.542	27.711	27.711	3.805	19.023	19.023
2	2.762	13.809	41.520	2.762	13.809	41.520	3.295	16.476	35.499
3	2.168	10.842	52.362	2.168	10.842	52.362	2.550	12.748	48.247
4	1.648	8.240	60.602	1.648	8.240	60.602	2.078	10.390	58.637
5	1.494	7.470	68.072	1.494	7.470	68.072	1.887	9.435	68.072
6	.980	4.900	72.972						
7	.866	4.332	77.304						
8	.718	3.591	80.895						
9	.519	2.593	83.489						
10	.470	2.351	85.839						
11	.449	2.245	88.084						
12	.397	1.984	90.069						
13	.352	1.761	91.830						
14	.341	1.703	93.533						
15	.314	1.568	95.101						
16	.232	1.161	96.262						
17	.220	1.102	97.365						
18	.205	1.025	98.390						
19	.189	.947	99.337						
20	.133	.663	100.000						

Extraction Method: Principal Component Analysis.

Five factors had eigenvalues of over one. As mentioned earlier, Kaiser's criterion to extract all factors with eigenvalues greater than one, used as the default in SPSS, was satisfied as the average communality was .680 and the number of cases was 420. Research has indicated that Kaiser's recommendation of accepting all factors with eigenvalues of over one is accurate when average communality after extraction is greater than 0.6 for sample sizes exceeding 250 cases (Kaiser 1960 cited in Field 2005). The Scree plot (Figure 4-3) depicts an inflexion in the curve after the fifth and sixth factors. Five factors were retained based on the total variance explained. A final point to note was the residual values in the reproduced correlations matrix. There were 21% of non-redundant residuals with absolute values more than .05. The acceptable threshold of maximum 50% was satisfied. This figure assessed the fit of the model by comparing the differences between the observed correlations and the correlations based on the model.

Figure 4-3: Scree Plot
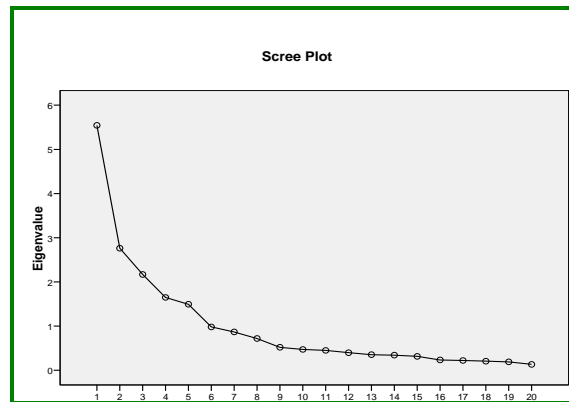
Factor Rotations

Rotation of the factors helped clarify the factor structure considerably by comparison with the un-rotated component matrix. The constructs under examination were believed to have some degree of relationship with one another; if the constructs were independent, the oblique rotation should provide an identical solution to the orthogonal rotation and the component correlation matrix should be an identity matrix. However, to make certain, both methods of rotations, i.e., the Orthogonal and Oblique methods were performed to make an appropriate decision regarding the rotation of factors. Results of both the Orthogonal and Oblique rotations are reported.

Orthogonal Rotation

The Orthogonal Rotation with the Varimax solution produced the rotated component matrix as in Table 4-23. Five factors were expected and five factors emerged. Close inspection of the matrix revealed that q6.29 and q8.37 were potentially problematic. The item q6.29 leaked across two factors; i.e., into the intended factor of Perceived Purpose and the Psychological Climate for MSF. The item was worded *'The MSF system increases my chance for training that may help me in the future'*. The survey item appeared to have had an inherent theme relating to the psychological climate within the organization other than measuring the perceived developmental purpose of the MSF system as intended. The other items within the Perceived Purpose factor appeared consistent with one another. Nevertheless, a decision was not made at this instance to omit the item q.29 until the Oblique rotations were conducted.

The other finding was that item q8.37 did not load significantly onto any of the factors at all. It should be noted that any factor loadings of below .4 was suppressed in the EFA process. This is done based on Steven's (1992) rationale to retain only factors that explain at least 16% of variance in the variable (factor loading .4 squared). Thus, item q8.37 which, potentially, had a loading of less than .4, was deemed insignificant to the factors under contention.

Table 4-23: Rotated Component Matrix

Abbreviated Items	Component				
	1	2	3	4	5
q5.23 Work environment is suitable for MSF implementation					.869
q5.24 MSF would work well with general work practices					.882
q5.25 Values inculcated at workplace support MSF success					.774
q6.26rev MSF influences whether or not I get increase in salary		.882			
q6.27rev MSF influences chance of getting promoted		.908			
q6.28rev Good MSF assessment help get better job in future		.757			
q6.29rev MSF increases chances for trainings		.486			.426
q6.30rev MSF determines whether rewarded or not		.831			
q7.31 MSF violates typical organizational hierarchy			.496		
q7.32 MSF too cumbersome to use			.846		
q7.33 MSF too complex			.862		
q7.34rev MSF is user friendly			.501		
q8.35 MSF means rater is anonymous to ratee				.851	
q8.36 Anonymity of rater is well maintained throughout MSF				.859	
q8.37rev With reasonable effort could find out who rate is					
q9.38 Raters are qualified to evaluate performance	.843				
q9.39 Raters know what I'm supposed to be doing	.893				
q9.40 Raters understand the requirements and constraints of my work	.876				
q9.41 Raters are familiar with rating format and procedures	.739				
q9.42 Raters know how to evaluate overall contribution	.850				

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 6 iterations.

Under the Pattern Matrix (Table 4-24), the shared variance is ignored and so exactly five factors emerged with no evidence of cross-loadings since the Pattern Matrix contains information about the unique contribution of an item to a factor. However, as a required check and balance under the Obliquely rotated method (Graham et al. 2003), scrutiny of the Structure Matrix (Table 4-25) revealed a significant relationship (factor loading > .4) between factors Psychological Climate and Perceived Purpose attributable specifically to item q6.29. Apart from that, no other factors had significant relationships with one another.

The component correlation matrix seen below (Table 4-26) indicates that the factors within this part of the model are interrelated to some degree (namely, Factor 1 - Assignment of Raters and Factor 5 - Psychological Climate). Based on this information, the Obliquely Rotated solution was taken as more meaningful in presenting the structure of the factors involved.

Table 4-24: Pattern Matrix						**Table 4-25: Structure Matrix**					
	Component						**Component**				
	1	**2**	**3**	**4**	**5**		**1**	**2**	**3**	**4**	**5**
q5.23					.909	q5.23					.896
q5.24					.932	q5.24					.897
q5.25					.783	q5.25					.832
q6.26rev		.917				q6.26rev		.878			
q6.27rev		.933				q6.27rev		.915			
q6.28rev		.750				q6.28rev		.790			
q6.29rev		.430				q6.29rev		.551			-.523
q6.30rev		.846				q6.30rev		.843			
q7.31			.518			q7.31			.504		
q7.32			.839			q7.32			.858		
q7.33			.864			q7.33			.869		
q7.34rev			.472			q7.34rev			.513		
q8.35				.839		q8.35				.855	
q8.36				.848		q8.36				.869	
q8.37rev						q8.37rev					
q9.38	.868					q9.38	.855				
q9.39	.928					q9.39	.894				
q9.40	.898					q9.40	.886				
q9.41	.727					q9.41	.779				
q9.42	.861					q9.42	.869				

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
a Rotation converged in 9 iterations.

Table 4-26: Component Correlation Matrix

Component	1	2	3	4	5
1	1.000	-.246	-.033	.075	.349
2	-.246	1.000	.107	-.067	-.303
3	-.033	.107	1.000	.009	-.200
4	.075	-.067	.009	1.000	.072
5	.349	-.303	-.200	.072	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

To sum up the EFA results, five factors emerged from the set of items set out to measure the dimensions of employee reaction to MSF. Table 4-27 that follows, summarizes the EFA results detailing items that loaded on to the five respective factors.

Table 4-27: Summary of EFA Results on Reaction Predictors

	Factors				
	1(CLIMATE)	2(PURPOSE)	3(COMPLEX)	4(ANONYM)	5(ASSGN)
Items	q5.23	q6.26rev	q7.31	q8.35	q9.38
	q5.24	q6.27rev	q7.32	q8.36	q9.39
	q5.25	q6.28rev	q7.33		q9.40
		q6.29rev*	q7.34rev		q9.41
		q6.30rev			q9.42
Total Items	3	5	4	2	5

Notes: CLIMATE=Psychological Climate for MSF Implementation, PURPOSE= Perceived Purpose of MSF System, COMPLEX=Perceived Complexity of the MSF process, ANONYM=Perceived Anonymity of the Rater, ASSGN=Perceptions of the Rater Assignment Process.
*Denotes the item that may be deleted subject to the reliability estimates.

4.4.4 Reliability Analysis of the Reaction Predictors

Psychological Climate for MSF Implementation (CLIMATE)

The reliability estimate for the three items included in the scale was .862. All items had a good item-total correlation value of above .3 and none of the items, if deleted, would produce a significantly improved Cronbach's α (See Table 4-28). Based on the results of the EFA earlier, and the favourable reliability estimate, the CLIMATE scale was accepted as it was for further analyses.

Table 4-28: Reliability Analysis for Psychological Climate for MSF Implementation Scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q5.23 Work environment is suitable for MSF implementation	6.69	2.114	.774	.621	.770
q5.24 MSF would work well with general work practices	6.64	2.273	.767	.612	.779
q5.25 Values inculcated at workplace support MSF success	6.86	2.346	.674	.454	.863

Perceived Purpose of the MSF System (PURPOSE)

The initial reliability estimate for the five items included in the scale was .865. All items had an item-total correlation value of above .3. Noticeably, deletion of item q6.29 from Table 4-29 would produce a marginally improved Cronbach's α value from .865 to .891. The item-total correlation of .459 is relatively low compared to the correlation figures on the other items. This indicates a diversion in item theme from what it was set out to measure. A closer scrutiny of that item suggested that participants may have interpreted the item "*The MSF system increases my chances for training that may help me in the future*" as containing purposes that were two-fold; i.e., administrative and developmental. The item q6.29 was set out to distinguish the developmental from the administrative purpose, and not to have an overlap of the two purposes consolidated in one item. In any case, based on the results of the EFA earlier, item q6.29 indicated significant cross-loading into two different factors. This confirms the possible inconsistency of the item with the intended measure. A decision was made to eliminate the item q6.29 from the PURPOSE scale for further analyses.

Table 4-29: Reliability Analysis for Perceived Purpose Scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q6.26rev MSF influences whether or not I get increase in salary	10.20	8.924	.751	.729	.823
q6.27rev MSF influences chance of getting promoted	10.19	8.554	.819	.773	.804
q6.28rev Good MSF assessment help get better job in future	10.11	9.505	.691	.516	.839
q6.29rev MSF increases chances for trainings	10.04	10.698	.459	.280	.891
q6.30rev MSF determines whether rewarded or not	10.07	9.134	.739	.573	.826

Complexity of the Process (COMPLEX)

Cronbach's α for the four-item scale was .654. It was evident from Table 4-30 that the deletion of item q7.34 results in a marginal improvement of Cronbach α to .673 but the deletion of q7.31 has substantial positive repercussions on the reliability estimate. Furthermore, the item-total correlation for q7.34 is .28 which is almost acceptable to Field (2005) who purports, that for a scale to be reliable, all items should have a minimum correlation between every item and the total scale of .3, but with bigger samples (like N=420) a smaller correlation coefficient is acceptable. Item q7.31 had a relatively weak correlation with the total of .229 and the item was dropped from the scale for further analyses. Cronbach's α increased from .654 to an acceptable .722 (above the .7 threshold) with q7.31 deleted. The factor analysis was re-run, and the factor structure remained unchanged. The results of the factor analysis were shown to the managers from the three organizations at the qualitative feedback sessions and they were asked to explain the inconsistency in the factors analysis. All three representatives agreed that item q7.31 had a different underlying theme from the other items in the scale, which resulted in a low item-total correlation. Quoting the manager from Company C, "*It does reflect the difficulty of a paradigm shift in accepting a new system but it also seems to address a rather different issue on a different level*". Further discussions on this will follow in Chapter Five on the qualitative feedback.

Table 4-30: Complexity of the Process

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q7.31 MSF violates typical organizational hierarchy	8.10	3.759	.229	.158	.722
q7.32 MSF too cumbersome to use	8.06	2.882	.627	.446	.432
q7.33 MSF too complex	8.32	2.923	.647	.466	.423
q7.34rev MSF is user friendly	8.21	3.882	.280	.215	.673

Perceived Anonymity of Rater (ANONYM)

Cronbach's α for the three items in the scale was .6. In this case, item q8.37 was the single offender. The item-total correlation was very low, i.e., only .135 (see Table 4-31) and the deletion of the item would dramatically increase the reliability estimate to a Cronbach's α of .853. Thus, item q8.37 was omitted from scale for the measurement of this construct. Furthermore, the item did not load into any of the factors with the EFA.

Table 4-31: Perceived Anonymity of Rater

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q8.35 MSF means rater is anonymous to ratee	5.79	1.574	.560	.557	.271
q8.36 Anonymity of rater is well maintained throughout MSF	5.81	1.639	.630	.563	.179
q8.37rev With reasonable effort could find out who rate is	6.38	2.656	.135	.025	.853

Perceptions of the Rater Assignment Process (ASSGN)

By far this five-item scale had the most outstanding reliability with an estimate of .91. All items were well correlated with the total (see Table 4-32) and none of the items here improved the reliability estimate if deleted. Based on the results of the EFA earlier, and the favourable reliability estimate, the Rater Assignment Scale was accepted as it was for further analyses.

Table 4-32: Perceptions of the Rater Assignment Process

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q9.38 Raters are qualified to evaluate performance	13.36	7.319	.771	.610	.890
q9.39 Raters know what I'm supposed to be doing	13.28	7.161	.819	.689	.880
q9.40 Raters understand the requirements and constraints of my work	13.36	7.160	.806	.666	.883
q9.41 Raters are familiar with rating format and procedures	13.37	7.962	.683	.480	.908
q9.42 Raters know how to evaluate overall contribution	13.42	7.332	.782	.627	.888

Summary EFA results and Reliability Analysis for the Reaction Predictors

Table 4-33 below summarizes the results for the EFA and reliability analysis. New variables were created using the composite mean score of the respective items corresponding to the construct of interest. The following analyses, which include the correlation, t-tests, ANOVA and multiple regressions, were conducted with these new variables as measures for the constructs under contention.

Table 4-33: Final Summary of Accepted EFA Results for Reaction Predictors

	Factors				
	1(CLIMATE)	2(PURPOSE)	3(COMPLEX)	4(ANONYM)	5(ASSGN)
Items included in scale	q5.23	q6.26rev	q7.32	q8.35	q9.38
	q5.24	q6.27rev	q7.33	q8.36	q9.39
	q5.25	q6.28rev	q7.34rev		q9.40
		q6.30rev			q9.41
					q9.42
Total Items	3	4	3	2	5
Cronbach's α	.862	.891	.722	.853	.91

Notes: CLIMATE=Psychological Climate for MSF Implementation, PURPOSE= Perceived Purpose of MSF System, COMPLEX=Perceived Complexity of the MSF process, ANONYM=Perceived Anonymity of the Rater, ASSGN=Perceptions of the Rater Assignment Process.

4.4.5 Reliability Analysis for Reaction of Employees Scale (REACTION)

Cronbach's α for the four-item scale Reaction of Employees was an acceptable .712. Table 4-34 indicated that deletion of item q10.46 would result in an improved reliability estimate. However, considering the underlying theme of that item taps into the reaction of employees by way of comparing the MSF system with receiving feedback the traditional, top-down way, it was felt necessary to retain the item.

Table 4-34: Reliability Analysis for Reaction of Employees

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q10.43 MSF system is well designed	10.46	3.780	.455	.319	.658
q10.44 MSF has potential to achieve intended goals	10.24	3.504	.588	.417	.583
q10.45rev Feel MSF is a waste of time	10.37	3.170	.592	.362	.569
q10.46rev Prefer to receive feedback in the traditional way	10.38	3.602	.351	.173	.734

4.4.6 Reliability Analysis for the Acceptance Scale (ACCEPT)

The three-item scale for Acceptance of the MSF system produced a strong reliability estimate of Cronbach's α =.901. Table 4-35 below indicates that all items had good item-to-total correlation and none of the items would produce better reliability estimates if deleted.

Table 4-35: Reliability Analysis for Acceptance Scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q11.47 MSF assessments have given accurate picture of performance	6.60	1.956	.813	.664	.849
q11.48 Concur with assessments given by MSF	6.60	2.252	.781	.610	.876
q11.49 MSF assessments are acceptable evaluation of performance	6.53	2.036	.817	.669	.843

4.4.7 Reliability Analysis for the Perceptions of Usefulness Scale (POU)

The reliability estimate for the five-item scale was calculated as Cronbach's $\alpha = .794$, which is higher than the threshold of .7. However, an investigation of Table 4-36 revealed that deletion of item q12.52 would result in a significantly improved Cronbach's α of .862. A possible explanation for this was that item q12.52 was the only item that was worded negatively and had to be reversed to align the scores with the other items. This indicated a likely response bias that prevailed. A decision was taken to delete the problematic item and proceed with further analysis with a four-item scale.

Table 4-36: Reliability Analysis for the Perceptions of Usefulness Scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q12.50 MSF assessment provides useful information for development	13.41	4.909	.715	.548	.699
q12.51 MSF gives employees sense of participation in feedback system	13.19	5.324	.621	.429	.732
q12.52rev MSF does not add value to quality of feedback received before	13.71	6.380	.207	.072	.862
q12.53 MSF provide information would not otherwise have had	13.47	5.142	.660	.552	.719
q12.54 MSF give clear understanding of areas needing improvement	13.46	4.783	.702	.557	.701

Summary Reliability Analysis for Outcome Variables

Table 4-37 below summarizes the results for the reliability analysis for the three outcome variables. New variables were created using the composite mean score of the respective items corresponding to the construct of interest. The following analysis, which includes the correlation, t-tests, ANOVA and multiple regressions, were conducted with these new variables as measures for the constructs under contention.

Table 4-37: Reliability Analysis for Outcome Variables

	Outcome Variables		
	1(REACTION)	2(ACCEPT)	3(POU)
Items included in scale	q10.43	q11.47	q12.50
	q10.44	q11.48	q12.51
	q10.45	q11.49	q12.53
	q10.46		q12.54
Total Items	4	3	4
Cronbach's α	.712	.901	.862

Notes: REACTION=Initial Reaction of Employees towards the MSF System,
ACCEPT=Employee Acceptance of the MSF System, POU=Employees'
Perceptions of Usefulness of the MSF System.

4.4.8 Psychometric Properties Evaluation Summary

In summary, the psychometric properties of the variables were carefully examined. Specifically, tests included reliability assessments which ascertained the degree to which the individual items used to measure a construct were consistent in their measurements (Nunnally 1978). For all constructs, the values of Cronbach's α were above the threshold of .7, indicating a strong reliability assessment of all the constructs within the research. Next, the scrutiny of factor loading within the EFA satisfied the convergent validity tests which confirmed that the items designed to load on the same construct do, in fact, load on that construct (Carmines and Zeller 1983). With the exception of the emergence of the political construct in the climate set of predictors, for this data set the evidence suggests strong support for convergent validity. Discriminant validity was also tested during the EFA, whereby the items used in the measures were assessed as to the extent of their correlation with measures of other constructs (Field 2005). Again, with the exception of the new political construct, the data set provided good support for discriminant validity; all items were found to have significantly higher loadings with their corresponding factors in comparison to any cross-loadings.

4.5 Descriptive Statistics and Correlations

The means, standard deviations and correlation coefficients of all the variables used to test the hypotheses are summarized in Table 4-38. The Pearson correlation was

used because the variables were measured using the Likert interval scales (Field 2005; Sekaran 2003). Given that correlation between predictor (independent) variables can cause problems with multicollinearity in regression analysis (Argyrous 1996; Field 2005; Sekaran 2003), examining the significance and values of the correlation coefficients takes on added importance. Although there are many significant relationships between the predictor variables, all of the coefficients are below .8 or .9 which is considered the threshold (Field 2005).

Scholars such as Tabachnick and Fidell (2001) suggest that a bivariate correlation of .7 or higher among predictor variables may indicate multicollinearity. Either way, all of the correlations among the predictor variables in this research are below the problematic threshold point. Thus, independence among the predictors variables appears not to be in violation and multicollinearity is unlikely to be a problem. However, simply assessing the data visually as described above may miss more subtle forms of multicollinearity. More rigorous tests of multicollinearity were conducted (such as the VIF and tolerance tests) and will be discussed in more detail within the multiple regression section.

Table 4-38: Means, Standard Deviations and Correlations

	MEAN	SD	FSE	CTRL	UNDERST	SUPPORT	POLIT	CLIMATE	PURPOSE	COMPLEX	ANONYM	ASSGN	REACTION	ACCEPT	POU
Predictors-Climate															
FSE	3.3789	.71220	1												
CTRL	3.5004	.68519	.218(**)	1											
UNDERST	3.2927	.68556	.098(*)	.378(**)	1										
SUPPORT	3.3181	.73491	.248(**)	.210(**)	.415(**)	1									
POLIT	3.4400	.65531	.149(**)	.585(**)	.359(**)	.238(**)	1								
Predictors-Reaction															
CLIMATE	3.3657	.72415	.210(**)	.264(**)	.319(**)	.417(**)	.242(**)	1							
PURPOSE	2.5135	.81683	-.114(*)	-.160(**)	-.200(**)	-.297(**)	-.114(*)	-.299(**)	1						
COMPLEX	2.6999	.64464	-.301(**)	-.121(*)	-.152(**)	-.440(**)	-.075	-.315(**)	.237(**)	1					
ANONYM	3.1917	.81383	-.008	.168(**)	.165(**)	.144(**)	.112(*)	.120(*)	-.190(**)	-.081	1				
ASSGN	3.3339	.67215	.084	.216(**)	.214(**)	.282(**)	.097(*)	.348(**)	-.205(**)	-.143(**)	.246(**)	1			
Outcome Variables															
REACTION	3.4521	.59479	.295(**)	.173(**)	.275(**)	.389(**)	.200(**)	.514(**)	-.287(**)	-.484(**)	.172(**)	.333(**)	1		
ACCEPT	3.2882	.70256	.198(**)	.205(**)	.288(**)	.366(**)	.181(**)	.438(**)	-.278(**)	-.286(**)	.208(**)	.341(**)	.524(**)	1	
POU	3.4365	.63156	.107(*)	.211(**)	.315(**)	.370(**)	.220(**)	.480(**)	-.300(**)	-.284(**)	.199(**)	.388(**)	.564(**)	.625(**)	1

Notes:
a. ** Correlation is significant at the 0.01 level (1-tailed).
b. * Correlation is significant at the 0.05 level (1-tailed).
c. FSE=Feedback Seeking Environment, CTRL= Control over Organizational Processes, UNDERST= Understanding over Organizational Events, SUPPORT= Operational Support, POLIT= Political awareness within Organization. CLIMATE=Psychological Climate for MSF Implementation, PURPOSE= Perceived Purpose of MSF System, COMPLEX=Perceived Complexity of the MSF process, ANONYM=Perceived Anonymity of the Rater, ASSGN=Perceptions of the Rater Assignment Process, REACTION=Initial Reaction of Employees towards the MSF System, ACCEPT=Employee Acceptance of the MSF System, POU=Employees' Perceptions of Usefulness of the MSF System.

4.5.1   Key Features of the Correlation Matrix

A key feature of Table 4-39 is that a majority of the examined variables are significantly correlated across the sample. These correlations form a few patterns. Firstly, three predictors to climate (CTRL, SUPPORT and POLIT) are significantly correlated at the .01 level with two (FSE and UNDERST) significantly correlated at the .05 level. Secondly, the predictors to reaction were mostly significantly correlated at the .01 and .05 level with a few exceptions. Nevertheless, some of these correlations were not expected to be significant as they were correlations between predictor variables from different parts of the overall model. For example, FSE is a predictor variable for Climate and ANONYM is a predictor variable for Reaction. Thirdly, the outcome variables all had significant positive correlations, indicating the high connectivity between the variables. The only non-significant bivariate correlation highlighted was between COMPLEX and ANONYM, which provided some initial insights into what would transpire following the multiple regression analysis to come. Finally, picking up on the bivariate correlation coefficients, it is evident that there appears to be initial support for most of the study hypotheses (see Tables 4-39 and 4-40 below for the bivariate correlations between the predictors and the outcomes).

Table 4-39: Bi-Variate Correlations between Climate and the Predictors

	FSE	CTRL	UNDERST	SUPPORT	POLIT
CLIMATE	.210(**)	.264(**)	.319(**)	.417(**)	.242(**)

** Correlation is significant at the 0.01 level (1-tailed).

Table 4-40: Bi-Variate Correlation between Reaction and the Predictors

	CLIMATE	PURPOSE	COMPLEX	ANONYM	ASSGN
REACTION	.514(**)	-.287(**)	-.484(**)	.172(**)	.333(**)

** Correlation is significant at the 0.01 level (1-tailed).

In spite of reasonable support for many of the study hypotheses, it is acknowledged that correlation results provide limited forecasting capacity as the significant

correlations could be influenced by sample size and can also lead to identification of spurious linkages. The Pearson correlation merely summarizes the degree to which two variables tend to vary in the same direction, the opposite direction, or independently of each other. A more rigorous technique, which follows, is the multiple regression analysis that allows for examination of multiple independent variables as the potential predictors to the outcome of interest (Argyrous 1996; Field 2005; Sekaran 2003). The multiple regression results interpreted alongside the correlation results provide answers to the research hypotheses and questions.

4.6   Mean Comparisons: T-tests and ANOVA

Planned comparisons are known a priori to have problems controlling for Type I errors (Argyrous 1996; Field 2005; Pallant 2005). These comparisons are conducted where there are specific hypotheses to be tested based on past research or theory, usually making comparisons between subsets within a sample. The Type I error entails accepting a difference as a significant result when in fact it could have occurred by chance. Pallant (2005) suggests that where there are a large number of differences to be explored and post-hoc comparisons are recommended as they tend to be more conservative and, hence, protect against Type I errors.

Post-hoc comparisons, a follow-up to ANOVA, are very suitable where the level of comparisons to be made are in the exploratory stage, and a more stringent criteria for significance is set making it more difficult to attain significance (Pallant 2005). They guard against the possibility of an increased Type I error. Firstly, the F-ratio is calculated to indicate any significant differences between the groups in comparison. Following a significant F-ratio, a post-hoc test was conducted to identify which specific groups have contributed to the significant difference. It should be mentioned that the level of caution to guard against the risk of the Type I error can be increased, but at the expense of power. The power of a test implies the correct identifying of a difference between groups. On the other hand, Type II error entails believing the groups do not differ when in fact they do. Unfortunately, as Type I errors are controlled for, the likelihood of Type II errors are increased.

Two of the most commonly used post-hoc tests are Tukey's Honestly Significant Different test (HSD) and the Scheffe test. The Scheffe test was not chosen due to its notoriety in an unacceptably high level of Type II errors (Brown & Forsythe 1974). In other words, compared to the Tukey counterpart, the Scheffe test is more cautious but has a lower power. Another alternative test is the Dunnett method, which was not chosen, as there was no 'base-group' to benchmark the comparisons. Thus Tukey's HSD test was selected as it provides for the best possible, most conservative, pair-wise comparison and could be used when sample sizes were unequal or equal.

There are many methods for multiple comparisons. Mean comparisons and t-tests are useful to identify any significant differences that may exist between groups within the sample towards the Outcome variables of interest. These tests were conducted on the basis of post-hoc tests, as there were no pre-planned comparisons generated as part of the research hypotheses.

In calculating the difference between the groups using ANOVA, an additional step was taken to calculate the effect size or the strength of association (if any) indicating the magnitude of difference between the means (Tabachnick & Fidell 2001). Based on Cohen (1988), the eta squared which represents the proportion of variance of the outcome variable explained by the independent predictors, is interpreted based on the value so that, eta=. 01 represents a small effect, eta=. 06 represents a moderate effect, and eta= .14 represents a large effect. The formula for calculating the effect size was: *Eta Squared = Sum of Squares between-groups/Total Sum of Squares.*

4.6.1 The Gender Comparisons

The t-test was conducted to compare feedback received from the males and females in the organizations. The gender comparisons were conducted individually for each organization to pick up any inherent organizational disparity and also tested the aggregate for all three organizations. The test results for the gender comparisons from the aggregate sample of three organizations revealed that there were no significant differences in terms of the Outcome variables when genders were compared (see Table 4-41). Levene's test for equality of variances was not

significant (p>.05) suggesting that the homogeneity of variance assumption was tenable, and that the t-test was appropriate for the data. The t-test results had non-significant results for all three of the outcome variables, REACTION, ACCEPT and POU. From Table 4-42, the mean scores for the outcome variables are roughly equal between genders.

Table 4-41: Mean Scores – Gender Comparison

	Gender	Mean	Std. Deviation	Std. Error Mean
REACTION	Male	3.4366	.61848	.04362
	Female	3.4699	.58135	.05099
ACCEPT	Male	3.2935	.71846	.05068
	Female	3.2617	.66492	.05877
POU	Male	3.4241	.63208	.04458
	Female	3.4160	.64270	.05637

Table 4-42: Independent Samples Test (Gender Differences)

		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	Sig.
REACTION	Equal variances assumed	1.370	.243	-.490	.625
	Equal variances not assumed			-.496	.620
ACCEPT	Equal variances assumed	1.343	.247	.403	.687
	Equal variances not assumed			.410	.682
POU	Equal variances assumed	.014	.906	.113	.910
	Equal variances not assumed			.113	.910

The t-tests for the gender comparisons for each company suggested no significant difference between the genders for the Outcome variables.

4.6.2　Company Comparisons

A one-way, between-groups analysis of variance (ANOVA) with post-hoc tests was conducted to explore the differences between companies on levels of REACTION, ACCEPT and POU. The sample was divided according to the companies, and the ANOVA was run with the Tukey's HSD post-hoc test. Table 4-43 presents the mean and standard deviation values for the three companies for the three Outcome variables.

Table 4-43: Mean and Standard Deviation (SD) for Companies

Outcome Variable	Company	Mean	SD
REACTION	A	3.4601	.65614
	B	3.4235	.54571
	C	3.5097	.63016
	Total	3.4521	.59479
ACCEPT	A	3.4592	.66742
	B	3.1833	.69428
	C	3.3247	.72744
	Total	3.2882	.70256
POU	A	3.4415	.56491
	B	3.3764	.66104
	C	3.5725	.62351
	Total	3.4365	.63156

The next two tables (Tables 4-44 and 4-45) present the results for the ANOVA and the Tukey's post hoc tests respectively. There was a statistically significant difference at the p<.05 level in ACCEPT scores for the three companies, [F (2,348) =5.006, p=.007]. As well as reaching statistical significance, the actual difference in mean scores between groups was quite small. The effect size calculated using eta squared was .03. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Company A (M= 3.46, SD=0.67) was significantly different from Company B (M= 3.18, SD=0.69). Company C (M= 3.32, SD= 0.73) did not differ significantly from either Company A or B.

Table 4-44: ANOVA for Companies

		Sum of Squares	df	Mean Square	F	Sig.
REACTION	Between Groups	.410	2	.205	.579	.561
	Within Groups	124.119	350	.355		
	Total	124.530	352			
ACCEPT	Between Groups	4.831	2	2.416	5.006	.007
	Within Groups	167.927	348	.483		
	Total	172.758	350			
POU	Between Groups	2.085	2	1.042	2.638	.073
	Within Groups	138.318	350	.395		
	Total	140.403	352			

Table 4-45: Post-hoc Comparisons for Companies
Tukey HSD

Dependent Variable	Company	(J) company	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
REACTION	A	B	.03657	.07564	.879	-.1415	.2146
		C	-.04963	.09153	.850	-.2651	.1658
	B	A	-.03657	.07564	.879	-.2146	.1415
		C	-.08621	.08096	.537	-.2768	.1043
	C	A	.04963	.09153	.850	-.1658	.2651
		B	.08621	.08096	.537	-.1043	.2768
ACCEPT	A	B	.27589(*)	.08840	.006	.0678	.4840
		C	.13454	.10677	.419	-.1168	.3859
	B	A	-.27589(*)	.08840	.006	-.4840	-.0678
		C	-.14134	.09459	.295	-.3640	.0813
	C	A	-.13454	.10677	.419	-.3859	.1168
		B	.14134	.09459	.295	-.0813	.3640
POU	A	B	.06512	.07985	.694	-.1228	.2531
		C	-.13102	.09663	.365	-.3585	.0964
	B	A	-.06512	.07985	.694	-.2531	.1228
		C	-.19614	.08546	.058	-.3973	.0050
	C	A	.13102	.09663	.365	-.0964	.3585
		B	.19614	.08546	.058	-.0050	.3973

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

4.6.3　Age Comparisons

A one-way, between-groups ANOVA (see Table 4-46) was conducted to explore the impact of age on levels of REACTION, ACCEPT and POU. The sample was divided into Group 1: Ages 20-29, Group 2: Ages 30-39, Group 3: Ages 40-49 and Group 4 Ages 50+. The ANOVA results revealed that there were no significant difference between the age groups for all three outcome variables of REACTION, ACCEPT and POU. Hence, there was no need to proceed with the post-hoc analysis.

Table 4-46: ANOVA for Age Ranges

		Sum of Squares	df	Mean Square	F	Sig.
REACTION	Between Groups	1.648	3	.549	1.515	.210
	Within Groups	117.476	324	.363		
	Total	119.125	327			
ACCEPT	Between Groups	3.112	3	1.037	2.155	.093
	Within Groups	154.988	322	.481		
	Total	158.100	325			
POU	Between Groups	1.338	3	.446	1.104	.348
	Within Groups	130.870	324	.404		
	Total	132.207	327			

4.6.4　Management Level

A one-way, between-groups analysis of variance (ANOVA) was conducted to explore the impact of management-level on levels of REACTION, ACCEPT and POU. Subjects were divided into three groups according to the position level. The groups represented three broad levels of management in each of the companies; i.e., lower ('executives' & 'senior executives'), middle ('managers') and upper ('senior managers' and 'general managers') management. Table 4-47 below presents the mean and standard deviations for the three groups in management.

Table 4-47: Mean and Standard Deviation (SD) for Management Levels

Outcome Variable	Company	Mean	SD
REACTION	Upper Management	3.4625	.70835
	Middle Management	3.4595	.54432
	Lower Management	3.4113	.61981
	Total	3.4310	.61286
ACCEPT	Upper Management	3.5167	.69163
	Middle Management	3.2973	.75159
	Lower Management	3.2140	.70457
	Total	3.2786	.72025
POU	Upper Management	3.4813	.69657
	Middle Management	3.4054	.64863
	Lower Management	3.3972	.62351
	Total	3.4111	.63156

Following the ANOVA, there was no statistically significant difference at the $p<.05$ level in any of the REACTION, ACCEPT and POU scores for the three management levels (See Table 4-48). Nevertheless, attention should be drawn to the significance value for the ANOVA in ACCEPT which was F=2.929, p=.055. This value was significant at the 10% level which suggests further investigation. The effect size was calculated for the difference using eta squared and it was .02 which is considered a small effect (Cohen 1988). Post-hoc comparisons using the Tukey HSD test indicated that the mean score for ACCEPT for Lower Management (M=3.21, SD= .705) was significantly different from Upper Management (M=3.52, SD= .692). Middle Management (M=3.30, SD= .752) did not differ significantly from either Lower Management or Upper Management. See Tables 4-48 and 4-49 below for the statistical details for the ANOVA and post-hoc test.

Table 4-48: ANOVA for Management Levels

		Sum of Squares	df	Mean Square	F	Sig.
REACTION	Between Groups	.166	2	.083	.220	.803
	Within Groups	106.505	282	.378		
	Total	106.671	284			
ACCEPT	Between Groups	2.998	2	1.499	2.929	.055
	Within Groups	143.292	280	.512		
	Total	146.290	282			
POU	Between Groups	.232	2	.116	.278	.758
	Within Groups	117.877	282	.418		
	Total	118.109	284			

Table 4-49: Post-hoc Comparisons for Management Levels

Dependent Variable	Company	(J) company	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
REACTION	Upper Management	Middle Management	.00304	.12061	1.000	-.2811	.2872
		Lower Management	.05119	.10794	.883	-.2031	.3055
	Middle Management	Upper Management	-.00304	.12061	1.000	-.2872	.2811
		Lower Management	.04815	.08551	.840	-.1533	.2496
	Lower Management	Upper Management	-.05119	.10794	.883	-.3055	.2031
		Middle Management	-.04815	.08551	.840	-.2496	.1533
ACCEPT	Upper Management	Middle Management	.21937	.14039	.264	-.1114	.5502
		Lower Management	.30266(*)	.12579	.044	.0063	.5990
	Middle Management	Upper Management	-.21937	.14039	.264	-.5502	.1114
		Lower Management	.08329	.09972	.681	-.1517	.3183
	Lower Management	Upper Management	-.30266(*)	.12579	.044	-.5990	-.0063
		Middle Management	-.08329	.09972	.681	-.3183	.1517
POU	Upper Management	Middle Management	.07584	.12688	.821	-.2231	.3748

	Lower Management	.08408	.11355	.740	-.1835	.3516
Middle Management	Upper Management	-.07584	.12688	.821	-.3748	.2231
	Lower Management	.00823	.08996	.995	-.2037	.2202
Lower Management	Upper Management	-.08408	.11355	.740	-.3516	.1835
	Middle Management	-.00823	.08996	.995	-.2202	.2037

Tukey HSD

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

4.6.5   Tenure at the Organization Comparisons

A one-way, between-groups analysis of variance (ANOVA) was conducted to explore the impact of tenure at the organization on levels of REACTION, ACCEPT and POU (see Table 4-50). The sample was divided into six groups according to their length of experience; Group 1: Less than one year, Group 2: 1 to less than 3 years, Group 3: 3 to less than 5 years, Group 4: 5 to less than 10 years, Group 5: 10 to less than 15 years, and Group 6: 15 years and above. The ANOVA results revealed that there was no significant difference between the tenure ranges for all three outcome variables, REACTION, ACCEPT and POU. Hence, there was no need to proceed with the post-hoc analysis.

Table 4-50: ANOVA for Tenure at the Organization

		Sum of Squares	df	Mean Square	F	Sig.
REACTION	Between Groups	1.879	5	.376	1.037	.396
	Within Groups	118.503	327	.362		
	Total	120.382	332			
ACCEPT	Between Groups	1.145	5	.229	.471	.798
	Within Groups	158.193	325	.487		
	Total	159.339	330			
POU	Between Groups	1.845	5	.369	.918	.470
	Within Groups	131.487	327	.402		
	Total	133.332	332			

4.6.6 Summary on Mean Comparisons

In summary, the mean comparisons were conducted to identify the presence and size effect of any significant difference between the variables of gender, company, age, management level and tenure at the organization. The salience of such comparisons lies in the need to control for any of these differences in the multiple regression analysis which follows. To illustrate, should any variable be significant (i.e., have a significantly different mean following the ANOVA or t-test), the phenomenon would be addressed using hierarchical multiple regression. The demographic variables of interest would be put in the first block of analysis, followed by the other variables in the next block. Statistically, this procedure has the effect of controlling for demographic variables.

However, the mean comparison tests suggested that the potential statistical tests were not warranted. Most mean comparisons were non-significant, and despite the company and management levels achieving significance, the eta squared indicates a low level effect (Cohen 1988); hence, the differences were negligible for the current research.

4.7 Multiple Regression

4.7.1 Choice of Method in Multiple Regression

Multiple regression analysis is a statistical technique that provides an index of the degree of relationship between the predictor(s) and outcomes. In other words, the regression equation produced will summarize the relationship between the predictor and outcome variables. In essence, multiple regression has been described as facilitating two different yet complementary approaches to data analysis, a predictive approach and an explanatory approach. Cooksey (2007) distinguishes the two approaches by way of the objectives underlying the purpose of the multiple regression analysis.

The objective of the predictive approach centres on identifying the best predictors for an outcome. As such, the simultaneous regression analysis (all predictors entered at

once) would be used. The stepwise method, another variation of entry methods, relies on a pure mathematical criterion to decide on the order in which the predictors are entered into the equation. On the other hand, the explanatory approach to using multiple regression analysis focuses on understanding predictor importance and, generally, this is accomplished by using the hierarchical regression (also known as block-wise regression) method so that the sequential contribution of the predictors added on to the regression model could be examined one at a time.

Past research on MSF has used both entry methods, as well as hierarchical methods, to understand the relationships under contention. Field (2005) suggests that the general rule of thumb is to enter known predictors from past research based on extant literature or suspected to be of importance hierarchically, and only then enter the remaining predictors within the model simultaneously or in a stepwise manner. However, Cooksey (2007) warns of the potential limitation from which the hierarchical method suffers which stems from the fact that the outcomes are entirely dependent upon the order of the predictor entry. Hence, the order of the predictor entry must be justified based on theoretical propositions, clear logic or time-based ordering to make that decision.

The hypotheses developed for the current study reflect general propositions theoretically predicted from past empirical research, extant literature and expert advice. However, as noted at the beginning of Chapter Three, the study does not examine all of the potential predictors to Climate and predictors to employee Reaction to MSF. Based on the logic of past research in the area (Bartle 2001; Ilgen et al. 1979; Sacket & Larson 1991; Scott & Bruce 1994), items which generally encapsulate largely unbounded constructs, particularly in the light of perceptual constructs such as Climate, Reaction, Acceptance and Perceptions of Usefulness, are identified in the literature to tap into the domain of the construct. Hence, it would be reasonable to argue and highlight the fact that the set of Climate and Reaction predictors are representative, not exhaustive.

Bearing in mind the reality that some of the constructs in the model had contradictory indications from literature as to the direction of the relationship with the outcome constructs (for instance Anonymity and Purpose) and there is limited

empirical research on most of the constructs within the model, a decision was made to conduct the regression analysis mainly in the exploratory mode using backward regression. With the backward regression method, the respective predictors for the model were entered into the equations simultaneously and then the non-significant predictors removed one step at a time. With the stepwise method (Field 2005), the backward regression was chosen over the forward method to reduce the risk of experiencing 'suppressor' effects (leading to a Type II error) which entails that a predictor displays significant effects in the model while another variable is held constant (Field 2005). The Type II error here indicates omitting a predictor that in fact does predict an outcome. Such a procedure follows Maurer, Mitchell, and Barbeite's (2002) approach to studying attitudes towards an MSF system.

4.7.2 Treatment of Missing Values in Regression Analysis

The procedure followed when dealing with missing data was to exclude the cases list-wise which meant that cases with missing values for any variable were excluded from the respective regression analysis. The other options were to exclude cases pair-wise or to use a mean score to replace missing values. The pair-wise option was avoided since it may possibly create problematic calculations of R^2, as it will only exclude the missing values for calculation of a particular variable but not for the other variables in the regression model. On the other hand, the mean value replacement option was also avoided since it tends to suppress the true value of the standard deviation and, hence, standard error. The danger here would be that the analysis may lead to significant results as a result of the mean value replacement rather than due to a genuine effect (Tabachnick & Fidell 2001).

4.8   Order of Model Testing

The following Figure 4-4 illustrates the sequence of testing conducted with multiple and simple regressions, to test the various sections of the model. There were a total of five partial models that were tested.

Figure 4-4: Hypothetical Model presented with Color-Coded Partial Models
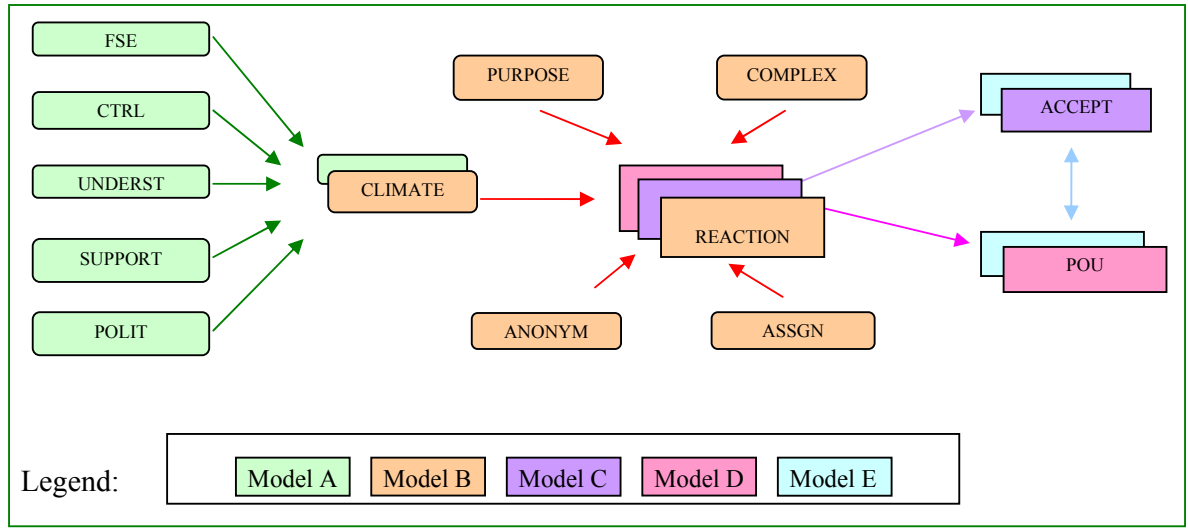
4.9   Testing Partial Model A: The CLIMATE Model

To begin with testing partial Model A, i.e., the CLIMATE model, the predictors FSE, CTRL, UNDERST, SUPPORT and POLIT were regressed against CLIMATE using the backward regression method.

> Hypothesized regression model:
>
> $CLIMATE_i = \beta + \beta_1 FSE_i + \beta_2 CTRL_i + \beta_3 UNDERST_i + \beta_4 SUPPORT_i + \beta_5 POLIT_i$

The following sub-sections will detail the results of the regression analysis incorporating information on the assumptions underlying the analysis, descriptives, model summary and model parameters.

4.9.1   Outliers, Normality, Linearity, Homoscedasticity, Residuals

Residuals are instrumental in detecting violations of model assumptions and useful in identifying outliers in data (Hair et al. 1998). Initially, the case-wise diagnostics Table 4-51 was examined for extreme cases; i.e., for cases with residuals less than -2 or greater than 2. As can be seen in the table, there are 15 cases which fell outside the range. With the sample of 420, less than 3% of cases had this residual value. In

addition 99% of cases should lie within ±2.5; hence only 1% of cases are expected to lie outside these limits. Clearly, only Case 320 lies outside the limits and, hence, the sample appears to conform to what is likely of a reasonably accurate model.

Table 4-51: Case-wise Diagnostics

Case Number	Std. Residual	CLIMATE	Predicted Value	Residual
19	-2.093	2.00	3.0435	-1.04348
39	-2.216	2.33	3.4384	-1.10504
73	-2.437	2.00	3.2152	-1.21521
79	2.078	5.00	3.9642	1.03580
107	-2.066	2.00	3.0299	-1.02994
112	-2.459	2.00	3.2258	-1.22584
122	-2.201	2.67	3.7642	-1.09758
146	2.037	4.33	3.3180	1.01534
149	2.102	4.00	2.9523	1.04774
152	2.146	4.00	2.9303	1.06969
177	-2.023	3.33	4.3422	-1.00883
182	-2.428	2.00	3.2105	-1.21052
192	-2.233	2.00	3.1131	-1.11308
320	2.622	4.00	2.6929	1.30712
334	-2.435	2.00	3.2138	-1.21375

a Dependent Variable: CLIMATE

To investigate the case-wise diagnostics further (Tables 4-52, 4-53), because none of the influence statistics for the fifteen cases with high residual values had a Cook's distance greater than one, including Case 320, none of them exerted any strong bias on the model. All cases had leverage values within the boundary of three times the average (which was 0.36) suggesting that none of the cases had a strong influence on the regression coefficients. From the guidelines of Barnett and Lewis (1978), for a sample of 420 with five predictors, Mahalanobis distances of greater than 20 should be a cause for concern. To check for this influence, summaries with Mahalanobis distances for all cases were eyeballed and all cases fell well below this threshold. The DFBeta statistics indicated that a few cases had a potentially stronger influence on the regression parameters as the values fell outside the range between ±1. Yet, the Cook's distance statistic, whereby all cases had values below the threshold level of 1 indicating the effect of any single case on the overall model, suggests that there is no cause for alarm with any of the cases. As with the covariance ratio, all cases have

values very close to 1 indicating there is hardly any cause for alarm. In a nutshell, for this set of diagnostics, there appears to be an absence of any undue influence by any case on the CLIMATE model.

Table 4-52: Case-wise Diagnostics-Influence Statistics

	Case Number	Standardized DFBETA Intercept	Standardized DFBETA FSE	Standardized DFBETA UNDERST	Standardized DFBETA SUPPORT	Standardized DFBETA POLIT	COVRATIO
1	19	-.20302	.30542	.02646	.00252	-.05221	.97559
2	39	-.12475	.21112	-.07080	-.08134	.10181	.95912
3	73	-.19051	.12065	.05419	-.10472	.16608	.94246
4	79	-.16916	.02676	.07525	.02370	.12506	.96511
5	107	-.23142	.18028	.11122	-.10117	.11024	.97159
6	112	-.02232	-.05407	-.08163	.16480	-.01524	.93699
7	122	.09390	-.03122	.05427	-.09523	-.08464	.95322
8	146	.08729	.02352	-.00565	.04616	-.15607	.96478
9	149	.17714	-.08715	-.15145	.01889	-.00495	.96305
10	152	.05173	.09072	-.26633	-.07925	.20914	.97507
11	177	.27941	-.12979	-.15069	-.05780	-.07263	.97972
12	182	-.11903	.12295	.14831	-.06060	-.06659	.94041
13	192	-.17574	-.00233	-.05203	.00657	.26243	.95985
14	320	.28909	-.13481	-.18965	-.08091	.02363	.93402
15	334	-.12483	-.03650	.03638	-.03105	.16957	.94011

Table 4-53: Case-wise Diagnostics

	Case Number	Mahalanobis Distance	Cook's Distance	Centered Leverage Value
1	19	7.80922	.02259	02175
2	39	4.30580	.01495	.01199
3	73	3.30361	.01458	.00920
4	79	3.39348	.01082	.00945
5	107	5.65240	.01641	.01574
6	112	1.62330	.00896	.00452
7	122	1.58451	.00707	.00441
8	146	2.34584	.00787	.00653
9	149	3.13349	.01040	.00873
10	152	8.83205	.02665	.02460
11	177	7.82508	.02115	.02180
12	182	2.19939	.01069	.00613
13	192	4.99131	.01720	.01390
14	320	5.09296	.02413	.01419
15	334	2.25094	.01092	.00627

Checking the Assumptions

The Durbin-Watson statistic of 2.040 indicates that the assumption of independent errors is acceptable. The Standardized Residual against the standardized predicted values plot indicates that the homoscedasticity and linearity assumptions have been met. The normality assumption is tenable based on the histogram and normal probability plots (See Figure 4-5). There were no significant deviations from normality. Generally since the assumptions have been met, the CLIMATE model appears to be accurate for the sample and generalizable to the population. The residual plots were examined as well to determine whether the assumptions of random errors and homoscedasticity had been met (See Figure 4-6).

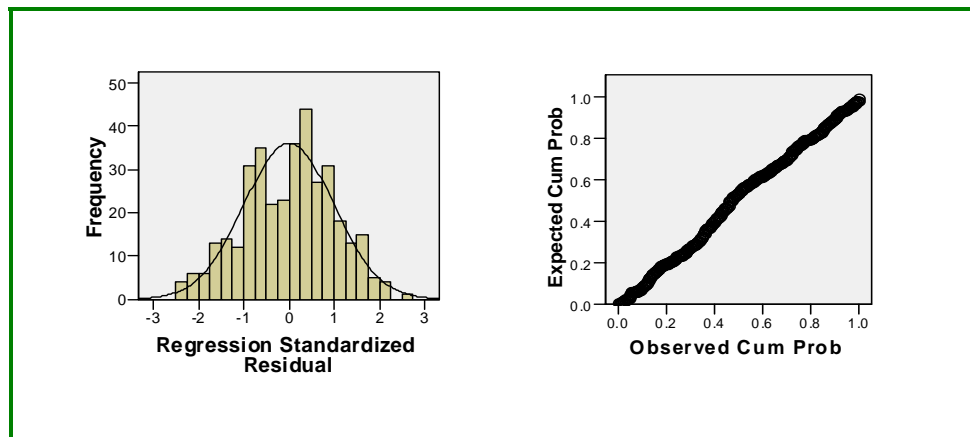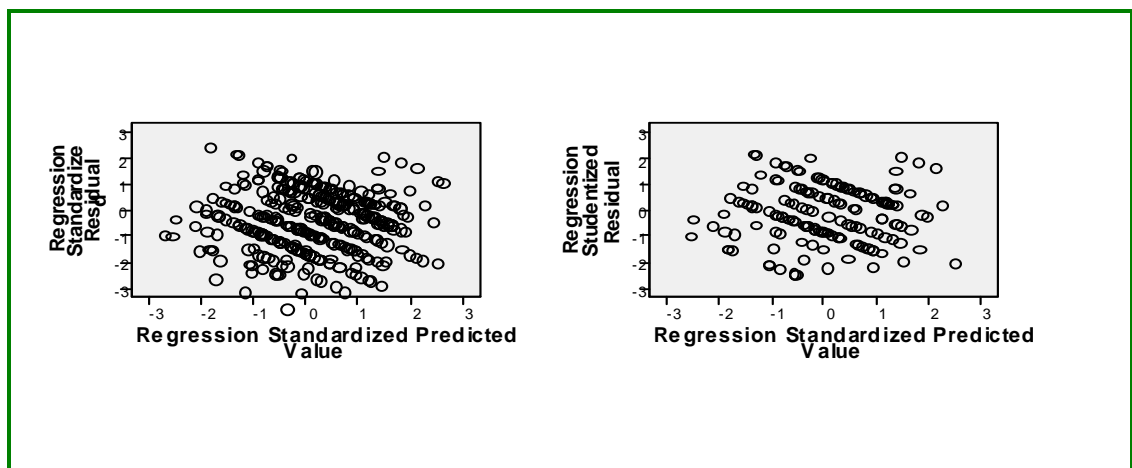**Figure 4-5: Histogram and Normal Probability Plots for CLIMATE Model**

Figure 4-6: Residual Plots for CLIMATE Model

4.9.2   Descriptives

Table 4-54 details the Pearson's correlation coefficients between every pair of variables (predictors and outcome). The matrix was considered useful to get a rough idea of the relationships between predictors and outcome, and for a preliminary look at multicollinearity.

Table 4-54: Correlation Matrix CLIMATE Model

	CLIMATE	FSE	CTRL	UNDERST	SUPPORT	POLIT
CLIMATE	1	.231(**)	.270(**)	.431(**)	.534(**)	.292(**)
FSE	.231(**)	1	.210(**)	.109(*)	.252(**)	.118(*)
CTRL	.270(**)	.210(**)	1	.388(**)	.228(**)	.596(**)
UNDERST	.431(**)	.109(*)	.388(**)	1	.443(**)	.370(**)
SUPPORT	.534(**)	.252(**)	.228(**)	.443(**)	1	.249(**)
POLIT	.292(**)	.118(*)	.596(**)	.370(**)	.249(**)	1

** Correlation is significant at the .01 level (2-tailed).
* Correlation is significant at the .05 level (2-tailed).

Given that correlations between predictor variables can cause problems with multicollinearity in regression analysis, examining the correlation coefficients and their significance takes on added importance. Examination of the predictors' correlation in the matrix indicates that the highest correlation is between CTRL and POLIT, which is significant at the 1% level (R= .596, p<. 01). Despite the significance of the correlation, the coefficient is moderate (R<. 9) and so it appears that the coefficients are measuring different constructs. If predictors correlate substantially with each other, R>.9, there may be evidence of multicollinearity.

Although most correlations between the predictors were significant, all correlation coefficients were below the level considered to be serious, which is generally regarded as .80 or higher (Licht, 1995). Other scholars (for example Tabachnick and Fidell, 2001) suggest that a bivariate correlation of .70 or higher among predictor variables may indicate multicollinearity. Either way, the correlations among predictor variables are below the problematic threshold point. Thus, independence among the predictor variables appears not to be violated and multicollinearity is unlikely a problem.

To ensure subtler forms of multicollinearity are not missed, the collinearity diagnostics of VIF and tolerance values (TOL) were assessed. Menard (1995) suggests that TOL values of below .20 are worthy of concern. All TOL values were well above this threshold. In terms of VIF values, the values are well below 10 which is the guideline recommended by Myers (1990). Given the appropriate TOL and VIF values found in the analysis, multicollinearity does not appear to be a problem.

Also, it can be seen that all predictors correlate well with the outcome of CLIMATE, and SUPPORT correlates best with CLIMATE (R=. 533, p<. 001). Hence, it is likely that this variable will best predict CLIMATE.

4.9.3   Model Summary

Table 4-55 below presents the CLIMATE model summary following the backward regression. Model 2 is the final model encompassing the best set of predictor variables representing the model. The interpretation of the results follows.

Table 4-55: Model Summary CLIMATE Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.592(a)	.351	.342	.49915	.351	38.269	5	354	.000	
2	.592(b)	.351	.343	.49856	.000	.164	1	354	.686	2.040

a Predictors: (Constant), POLIT, FSE, SUPPORT, UNDERST, CTRL
b Predictors: (Constant), POLIT, FSE, SUPPORT, UNDERST
c Dependent Variable: CLIMATE

All predictors remained within the final model (Model 2) except for CTRL, which was excluded. The proportion of variance explained by the final model (R^2=.35) indicated that the four predictors, POLIT, FSE, SUPPORT and UNDERST accounted for 35% of variance in explaining CLIMATE. There was no significant F change when the predictor CTRL was removed from the regression model. In fact, the change statistic indicated that there was no R^2 change with that variable omitted from the analysis. Hence, the predictor CTRL did not account for any significant additional explanatory power to the prediction of CLIMATE after simultaneously

accounting for the effects of the other predictor variables. The Durbin-Watson statistic of 2.04 (close to 2) suggests that the assumption of independent errors is tenable.

Table 4-56: ANOVA for CLIMATE Model

Model		Sum of Squares	Mean Square	F	Sig.
1	Regression	47.674	9.535	38.269	.000(a)
	Residual	88.200	.249		
	Total	135.874			
2	Regression	47.633	11.908	47.908	.000(b)
	Residual	88.240	.249		
	Total	135.874			

a Predictors: (Constant), POLIT, FSE, SUPPORT, UNDERST, CTRL
b Predictors: (Constant), POLIT, FSE, SUPPORT, UNDERST
c Dependent Variable: CLIMATE

The analysis of variance (ANOVA) above, Table 4-56, indicated Model 2 is a significant fit to the data overall with F=47.9, p<. 01. The F ratio represents the ratio of improvement in predicting the results from fitting the model, relative to the inaccuracy that still exists in the model (Field 2005, p.190). Omission of the variable CTRL changed the F value from 38.27 to 47.91, which suggests that the initial model with all five variables significantly improved the ability to predict CLIMATE from using the mean as the 'best-guess', but the new model (without CTRL) had a better result.

4.9.4   Model Parameters

Table 4-57 details the parameters for the CLIMATE models from the regression analysis. To assess the unique, individual contribution of the CLIMATE predictor variables, the standardized beta coefficient of that variable is compared to the standardized beta coefficients of the other predictors in the model. Table 4-57 incorporates results on the beta coefficients (parameters) from the regression.

Table 4-57: Model Parameters CLIMATE (Coefficients)

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	1.057	.202		5.233	.000	.659	1.454		
	FSE	.084	.040	.093*	2.075	.039	.004	.163	.904	1.106
	CTRL	.020	.050	.023	.405	.686	-.078	.118	.586	1.707
	UNDERST	.183	.047	.201**	3.914	.000	.091	.276	.695	1.438
	SUPPORT	.334	.042	.393**	8.007	.000	.252	.416	.761	1.314
	POLIT	.089	.051	.095	1.749	.081	-.011	.189	.618	1.619
2	(Constant)	1.068	.200		5.344	.000	.675	1.461		
	FSE	.087	.040	.097*	2.192	.029	.009	.165	.936	1.068
	UNDERST	.188	.046	.206**	4.120	.000	.098	.277	.734	1.363
	SUPPORT	.333	.042	.392**	8.007	.000	.252	.415	.762	1.312
	POLIT	.100	.043	.107*	2.301	.022	.014	.185	.849	1.178

Dependent Variable: CLIMATE
** Correlation is significant at the .01 level.
* Correlation is significant at the .05 level.

The following is the analysis of the results for the model parameters for the CLIMATE model. The variables of FSE (where t=2.19, p< .05), UNDERST (where t=4.12, p< .001), SUPPORT (where t=8.00, p< .001), and POLIT (where t=2.30, p< .05), were all significant predictors of CLIMATE. From the magnitude of the t-statistics, the variable SUPPORT had the strongest impact on CLIMATE, followed by UNDERST, and then POLIT and FSE which had similar impact.

The two best predictors, SUPPORT and UNDERST had moderately narrow confidence intervals for Beta (see Table 4-57 for lower and upper bound values), indicating that the estimates for the CLIMATE model are likely to be moderately representative values of the true population. Wider intervals indicate that that they are less representative of the true population.

The standardized Beta values in the order of magnitude of impact on CLIMATE were the following SUPPORT (β= .392), UNDERST (β= .206), POLIT (β= .107) and FSE (β= .097). The order reflects the information given earlier on the t-statistic. The β values for the variables reflect the number of standard deviations CLIMATE would change as a result of one standard deviation change in the predictor variable.

For example, should SUPPORT change by one standard deviation, it can be estimated that CLIMATE will change by .206. However, recognizing the assumptions of the regression analysis, this interpretation will hold only if the effects of UNDERST, POLIT, and FSE are held constant.

Table 4-58: Excluded CTRL Variable

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
2	CTRL	.023(a)	.405	.686	.022	.586	1.707	.586

a Predictors in the Model: (Constant), POLIT, FSE, SUPPORT, UNDERST
b Dependent Variable: CLIMATE

The variable CTRL had a t-statistic of .405 p>.5 in the Model 1 for the backward regression when all five variables were included. Hence, CTRL was excluded as a predictor from Model 2 following the backward regression. In fact, it can be seen from the statistics in Model 1, with all five variables included, both CTRL and POLIT have non-significant beta coefficient values assigned to them. This may well be due to a degree of collinearity between CTRL and POLIT. Another possibility may be that other predictors already have accounted for a lot of information in explaining CLIMATE resulting in non-significant values for the variables CTRL and POLIT. However, with omission of the variable CTRL, POLIT emerges as significant in contributing to the CLIMATE model. A more detailed discussion on this finding will follow in Chapter Five.

> Model after Regression Analysis:
> $CLIMATE_i = 1.068 + .097 \, FSE_i + .206 \, UNDERST_i + .392 \, SUPPORT_i + .107 \, POLIT_i$

4.10 Testing Partial Model B: The REACTION Model

To begin with testing partial Model B, i.e., the REACTION model, the predictors CLIMATE, PURPOSE, COMPLEX, ANONYM and ASSIGN were regressed against REACTION using the backward regression method.

The following sub-sections will detail the results of the regression analysis incorporating information on the assumptions underlying the analysis, descriptives, model summary and model parameters.

4.10.1 Outliers, Normality, Linearity, Homoscedasticity, Residuals

Similar to the analysis for Model A, the case-wise diagnostics was examined for extreme cases, i.e., for cases with residuals less than -2 or greater than 2, and 21 cases fell outside the range. With the sample of 420, approximately 5 % of cases had this residual value. In addition 99% of cases should lie within ±2.5; hence only 1% of cases are expected to lie outside these limits. In this model, five cases fell outside the limits, which is slightly more (one case more) than 1% of the total sample of 420. Hence, it would be rational to assume that the sample appears to conform with what is a reasonably accurate model. Refer to Appendix E2 & E3 for the case-wise diagnostics for Model B.

To investigate the case wise diagnostics further (see Appendices E2 & E3), the influence statistics for the 21 cases with high residual values were scrutinized. Because none of them had a Cook's distance greater than one, none exerted any strong bias on the model. All cases had leverage values within the boundary of three times the average (which was 0.36) suggesting that none of the cases had a strong influence on the regression coefficients. The average leverage was calculated as (k+1/n) =6/420; where k is the number of predictors and n is the number of cases. From the guidelines of Barnett and Lewis (1978), for a sample of 420 and with five predictors, Mahalanobis distances of greater than 20 would be a cause for concern. To check for this influence, summaries with Mahalanobis distances for all cases were eyeballed and only in Case 214 with a distance of 21.9 was a distance >20. Nevertheless, the Cook's distance for the case was below 1, so the case was

dismissed as not having a significant influence over the entire model. The DFBeta statistics indicated that, potentially, a few cases had a stronger influence on the regression parameters as the values fell outside the range between ±1. Yet, the Cook's distance statistic suggests that there is no cause for alarm with any of these cases; all cases had values below the threshold level of 1, which indicates the effect of any single case on the overall model. As with the covariance ratio, all cases have values very close to 1, indicating there is little cause for alarm. In a nutshell, for this set of diagnostics, there appears to be an absence of any undue influence of any case on the REACTION model.

Checking the Assumptions

The Durbin-Watson statistic of 1.89 suggests that the assumption of independent errors was acceptable. The Standardized Residual against the standardized predicted values plot indicates that the homoscedasticity and linearity assumptions have been met. The normality assumption is tenable based on the histogram and normal probability plots (see Figure 4-7). There were no significant deviations from normality. Generally, since the assumptions have been met, the REACTION model is accepted as accurate for the sample and generalizable to the population. The residual plots were examined as well to determine whether the assumptions of random errors and homoscedasticity had been met (see Figure 4-8).

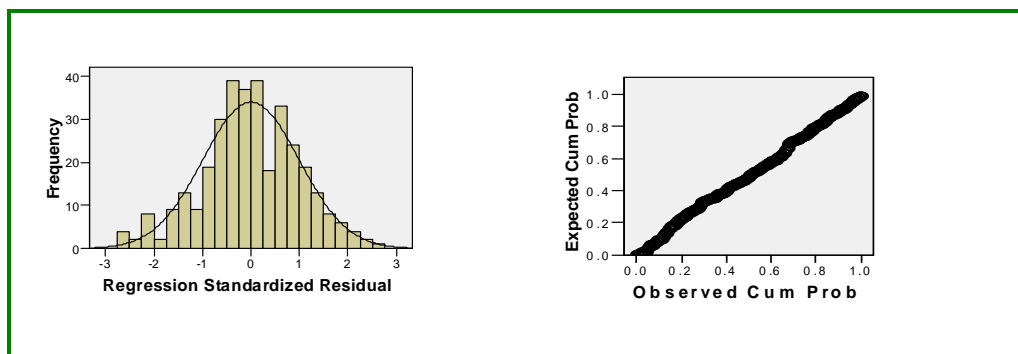**Figure 4-7: Histogram and Normal Probability Plots for REACTION model**

Figure 4-8: Residual Plots for REACTION Model
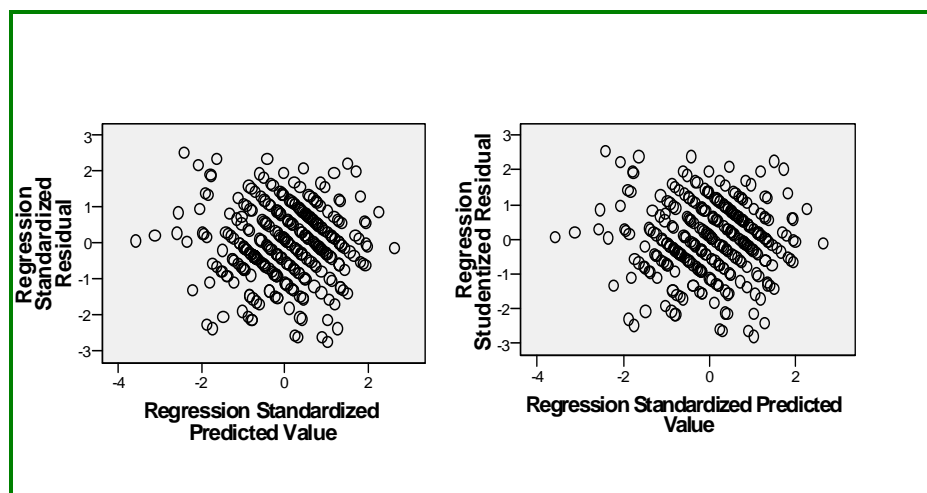
4.10.2 Descriptives

Table 4.59 details Pearson's correlation coefficients between every pair of variables (predictors and outcome). The matrix was considered useful to get a rough idea of the relationships between predictors and outcome, and for a preliminary look at multicollinearity.

Table 4-59: Correlation Matrix REACTION Model

	REACTION	CLIMATE	PURPOSE	COMPLEX	ANONYM	ASSGN
REACTION	1	.583(**)	-.314(**)	-.547(**)	.182(**)	.331(**)
CLIMATE	.583(**)	1	-.302(**)	-.326(**)	.128(*)	.341(**)
PURPOSE	-.314(**)	-.302(**)	1	.231(**)	-.190(**)	-.200(**)
COMPLEX	-.547(**)	-.326(**)	.231(**)	1	-.087	-.157(**)
ANONYM	.182(**)	.128(*)	-.190(**)	-.087	1	.247(**)
ASSGN	.331(**)	.341(**)	-.200(**)	-.157(**)	.247(**)	1

** Correlation is significant at the .01 level (2-tailed).
* Correlation is significant at the .05 level (2-tailed).

Given that correlations between predictor variables can cause problems with multicollinearity in regression analysis, examining the correlation coefficients and their significance takes on added importance. Examination of the correlation matrix indicates that the highest correlation is between CLIMATE and ASSGN, which is

significant at the 1% level (R= .341, p<. 01). Despite the significance of the correlation, the coefficient is relatively low below the threshold of R<. 9 and so it appears that the coefficients are measuring different constructs. If predictors correlate substantially with each other R>.9, there may be evidence of multicollinearity.

Although most of the correlations between the predictors were significant, all correlation coefficients were below the level considered to be serious, which is generally regarded as .80 or higher (Licht, 1995). Other scholars (for example Tabachnick and Fidell, 2001) suggest that a bivariate correlation of .70 or higher among predictor variables may indicate multicollinearity. Either way, the correlations among predictor variables are below the problematic threshold point. Thus, independence among the predictor variables appears not to be violated and multicollinearity is unlikely to be a problem.

To ensure subtler forms of multicollinearity are not missed, the collinearity diagnostics of VIF and tolerance values (TOL) were assessed. Menard (1995) suggests that values TOL values of below .20 are worthy of concern. All TOL values were well above this threshold. In terms of VIF values, the values are well below 10 which is the guideline recommended by Myers (1990). Given the TOL and VIF values found in the analysis, multicollinearity does not appear to be a problem.

It can also be seen that all of the predictors correlate well with the outcome of REACTION, with CLIMATE and COMPLEX correlating best with REACTION (R=. 583, p< .01; R= -.547, p<. 01). Hence, it is likely that these variables will best predict REACTION.

4.10.3 Model Summary

Table 4-60, below, presents the REACTION model summary following the backward regression. Model 2 is the final model encompassing the best set of predictor variables representing the model. The interpretation of the results follows.

Table 4-60: Model Summary REACTION Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.712(a)	.508	.500	.41215	.508	68.629	5	333	.000	
2	.710(b)	.504	.499	.41279	-.003	2.049	1	333	.153	1.890

a Predictors: (Constant), ASSGN, COMPLEX, ANONYM, PURPOSE, CLIMATE
b Predictors: (Constant), ASSGN, COMPLEX, PURPOSE, CLIMATE
c Dependent Variable: REACTION

All predictors remained within the final model (Model 2) except for ANONYM, which was excluded. The proportion of variance explained by the final model (R^2=.50), indicated that the four predictors, ASSGN, COMPLEX, PURPOSE and CLIMATE accounted for 50% of variance in explaining REACTION. There was no significant F change when the predictor ANONYM was removed from the regression model. In fact, the changed statistic indicated that there was only a very small R^2 change with that variable omitted from the analysis. Hence, it can be inferred that the predictor ANONYM did not account for any significant additional explanatory power to the prediction of REACTION after simultaneously accounting for the effects of the other predictor variables. The Durbin-Watson statistic of 1.89 (close to 2) suggests that the assumption of independent errors is reasonable.

Table 4-61: ANOVA for REACTION Model

Model		Sum of Squares	Mean Square	F	Sig.
1	Regression	58.288	11.658	68.629	.000(a)
	Residual	56.565	.170		
	Total	114.852			
2	Regression	57.940	14.485	85.007	.000(b)
	Residual	56.913	.170		
	Total	114.852			

a Predictors: (Constant), ASSGN, COMPLEX, ANONYM, PURPOSE, CLIMATE
b Predictors: (Constant), ASSGN, COMPLEX, PURPOSE, CLIMATE
c Dependent Variable: REACTION

The analysis of variance (ANOVA) Table 4-61, above, indicated the model is a significant fit to the data overall with F= 85.0, p< .01. The F ratio represents the ratio of improvement in predicting the results from fitting the model, relative to the inaccuracy that still exists in the model (Field 2005, p.190). Omission of the variable

ANONYM changed the F value from 68.63 to 85.0, which suggests that the initial model with all five variables significantly improved the ability to predict CLIMATE from using the mean as the 'best-guess', but the new model (without the variable ANONYM) had a better result compared to the model with five variables.

4.10.4 Model Parameters

Table 4-62 details the model parameters for the REACTION model from the regression analysis. To assess the unique, individual contribution of the REACTION predictor variables, the standardized beta coefficient of that variable is compared to the standardized beta coefficients of the other predictors in the model.

Table 4-62: Model Parameters REACTION (Coefficients)

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	95% Confidence Interval for B Lower Bound	95% Confidence Interval for B Upper Bound	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	2.936	.233		12.582	.000	2.477	3.395		
	CLIMATE	.332	.037	.395**	9.070	.000	.260	.404	.780	1.282
	PURPOSE	-.058	.029	-.081	-1.962	.051	-.116	.000	.867	1.153
	COMPLEX	-.339	.038	-.371**	-8.956	.000	-.413	-.264	.860	1.163
	ANONYM	.042	.029	.057	1.432	.153	-.016	.099	.918	1.090
	ASSGN	.094	.037	.108*	2.566	.011	.022	.166	.839	1.192
2	(Constant)	3.043	.221		13.739	.000	2.607	3.478		
	CLIMATE	.333	.037	.396**	9.088	.000	.261	.405	.780	1.282
	PURPOSE	-.063	.029	-.089*	-2.159	.032	-.121	-.006	.881	1.135
	COMPLEX	-.339	.038	-.372**	-8.948	.000	-.413	-.264	.860	1.163
	ASSGN	.105	.036	.120*	2.922	.004	.034	.176	.877	1.140

Dependent Variable: REACTION
** Correlation is significant at the .01 level.
* Correlation is significant at the .05 level.

The following is the analysis of the results for the model parameters for the REACTION model. The variables of CLIMATE (where t = 9.08, p< .01), PURPOSE (where t = -2.159, p< .05), COMPLEX (where t = -8.948, p< .01), and POLIT (where t=2.922, p< .01), were all significant predictors of CLIMATE. From the magnitude of the t-statistics, the variable CLIMATE had the strongest impact on

REACTION, followed by COMPLEX, and then ASSGN and subsequently PURPOSE. The variable ANONYM did not have significant statistic.

The two best predictors, CLIMATE and COMPLEX had moderately narrow confidence intervals for Beta (see Table 4-62 for lower and upper bound values), indicating that the estimates for the REACTION model are likely to be moderately representative of the true population values. Wider intervals indicate that that they are less representative of the true population.

The standardized Beta values in the order of magnitude of impact on REACTION were the following CLIMATE (β= .396), COMPLEX (β= -.372), ASSGN (β= .120) and PURPOSE (β= -.089). This order reflects the information given earlier on the t-statistic. The β values for the variables reflect the number of standard deviations REACTION would change as a result of one standard deviation change in the predictor variable. For example, should CLIMATE change by one standard deviation, it can be estimated that REACTION will change by .396. However, recognizing the assumptions of the regression analysis, this interpretation will hold only if the effects of COMPLEX, ASSGN and PURPOSE are held constant.

Table 4-63: Excluded ANONYM Variable

| | | | | | | Collinearity Statistics | | |
	Model	Beta In	t	Sig.	Partial Correlation	Tolerance	VIF	Minimum Tolerance
2	ANONYM	.057(a)	1.432	.153	.078	.918	1.090	.780

a Predictors in the Model: (Constant), ASSGN, COMPLEX, PURPOSE, CLIMATE
b Dependent Variable: REACTION

The variable ANONYM had a t-statistic of 1.432, p >.5 in the Model 1 for the backward regression when all five variables included. Hence, CTRL was excluded as a predictor from Model 2 following the backward regression. In fact, it can be seen from the statistics in Model 1, with all five variables included, both ANONYM and PURPOSE have non-significant beta coefficient values assigned to them; possibly due to a degree of collinearity between ANONYM and PURPOSE. Another possibility may be that other predictors have already accounted for a lot of information in explaining REACTION resulting in non-significant values for the

variables ANONYM and PURPOSE. However, with omission of variable ANONYM, PURPOSE emerged as significant in contributing to the REACTION model. A more detailed discussion on this finding will follow in Chapter Five.

Model after Regression Analysis:

$$\text{REACTION}_i = 3.043 + \mathbf{.396} \text{ CLIMATE}_i + \mathbf{-.089} \text{ PURPOSE}_i + \mathbf{-.372} \text{ COMPLEX}_i + \mathbf{.120} \text{ ASSIGN}_i$$

4.11 Testing Partial Model C: The REACTION-ACCEPT Model

To test partial Model C, i.e., the REACTION-ACCEPT model, a simple regression analysis was conducted using REACTION as the predictor and ACCEPT as the outcome variable.

Hypothesized regression model:
$$\text{ACCEPT}_i = \beta + \beta_1 \text{ REACTION}$$

The following sub-sections will detail the results of the regression analysis incorporating information on the assumptions underlying the analysis, descriptives, model summary and model parameters.

4.11.1 Outliers, Normality, Linearity, Homoscedasticity, Residuals

Overall, the sample appears to conform to what is expected of a reasonably accurate model (see Appendices 4 & 5). Examination of the case wise diagnostics revealed that the percentage of cases with residuals greater than ±2 fall within the expected range for the sample of 420. Examination of the influence statistics including the Cook's distances, Mahalanobis distances, Leverage Values and DFBeta Statistics, suggest that there are no cases that exert any undue influence over the parameters of the model. Hence, there was no need to exclude any cases from the analysis.

Checking the Assumptions

The Durbin-Watson statistic of 1.86 indicates that the assumption of independent errors is tenable. The Standardized Residual against the standardized predicted values plot indicates that the homoscedasticity and linearity assumptions have been met. The normality assumption is tenable based on the histogram and normal probability plots. There were no significant deviations from normality. Generally since the assumptions have been met, the REACTION-ACCEPT model appears to be accurate for the sample and generalizable to the population.

4.11.2 Model Summary

Table 4-64, below, presents the REACTION-ACCEPT model summary following the simple regression. The interpretation of the results follows.

Table 4-64: Model Summary REACTION-ACCEPT Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.548(a)	.300	.298	.55474	.300	147.568	1	344	.000	1.860

a Predictors: (Constant), REACTION
b Dependent Variable: ACCEPT

The proportion of variance explained by the model (R^2=.30), indicated that REACTION can account for 30% of the variation in ACCEPT. The Durbin-Watson statistic of 1.860 (close to 2) suggests that the assumption of independent errors is acceptable as mentioned earlier.

Table 4-65: ANOVA for REACTION-ACCEPT Model

Model		Sum of Squares	Mean Square	F	Sig.
1	Regression	45.412	45.412	147.568	.000(a)
	Residual	105.861	.308		
	Total	151.274			

a Predictors: (Constant), REACTION
b Dependent Variable: ACCEPT

The analysis of variance (ANOVA) Table 4-65, above, indicated the model is a significant fit to the data overall with F=147.568, p<. 001. In other words, there is a 0.1% chance that an F-ratio this large would happen by chance alone. Therefore, it can be concluded that the REACTION-ACCEPT model results in a significantly better prediction of ACCEPT than using the mean value of ACCEPT as a 'best-guess'.

4.11.3 Model Parameters

Table 4-66 details the model parameters for the REACTION-ACCEPT model from the regression analysis.

Table 4-66: Model Parameters REACTION-ACCEPT (Coefficients)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1 (Constant)	1.214	.176		6.912	.000	.869	1.560		
REACTION	.609	.050	.548**	12.148	.000	.510	.707	1.000	1.000

a Dependent Variable: ACCEPT
** Correlation is significant at the .01 level.
* Correlation is significant at the .05 level.

The following is the analysis of the results for the model parameters for the REACTION-ACCEPT model. The variable REACTION (where t = 12.148, p< .01) is a significant predictor to ACCEPT. The standardized Beta value (β = .548, p<.01) suggests that should REACTION change by one standard deviation, it can be estimated that ACCEPT will change by .548.

> Model after Regression Analysis:
> ACCEPT $_i$ = **1.214** + **.548** REACTION

4.12 Testing Partial Model D: The REACTION- POU Model

To test partial Model D, i.e., the REACTION-POU model, a simple regression analysis was conducted using REACTION as the predictor and POU as the outcome variable.

Hypothesized regression model:

$$POU_i = \beta + \beta_1 REACTION$$

The following sub-sections detail the results of the regression analysis incorporating information on the assumptions underlying the analysis, descriptives, model summary and model parameters.

4.12.1 Outliers, Normality, Linearity, Homoscedasticity, Residuals

Overall, the sample appears to conform to what is likely of a reasonably accurate model. Examination of the case-wise diagnostics revealed that the percentage of cases with residuals greater than ± 2 fall within the expected range for the sample of 420 (see Appendices 6 & 7). Examination of the influence statistics including the Cook's distances, Mahalanobis distances, Leverage Values, and DFBeta Statistics, suggest that there are no cases that exert any undue influence over the parameters of the model. Hence, there was no need to exclude any cases from the analysis.

Checking the Assumptions
The Durbin-Watson statistic of 1.89 indicates that the assumption of independent errors is tenable. The Standardized Residual against the standardized predicted values plot indicates that the homoscedasticity and linearity assumptions have been met. The normality assumption is tenable based on the histogram and normal probability plots. There were no significant deviations from normality. Generally since the assumptions have been met, the REACTION-POU model appears to be accurate for the sample and generalizable to the population.

4.12.2 Model Summary

Table 4-67 presents the REACTION-POU model summary following the simple regression.

Table 4-67: Model Summary REACTION-POU Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.609(a)	.371	.369	.46032	.371	202.360	1	343	.000	1.887

a Predictors: (Constant), REACTION
b Dependent Variable: POU

The proportion of variance explained by the model (R^2=.37), indicated that REACTION can account for 37% of the variation in POU. The Durbin-Watson statistic of 1.887 (close to 2) suggests that the assumption of independent errors is acceptable.

Table 4-68: ANOVA for REACTION-POU Model

Model		Sum of Squares	Mean Square	F	Sig.
	Regression	42.878	42.878	202.360	.000(a)
1	Residual	72.679	.212		
	Total	115.557			

a Predictors: (Constant), REACTION
b Dependent Variable: POU

The analysis of variance (ANOVA) Table 4-68, above, indicated the model is a significant fit to the data overall with F=147.568, p<. 001. In other words, there is a 0.1% chance that an F-ratio this large would happen by chance alone. Therefore, it can be concluded that the REACTION-POU model results is significantly better for predicting POU than using the mean value of POU as a 'best-guess'.

4.12.3 Model Parameters

Table 4-69 details the model parameters for the REACTION-POU model from the regression analysis.

Table 4-69: Model Parameters REACTION-POU (Coefficients)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	1.413	.146		9.680	.000	1.126	1.700		
	REACTION	.592	.042	.609	14.225	.000	.510	.674	1.000	1.000

a Dependent Variable: POU
** Correlation is significant at the .01 level.
* Correlation is significant at the .05 level.

The following is the analysis of the results for the model parameters for the REACTION-POU model. The variable REACTION (where t = 14.225, p< .01) is a significant predictor to POU. The standardized Beta value (β = .609, p<.01) suggests that should REACTION change by one standard deviation, it can be estimated that POU will change by .609.

Model after Regression Analysis:

$POU_i = \mathbf{1.413} + \mathbf{.609}\ REACTION$

4.13 Testing Partial Model E: The ACCEPTANCE-POU Model

Testing Partial Model E, the ACCEPTANCE-POU Model, involved a different statistical analysis compared to the testing of the models earlier. The analysis of this section of the model was two-fold. Firstly, the Bi-variate correlation results for the respective variables (as conducted earlier in the descriptives section) ACCEPT and POU were revisited. This was done to highlight the nature of the relationship between the two variables. Next, an Exploratory Factor Analysis was conducted to examine the level of distinction between the constructs.

4.13.1 Correlation Analysis

Table 4-70 details the results of the bi-variate correlation between the variables ACCEPT and POU.

Table 4-70: Correlation Matrix Model E

		ACCEPT	POU
ACCEPT	Pearson Correlation	1	.625(**)
	Sig. (2-tailed)		.000
	N	351	351
POU	Pearson Correlation	.625(**)	1
	Sig. (2-tailed)	.000	
	N	351	353

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

The two variables are significantly correlated at the 1% level, R = .625, p <.01. This suggests that there is a strong relationship between the outcome variables ACCEPT and POU. The following analysis tests for the uniqueness or distinctions between the two variables ACCEPT and POU addressing one of the research objectives.

4.13.2 Exploratory Factor Analysis (EFA)

The purpose of the EFA was to investigate the number of factors underlying items used to measure the Constructs ACCEPT and POU, with the factor rotation results suggesting an answer. However, the EFA was approached in the usual structured manner to analyse aspects of results before drawing the conclusion.

With the KMO statistic of sampling adequacy, Kaiser (1974) recommends a bare minimum of .5 and contends that values between .8 and .9 are great. For these data (see Table 4-71), the KMO value was .871, which is considered great. As well as checking the overall KMO statistic, the diagonal elements of the anti-image correlation matrix indicated that all levels were above the minimum of .5. Bartlett's measure provided a significant value less than .5 indicating that there were some relationships within the data, and that the R-matrix is not an identity matrix. Hence, technically, factor analysis is appropriate for these data (Field 2005).

Table 4-71: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.871
Bartlett's Test of Sphericity	Approx. Chi-Square	1408.878
	df	21
	Sig.	.000

Factor Extraction

Next, in the factor extraction process, the magnitude was determined of the eigenvalues in the R-matrix. The eigenvalue for each factor corresponds to the variance explained by that particular component. It was found that two factors produced eigenvalues greater than one. Table 4-72 presents the findings from the factor extraction. The total variance explained by the two factors was approximately 75.9%.

Table 4-72: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings(a)
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	4.300	61.424	61.424	4.300	61.424	61.424	3.759
2	1.014	14.489	75.913	1.014	14.489	75.913	3.560
3	.503	7.182	83.094				
4	.385	5.505	88.599				
5	.321	4.593	93.192				
6	.274	3.918	97.110				
7	.202	2.890	100.000				

Extraction Method: Principal Component Analysis

Finally, as a guide to factor selection, a Scree plot of eigenvalues was used to identify the point of inflexion on the curve. Cattell (1966) argued that the cut-off point in the number of factors to retain should be at this point of inflexion. This criterion was found to be reliable for samples of more than 200 (Stevens 1992). The Scree plot (see Figure 4-9) indicated that for eigenvalues of more than one, there is a noticeable kink after the second factor, after which the plot almost levels off.

Figure 4-9: Scree Plot
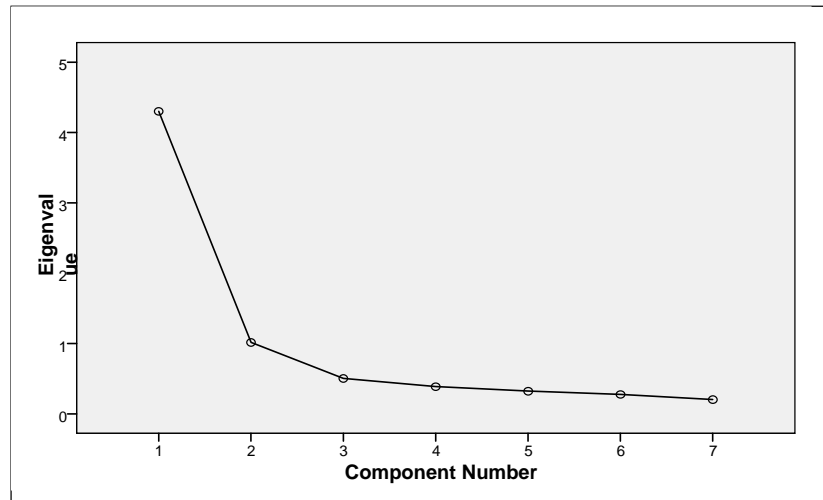
Factor Rotation

The approach taken was to run the EFA was using the Oblique Rotation method with Kaiser Normalization; the structure matrix was interpreted along with the pattern matrix as a double-checking procedure as recommended by Graham et al. (2003). For the pattern matrix two factors were expected and two factors emerged (Table 4-73).

Table 4-73: Pattern Matrix

Items	Component	
	1	**2**
MSF assessments have given accurate picture of performance		-.888
Concur with assessments given by MSF		-.936
MSF assessments are acceptable evaluation of performance		-.904
MSF assessment provides useful information for development	.825	
MSF gives employees sense of participation in feedback system	.774	
MSF provide information would not otherwise have had	.884	
MSF give clear understanding of areas needing improvement	.859	

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
a Rotation converged in 5 iterations.

Unlike the pattern matrix which indicated the unique contribution of an item to a factor, the structure matrix highlighted the shared variance between factors. As a result, many cross-loadings of factors could be seen on the matrix, indicating inherent relationships between the factors under contention.

Table 4-74: Structure Matrix

Items	Component	
	1	**2**
MSF assessments have given accurate picture of performance	.587	-.915
Concur with assessments given by MSF	.524	-.906
MSF assessments are acceptable evaluation of performance	.575	-.918
MSF assessment provides useful information for development	.851	-.547
MSF gives employees sense of participation in feedback system	.787	-.495
MSF provide information would not otherwise have had	.859	-.501
MSF give clear understanding of areas needing improvement	.853	-.516

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

The correlation matrix between factors confirmed that there is some degree of interrelationship between the factors. Nevertheless, the results of the EFA suggests that, in fact, there are two distinct factors in the set of items, confirming the initial hypothesis that the two distinct constructs ACCEPT and POU are to a certain degree related. Further discussion on the hypotheses testing results follows in Chapter Five.

Table 4-75: Correlation Matrix

Component	1	2
1	1.000	-.612
2	-.612	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

4.13.3 Summary on Correlation and EFA for Model E

In short, the correlation analysis results suggested a strong linear correlation between the variables ACCEPT and POU. This indicates a significant relationship between the two Outcome constructs. At the same time, the EFA results indicate that, despite the strong relationship evidenced above, the constructs ACCEPT and POU remain distinct.

4.14 Final Research Model

Following the statistical analyses conducted, Figure 4-10 presents the final research model encompassing constructs that were found to be statistically significant. The discussion of these quantitative findings follows in the next chapter.

Figure 4-10: Final Research Model
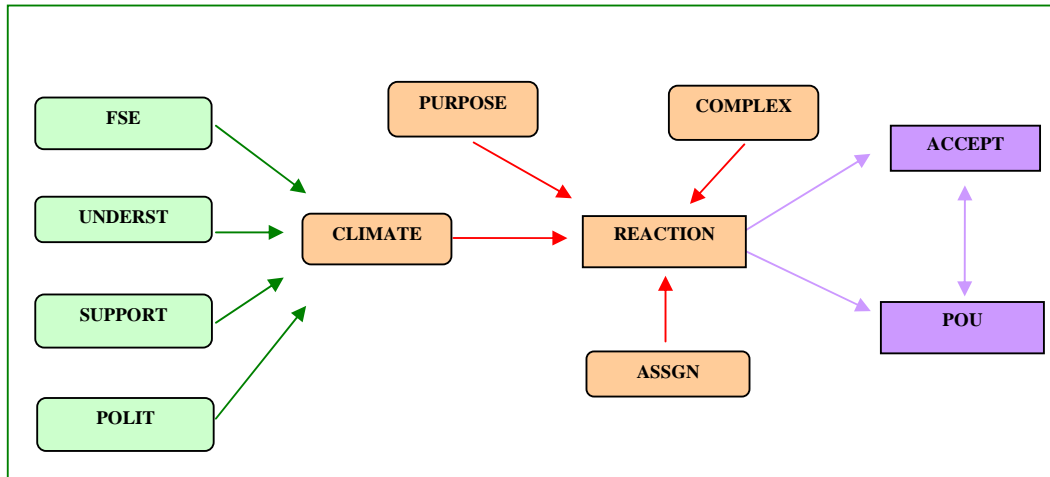
4.15 Chapter Summary

In Chapter Four, the results of various statistical analyses were presented. The preliminary data assessment presented the demographic profile of respondents to illustrate the sample characteristics for the current research. Issues related to missing data, non-response bias and testing the assumptions of parametric analysis were addressed. The results of the psychometric assessments (EFA and reliability analysis) suggested that all the examined variables had acceptable construct validities and internal consistencies (reliabilities) which provided confidence in further analyses; namely, Correlations, ANOVA and multiple regressions. Correlations were examined and strong relationships identified. An independent t-test and ANOVA established that there were only minor effects by demographic characteristics on the outcome variables. Finally, the five partial models were tested using simple and multiple regressions (Models A-D); and Correlation and EFA (Model E) to test the hypotheses derived from the research questions under study. The following chapter

will present a discussion of the analyses by first presenting the test results related to hypotheses and first-hand interpretations of the results along with experiential evidence obtained from the qualitative phase of the research methodology derived from the open-ended questions and discussions with the key representatives from the three organizations.

5 DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

*Large-scale change occurs when a lot of people change just a little.*

Unknown

5.1 Chapter Introduction

The findings and results from the previous chapter are brought together in this chapter, and they are linked to provide an overall summary. With respect to the discussion, Chapter Five serves as a platform for dual purposes: firstly, to present a detailed discussion of the quantitative results of the study alongside some first-hand experimental evidence to elucidate patterns observed from the statistical analysis; and second, to present the results of content analysis of the feedback from the open-ended question eliciting respondents experiential comments and suggestions in relation to the MSF system implementation.

As such, Chapter Five is divided into twelve main sections as shown in Figure 5-1. The chapter introduction is presented followed by an overview of the study. Next, the main research questions and discussion of results in relation to hypotheses are presented. After re-visiting the study's research questions the ancillary research questions are discussed in relation to the qualitative results analysis. A summary of the overall findings is presented together with the proposed final MSF design and recommended implementation model to maximize employee reaction to MSF. The next section covers the limitations and strengths for the current research with comments on the implications on theory and practise. Some suggestions for future research are outlined followed by a conclusion and chapter summary.

Figure 5-1: Chapter Five Outline
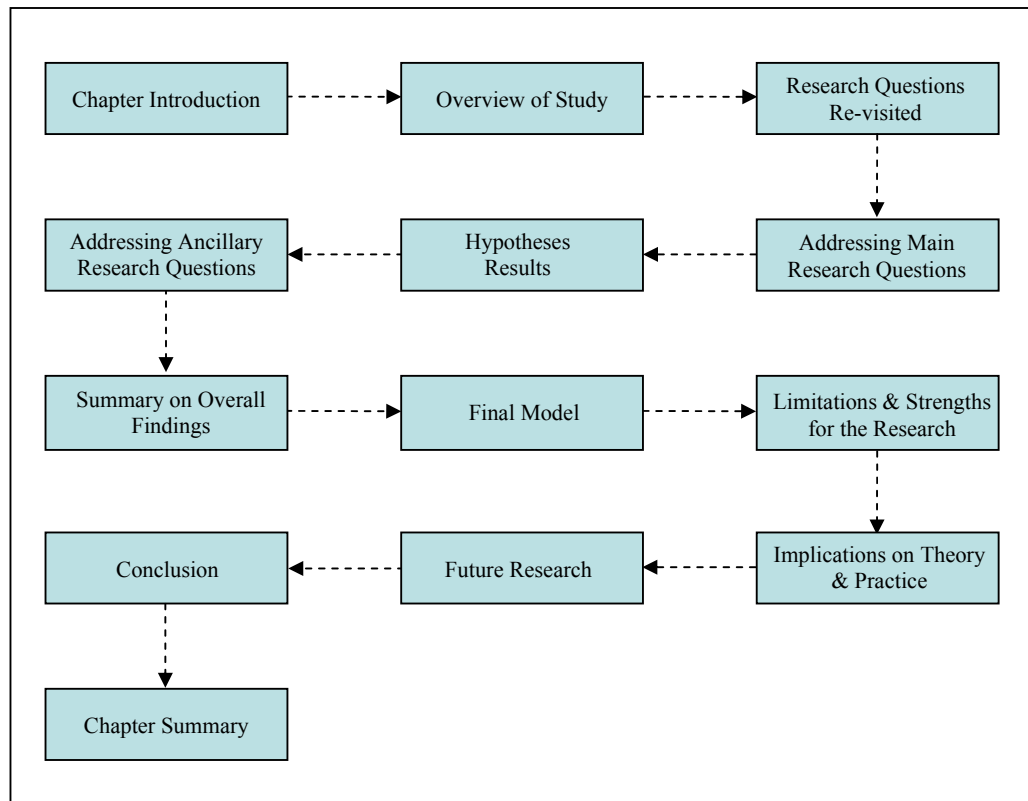
5.2 *Overview of Study*

The multisource feedback literature identified in Chapter Two highlighted a number of studies that independently examined the impact of various MSF design and implementation issues on employee reaction conceptualized in different ways. However, little serious attempt has been made to this time to integrate variables representing the critical issues and inherent paradoxes surrounding the implementation of MSF in organizations. Broadly, the MSF literature has been mute on the effects implementation paradoxes have had on employee reaction towards MSF systems. Consequently, the fundamental purpose of the current research was to develop an integrated conceptual model that explored some of the constructs identified as critical in influencing employee reaction towards the feedback system. Ultimately, the overriding objective of the current research was to contribute to a better understanding of the most effective way to implement MSF systems to maximize employees' reaction, acceptance and perceptions of usefulness. In an effort

to close this knowledge gap, a number of predictor variables representing the perceptual constructs within the context of an organization implementing MSF were selected from theory underpinning the logic of MSF systems. These variables were interlinked across five partial models, to a total of four outcome constructs, namely psychological climate to MSF implementation (CLIMATE), employee reaction to MSF (REACTION), employee acceptance of MSF system (ACCEPTANCE) and perceptions of usefulness (POU). These partial models were presented in the form of a hypothetical model, (see Figure 2-5 in Chapter Two) which led to the generation and empirical testing of fifteen hypotheses.

The current study highlights cases of MSF in Malaysia, with three large Malaysian multinational organizations participating in the research. The research subjects comprised 420 managerial level employees at various hierarchical levels ranging from executives to general managers at the three organizations. Further, there was a key informant from each organization and a total of three HR managers identified and recruited to provide post-survey feedback and information to assist with the elucidation of quantitative findings.

The study was conducted in six phases. In the first phase, a literature map was drawn highlighting the gaps in empirical research. In the second stage, a hypothetical model of employees' reaction to MSF was developed from past empirical research and literature on MSF. The third phase involved drafting a survey questionnaire on the basis of available literature and input from academics and practitioners alike. The fourth stage entailed pilot testing the survey instrument using both the 'paper and pencil' and web-based methods. Hence, the survey items were refined based on the feedback from the pilot test results.

Once the required modifications were made to the draft version of the questionnaire, the amended questionnaire was administered using a web-based survey to the respective employees of the three organizations. The surveys were administered with the assistance of the key informants of the participant organizations in the fifth stage of the study. A total of 420 useable surveys were received and these provided data for empirical testing of the hypothetical model of employees' reaction to MSF developed in the study. A comprehensive investigation that evaluated perceptual and

demographic data was conducted with empirical data analysed using various statistical techniques supported by SPSS software. Content analysis was utilized to analyse feedback received in the single open-ended question incorporated within the survey.

On separate occasions in the final stage of the study, empirical results were presented to HR managers of each participant organization. After being briefed on the patterns that emerged from the statistical analyses and content analyses of the qualitative feedback, they provided first hand understanding of the results that were obtained, by providing experiential evidence. The two-tier pluralist technique of collecting and examining data was a salient feature of the current study. Indeed, such a holistic approach to investigating the determinants of employee reaction to MSF allowed for better integration of theory and practise. The study is believed to have made a modest, but unique contribution to knowledge, advancing the body of knowledge towards a better understanding of MSF design and implementation issues.

5.3 Research Questions Re-visited

Main Research Questions

1. Are the constructs of feedback seeking environment (FSE), control over organizational processes (CTRL), understanding of organizational events (UNDERST) and operational support (SUPPORT) individually associated with the psychological climate for MSF implementation (CLIMATE)? *(Relationship Model).*

    To what extent do constructs of feedback seeking environment (FSE), control over organizational processes (CTRL), understanding of organizational events (UNDERST) and operational support (SUPPORT) collectively predict the psychological climate for MSF implementation (CLIMATE)? *(Predictive Model).*

2. Are the constructs of psychological climate (CLIMATE), perceived MSF purpose (PURPOSE), complexity (COMPLEX), perceived rater anonymity (ANONYM) and assignment of raters (ASSGN) individually associated with employee reaction to MSF (REACTION)? *(Relationship Model).*

    To what extent do constructs of psychological climate (CLIMATE), perceived MSF purpose (PURPOSE), complexity (COMPLEX), perceived rater anonymity (ANONYM) and assignment of raters

(ASSGN) collectively predict employee reaction to MSF (REACTION)? (*Predictive Model*).

3. To what extent does employee reaction towards MSF (REACTION) predict employee acceptance (ACCEPTANCE) and perceptions of usefulness (POU)?

4. Are the constructs of acceptance (ACCEPT) and perceptions of usefulness (POU) distinct constructs as far as employee reactions to MSF systems are concerned?

<u>Ancillary Research Questions</u>

1. What issues are perceived as pertinent to the overall success of MSF implementation?

2. Are employee perceptions of the MSF system aligned or de-coupled with what was originally intended by management?

3. To what extent is management aware of the employees' acceptance of the MSF system and perceptions of its usefulness?

5.4 Research Questions and Results of Hypotheses Tests

The quantitative empirical results are discussed next. The specific propositions put forward in the hypothetical model were tested employing correlation analysis and multiple regressions analyses. Of the fifteen hypotheses developed, support for fourteen hypotheses was obtained. The ANOVA and t-tests were employed to verify the impact of demographic variables on the outcome constructs.

Discussion on the quantitative findings is presented, supplemented with experiential evidence where relevant and available obtained from post-hoc discussions with the HR representatives from the participating organizations. The discussion is ordered according to the research questions and respective hypotheses addressing those questions. Reference also is made to the relevant section within the research model, to eventually propose a final model for MSF design and implementation at the end of the chapter.

5.5 Main Research Question 1: The Climate Model

The first research question required an exploratory investigation into the constructs of feedback seeking environment (FSE), control over organizational processes (CTRL), understanding of organizational events (UNDERST), operational support (SUPPORT), the emerged construct (following the factor analysis) of political awareness (POLIT), and the extent to which these constructs represented predictors of the psychological climate for MSF implementation (CLIMATE).

In total, there were six hypotheses developed to address this research question. The results acquired from the quantitative analysis in Chapter Four for the hypotheses testing were as follows in Table 5-1.

Table 5-1: Hypotheses Testing Results (Research Question 1)

#	Hypothesized Relationships	Results	Reference Table #
H1	Feedback seeking environment (FSE) is positively associated with the psychological climate (CLIMATE) for MSF implementation.	Moderately Supported	Table 4-38 (Correlation) & Table 4-56 (Regression
H2	Control over organisational processes (CTRL) is positively associated with the psychological climate (CLIMATE) for MSF implementation.	Weakly Supported	Table 4-38 (Correlation) & Table 4-56 (Regression)
H3	Understanding of organisational events (UNDERST) is positively associated with the psychological climate (CLIMATE) for MSF implementation.	Strongly Supported	Table 4-38 (Correlation) & Table 4-56 (Regression
H4	Perceptions of operational support (SUPPORT) are positively associated with the psychological climate (CLIMATE) for MSF implementation.	Strongly Supported	Table 4-38 (Correlation) & Table 4-56 (Regression)
H5	Perceptions of political awareness (POLIT) are positively associated with the psychological climate (CLIMATE) for MSF implementation.	Moderately Supported	Table 4-38 (Correlation) & Table 4-56 (Regression
H6	Feedback seeking environment (FSE), control over organisational processes (CTRL), understanding of organisational events (UNDERST), perceptions of operational support (SUPPORT), and perceptions of political awareness (POLIT) are together predictors of the psychological climate (CLIMATE) for MSF implementation.	Partially Supported	Table 4-56 (Regression Partial Model A)

5.5.1   Interaction Between FSE and CLIMATE

H1: Feedback seeking environment (FSE) is positively associated with the psychological climate (CLIMATE) for MSF implementation.

The proposition was tested in two ways. The Pearson correlation between mean scores for FSE and CLIMATE was compiled. Since a directional hypothesis has been postulated, a one-tailed test was used (Sekaran 2003), with the result significant at the 1% level (r=.210, p<.01).

Recognizing the fact that the bi-variate correlation is only a face value association without any attempt to control any other influence, the proposition was tested further via regression. The regression coefficient showed the association between the two variables of interest in the presence of other variables in contention. The effects of these other variables would have been removed from the situation since regression reveals the independent contribution of each predictor holding other predictors constant. The β value for FSE in the Climate Model was β= .097, p<.05.

Thus, in the relationship model between FSE and CLIMATE, a strong bi-variate relationship between the constructs is apparent. However, this does not automatically lead to the conclusion that FSE is a strong predictor in the predictor model for Climate, as will be seen by the differing strengths of β values for each predictors. This phenomenon is possibly attributable to a certain degree of collinearity between the constructs within the model, which leads to some redundancy as information of one construct gets consumed by other constructs within the same predictive model.

Even though multicollinearity was checked for in the statistical analysis process (e.g., correlation values, TOL and VIF values), some form of collinearity between the constructs cannot be ruled out as it is almost certain in social sciences that there will be some level of relationship between constructs of interest.

The finding can be linked to theory put forward by researchers in the field who posit that a favourable environment for feedback would have positive repercussions on employee attitudes and behaviours towards the feedback system (Ashford 1986;

Ashford & Northcraft 1992a; Levy & Steelman 1994; Levy & Williams 2004). CLIMATE here represented the construct measuring employee perceptions over the appropriateness of MSF implementation at the respective organizations. Notably, on a bi-variate mode, FSE seems to have a strong and significant association with CLIMATE, but on the predictive mode, FSE falls behind in terms of predictive power compared to the other constructs within the model.

The HR representative from Company B commented that FSE at that organization was believed to be superior since they had a policy of always welcoming feedback from all directions to improve customer service and, eventually, stay ahead of competition. When asked to comment on the possible explanation for FSE falling behind in terms of contribution to the overall Climate Model, he argued

> *Our employees may see the other factors such as their control and*
> *understanding over the organizational dynamics as more important to*
> *create a more conducive atmosphere for the 360-degree feedback system*
> *[note: MSF is referred to as the 360-degree feedback at Company B].*

On the contrary, one of the two HR representatives from Company C was adamant about her opinions on the importance of FSE in creating a suitable climate for MSF implementation. When presented with the findings of the Climate model and the low predictive value of FSE towards CLIMATE, she brushed it off as a problem of *'sample'*. Company A had no comments to offer on the patterns that emerged from the interactions between FSE and CLIMATE.

Following the results from the correlation and regression analysis as well as the post-hoc discussions with the HR representatives from the organization, hypothesis H1 was taken as being moderately supported; and re-stating the finding, feedback-seeking environment (FSE) is suggested to have a moderate positive relationship with the psychological climate for MSF implementation (CLIMATE).

5.5.2   Interaction between CTRL and CLIMATE

H2: Control over organisational processes (CTRL) is positively associated with the
psychological climate (CLIMATE) for MSF implementation.

The interaction between CTRL and CLIMATE revealed interesting findings. On a
bi-variate level, CTRL had a significant correlation with CLIMATE with r=.264,
p<.01. A one-tailed test was used due to the directional hypotheses proposed.
However, following the regression, the Climate model parameters indicated CTRL
falling out completely from the regression (β=.023, p>.1). In other words, CTRL
failed to attain significance in the predictive model when regressed alongside the
other predictors to Climate.

This set of findings suggests that CTRL in its own right is a good predictor, but it
fails to attain significance when the effects of other predictors in the Climate model
are held constant. This is probably due to a degree of collinearity between CTRL and
another predictor, POLIT, suggested by a moderately high correlation of r=0.596,
p<.01 between those two predictors. POLIT and other predictors may have
contributed information to the model rendering CTRL redundant and thus
insignificant within the Climate model.

It is worthwhile to note that the factor analysis conducted in the preliminary stages of
the analysis suggested that the items intended to tap into the construct CTRL fell
sufficiently into two distinct factors (see Section 4.4.1 on EFA in Chapter Four). A
closer scrutiny of the item wordings of the scale adapted from Tetrick and La Rocco
(1987) revealed that there was an inherent political connotation to those items
segregating two items from the other three items. Nevertheless, the direction of the
relationship between these items and CLIMATE were the same. Clearly, the political
connotation inherent in those items caused the new construct POLIT to surpass the
predictive power of CTRL in the Climate model; a feature discussed in the section on
interaction between POLIT and CLIMATE.

There was a general consensus of the representatives from all three organizations that the predictors of CTRL and POLIT may have overlapped to a certain extent. When asked to comment on the emerging pattern that political awareness (POLIT) appeared to be positively associated with the CLIMATE for MSF implementation, Company A's representative suggested that

> *Our staff will definitely feel more comfortable if they have influence over things at work and will be more receptive to introduction of any new work process or system if they feel that way. When we first introduced the concept of this new PMS system, the employees reacted rather negatively especially when they knew that the results would be tied into their rewards. Having a say in the nomination of the raters helped a lot in improving the receptivity towards the system.*

These qualitative comments had a similar logic to those reported by scholars in the field (e.g., Lind et al. 1990; Todd & Jerry 1999; Wallis 2002) which lead to the proposition that a stronger perception of control would lead to a more favourable perception of Climate for MSF implementation. However, the results above demonstrated that the construct CTRL had another element inherent, being the political connotation as discussed.

Following the results from the correlation and regression analysis as well as the post-hoc discussions with the HR representatives from the organization, hypothesis H2 was taken as being weakly supported in the light that CTRL had an insignificant contribution to the Climate model despite the significant bi-variate correlation with the outcome CLIMATE.

5.5.3   Interaction between UNDERST and CLIMATE

H3: Understanding of organisational events (UNDERST) is positively associated with the psychological climate (CLIMATE) for MSF implementation.

The interaction between UNDERST and CLIMATE indicated a significant relationship with both the correlation and regression analyses. On the bivariate level, the Pearson correlation coefficient between UNDERST and CLIMATE was a

significant r= .319, p<.01 (one-tailed). On the other hand, the β-value for UNDERST when regressed with the other Climate predictors came out as β=.206, p<.01. Comparing the beta weights, in order of relative predictive power, UNDERST had the second strongest β value after SUPPORT. Further discussion on this will follow in the section on predictors to the Climate Model.

These findings from the current research support the postulated association between UNDERST and CLIMATE, and rests in the theory of distributive justice (Greenberg 1986) supporting the proposed linkage between understanding over the processes in an organization and favourable employee behaviours towards work systems (Ford 2002; Tetrick & LaRocco 1987). Specifically, the climate for MSF implementation may be viewed as more conducive following high levels of understanding over the processes within the organization, regardless of the control factor.

Generally, the comments offered by the HR representatives did not shed any additional information beyond the justification of the findings above. Only one note-worthy comment came from Company C's representative who claimed

> *The briefing sessions we have are meant to keep our managers in the loop*
> *on our management decisions [referring to the MSF system], and hopefully*
> *they will be more inclined to use the new system willingly.*

The view above coincides with the logic put forward in the postulation of the hypothesis that a higher level of UNDERST would lead to a better climate for MSF implementation. As such, hypothesis H3 was taken as strongly supported based on the significant correlation and regression results supplemented by consensus from the post-hoc discussions with the HR representatives.

5.5.4 Interaction between SUPPORT and CLIMATE

H4: Perceptions of operational support (SUPPORT) are positively associated with the psychological climate (CLIMATE) for MSF implementation.

In the Climate model, SUPPORT emerged as the most significant predictor of CLIMATE. With a Pearson correlation of r=.417, p<.01, and a regression β-coefficient of β= .392, p<.01; these results demonstrated the salience of the construct of operational support on the psychological climate for MSF implementation. On a broader scale, the results add another small piece to the larger puzzle in current understanding of the relationship between perceived organizational support and many different behavioural outcomes (e.g., Maurer & Tarulli 1996; McCarthy & Garavan 2006).

Operational support is referred to within the current research as the specific support aimed at assisting smooth dissemination of information and rolling in of the MSF system. Issues tapped to measure this construct included the availability of pre- and post-system training, encouragement by superiors, time to use the system, and availability of help to utilize the system. The results can be read as being based in Theory of Planned Behaviour (Maurer & Palmer 1999) and extends the findings of other scholars who noted the favourable atmosphere for employee development following perceptions of great social and organizational support. It should be noted, though, that the construct of operational support in the current research was defined with a narrower view compared to the broader construct of organizational support as espoused by some experts in the field (Eisenberger, Huntington, Hutchinson & Sowa 1986).

Hypothesis H4 was taken to be strongly supported both in the relationship model (significant correlation) and predictive model (significant regression parameter β). The construct of SUPPORT emerged relatively as the most powerful predictor in the Climate model.

5.5.5 Interaction between POLIT and CLIMATE

H5: Perceptions of political awareness (POLIT) are positively associated with the psychological climate (CLIMATE) for MSF implementation.

The political awareness (POLIT) construct emerged as a potential construct in the exploratory factor analysis stage of psychometric properties evaluation. When all the items for predictors within the Climate model were factor analysed using the Obligue method of rotation, five factors emerged instead of the expected four. Two items from the Control over Organizational Processes (CTRL) scale adapted from Tetrick & La Rocco (1987) cross loaded significantly into the fifth factor, which was later named POLIT. Scrutiny of the items suggested an inherent political connotation as discussed in Chapter Four. Reliability analysis over the items produced a Cronbach α of .702. A decision was made to make adjustments to the proposed model to include this additional construct for testing purposes. Nevertheless, caution should be exercised in interpreting the results from this section of the model, recognizing the potential limitations inherent in the two-item measure.

The face value association between POLIT and CLIMATE is evident in the significant Pearson correlation of r= .242, p<.01. In the predictive model, in terms of relative predictive power, POLIT comes out as the third strongest, after SUPPORT and UNDERST, and before FSE which came out fourth. The result is rather unexpected especially since the POLIT construct was not part of the original model. The finding was note-worthy, especially since the CTRL scale was adapted in its entirety from Tetrick & La Rocco's scale (1987) for Control over Organizational Processes. A probable explanation for this phenomenon lies in the fact that control can be linked very strongly to a political intent, i.e., to be able to influence others on the job. The notion of politics was strongly discussed by the HR representative in both organizations B and C since a large number of the open-ended question comments manifested from their employees seemed to skew in that direction. Discussion on the open-ended questions is presented in Section 5.7.

Following the results of the correlation and regression analyses as well as the post-hoc discussions with the HR representatives from the organization, hypothesis H5 was taken as being moderately supported, with recommendations for further research into a more complete measure for a political awareness construct, as well as to investigate the interactions between POLIT construct and CLIMATE in further depth.

5.5.6   Predictors to the Climate Model

H6: Feedback seeking environment (FSE), control over organisational processes (CTRL), understanding of organisational events (UNDERST), perceptions of operational support (SUPPORT), and perceptions of political awareness (POLIT) are together predictors of the psychological climate (CLIMATE) for MSF implementation.

The multiple regression results lead to the conclusion that the Climate model-hypothesis as stated above was partially supported. With the exception of CTRL, all the other predictors surfaced as significant predictors to CLIMATE. The explanation for the omission of CTRL might rest with construct redundancy. Due to the issue of collinearity, CTRL may have been redundant in the predictive model as information from it may have been absorbed by other predictors in the model.

Specifically, the strong correlation between POLIT and CTRL indicate the possibility that the predictor POLIT may have absorbed most of the information in the regression equation for the Climate model, rendering CTRL redundant and, consequently, being omitted from the model.

Having an exploratory mode of research, the current study did not hypothesize on the strengths of relationships within the model. Nevertheless, it is worthwhile to note the order of constructs in relation to the relative predictive power indicated by the β coefficients. The strongest predictor was SUPPORT, followed by UNDERST with significant β values at the .01 level, and POLIT and FSE which were significant at the .05 level.

One cannot rule out the fact that omission of important causal variables or the inclusion of extraneous variables can change markedly the beta weights and hence the interpretation of the importance of these constructs. However, as qualified earlier, the current research has delimited the scope of research for purposes of parsimony and feasibility. Thus, the constructs included in the models are representative but by no means exhaustive.

Associated with the results of multiple regressions, was R^2, multiple correlations, which gave the percent of variance in the dependent variable, explained collectively by all of the predictors. In the Climate model, the four significant predictors as described above explained 34.3% of the variance in CLIMATE. It is worthwhile to note that the inclusion of the non-significant predictor, CTRL within the model lead to a lower adjusted R^2 of 34.2%.

The finding that CTRL fell out of the Climate model was unexpected and somewhat unique. When asked to comment on this observed phenomenon, the HR representative from Company C said that the

> *Politics at this company has been noted as 'strong' from recent employee*
> *satisfaction surveys. We do not understand however how these perceptions*
> *of strong politics would lead to a better climate for MSF implementation as*
> *you pointed out in these statistics.*

While the results extend findings from some previous studies (e.g., Funderburg & Levy 1997; Levy & Steelman 1994; Maurer & Tarulli 1996), the failure of CTRL to attain significance, as well as the emergence of the political element within the items adopted from the CTRL scale (Tetrick & La Rocco 1987), raises the alarm for further research. The association between CTRL and POLIT is not surprising due to the obvious correlations between the two constructs but, surprisingly, the POLIT element surpassed CTRL in terms of explanatory power within the Predictive Climate model.

Following an explanation of how CTRL and POLIT may have interacted, the HR representative from Company B added some comments about the political influence at Company B.

> *Employees will support any new work system if they feel their say has been taken into account; even more if they feel they can influence the system to their advantage. This [the political influence] is quite evident but I did not expect that the influence would be that strong over and above the other factors.*

This comment could be read in conjunction with the order of importance of the predictors to CLIMATE. Even though the findings indicating the superiority of POLIT over CTRL are considered preliminary they still provide insights on the salience of the additional variable.

5.6   Main Research Question 2: The Reaction Model

The second research question required an exploratory investigation into the constructs of psychological climate (CLIMATE), perceived MSF purpose (PURPOSE), complexity (COMPLEX), perceived rater anonymity (ANONYM) and assignment of raters (ASSGN) and the extent to which these constructs represent predictors of the employee reaction to MSF (REACTION). The hypotheses developed addressing this research question offer the most fine-grained level of analysis and dissection as they deal with the prevalent paradoxes inherent in MSF system implementation.

In total, there were six hypotheses developed to address this research question. The results acquired from the quantitative analysis in Chapter Four for the hypotheses testing were as follows in Table 5-2.

Table 5-2: Hypotheses Testing Results (Research Question 2)

#	Hypothesized Relationships	Results	Reference Table #
H7	Psychological climate for MSF implementation (CLIMATE) is positively associated with employee reaction to MSF (REACTION).	Strongly Supported	Table 4-39 (Correlation) Table 4-61 (Regression)
H8	Perceived MSF purpose (PURPOSE) is associated with employee reaction to MSF (REACTION), such that a non-administrative purpose will be positively associated with REACTION.	Not Supported	Table 4-39 (Correlation) Table 4-61 (Regression)
H9	Perceptions of the level of complexity related to MSF process (COMPLEX) are negatively associated with employee reaction to MSF (REACTION).	Strongly Supported	Table 4-39 (Correlation) Table 4-61 (Regression)
H10	Perceptions of rater anonymity (ANONYM) are positively associated with employee reaction to MSF (REACTION).	Weakly Supported	Table 4-39 (Correlation) Table 4-61 (Regression)
H11	Perceptions of the rater assignment process (ASSGN) are positively associated with employee reaction to MSF (REACTION), such that a favourable ASSGN is positively related to REACTION.	Moderately Supported	Table 4-39 (Correlation) Table 4-61 (Regression)
H12	Psychological climate for MSF implementation (CLIMATE), Perceived MSF purpose (PURPOSE), Perceptions of the level of complexity related to MSF process (COMPLEX), Perceptions of rater anonymity (ANONYM), and Perceptions of the rater assignment process (ASSGN) are together predictors of the employee reaction to MSF (REACTION).	Partially Supported	Table 4-61 (Regression Partial Model B)

5.6.1   Interaction Between CLIMATE and REACTION

H7: Psychological climate for MSF implementation (CLIMATE) is positively associated with employee reaction to MSF (REACTION).

The face-value correlation result between CLIMATE and REACTION was a highly significant r=.514, p<.01, suggesting a profound relationship between the two constructs. In the predictive model (Reaction Model), the β value for CLIMATE was a significant β= .396, P<.01.

There is general consensus in MSF research literature that a better climate for MSF implementation (CLIMATE) would lead to more favourable employee reaction towards the system (Ewen & Edwards 2001; London & Smither 2002; Scott & Bruce

1994). Nevertheless, there has been anecdotal evidence suggesting an unfavourable climate such as having a low-trust, autocratic organization may result in a positive reaction on behalf of employees since they desperately wish for change (Ewen & Edwards 2001).

The findings for the current section of the model suggest the strong predictive power and influence CLIMATE has over employee reaction to MSF systems. Such a notion rests in the theory on readiness of organizations in adopting MSF systems (Ewen & Edwards 2001; Koebelin 1999).

Company C's HR representative commented further to explain the idea of how CLIMATE has an impact on REACTION

> *The receptivity [towards the MSF system] has been generally positive indicated by the employee satisfaction surveys. They [the employees] seem to like the idea of getting feedback from many sources, and feel comfortable with this new innovation in leadership management. Perhaps they feel 'Company C' [the organization name] is staying ahead of competition and such a perception leads them to react positively even more.*

The comments above augment the importance of including a psychological construct of CLIMATE, which taps into the employees' perceptions of how they view the climate for MSF implementation. In the current study, CLIMATE was operationalised as the psychological evaluation of how employees perceive the work environment (see James & Jones 1974).

Following the results of the correlation and regression analyses supported by the qualitative comments offered by the HR representatives from the organizations, hypothesis H7 was taken as being strongly supported.

5.6.2 Interaction Between PURPOSE and REACTION

H8: Perceived MSF purpose (PURPOSE) is associated with employee reaction to MSF (REACTION), such that a non-administrative purpose will be positively associated with REACTION.

The findings on the issue of PURPOSE are rather surprising, and not well addressed by prior research.

Even though extant theory and MSF literature have conflicting indications on the relationship between PURPOSE and REACTION, the pre-dominant school of understanding over the issue of purpose lies in the notion that an administrative purpose for MSF systems would trigger much resistance on the part of employees due to the resource motive (Lassiter 2003). This lead to hypothesis H8, proposing an association between a non-administrative purpose for MSF and REACTION; however, the hypothesis was not supported.

To begin with, the scale PURPOSE measured the perception of employees as to whether the MSF system was used for administrative purposes. The items, then, were reversed to identify whether a non-administrative purpose had a positive association with employee reaction to MSF (REACTION). The Pearson correlation results indicated a significant negative relationship between PURPOSE and REACTION, whereas a positive relationship between the constructs was hypothesized. This preliminary finding was very surprising, as it suggested that employees were more favourable towards an administrative purpose for MSF systems. With the regressions results in the predictive model, PURPOSE came out as significant at the .05 level with a β coefficient of -.089. Hence, the hypothesis was not supported.

The findings above seem to conflict with empirical studies evidencing employees favouring feedback systems used for developmental purposes only (e.g., Fedor et al. 1999; Garavan et al. 1997; McEvoy & Buller 1987). On the contrary, findings herein seems to build on the work of Edwards, Ewen & Verdini (1995) who found that MSF used for administrative purposes was favoured to administrative versions of top-

down feedback. Recognizing the differences in the purposes for MSF at the three participating organizations, an ANOVA was conducted on PURPOSE (on top of other comparisons) and revealed no significant difference in responses from the companies. The possibility of a justification that employees favoured an administrative MSF feedback system in comparison to a different feedback system used also for administrative purposes was not ruled out.

The comments from the company representatives helped shed some light over the issue of PURPOSE. The most plausible justification came from the representative from Company C.

> *Most of the respondents were probably more of raters than ratees as not everyone has been subjected to the MSF system since it's part of a leadership program. Most of the ratees in the MSF system were higher-level managers. The survey respondents were probably just trying to get back at their bosses and trying to influence the system so that the MSF assessments coming from all directions would actually influence their bosses salary and bonuses.*

The comments above suggested why an administrative purpose appeared to have a positive association with REACTION.

Additionally, Company B's HR representative predicted that such a result boils down to employees being less favourable towards the previous performance appraisal system. Company B uses the MSF system for both administrative and developmental purposes.

> *The performance management system [PMS] has always been a subject of debate here. I foresee the new PMS system being viewed as more fair compared to the previous one, as before their [employees'] bonuses were dependant entirely on their bosses. At least now, some weight has been given to ratings from their colleagues.*

The HR representative from Company A had similar comments to the above and added that

> *We only tied the system [MSF] to rewards after one year of implementation. The first year was a success with all levels of employees giving favourable comments over the new system since it was much more transparent. We were very clear on the purpose of the system and the employees seem to accept it well. Linking the system to administrative decisions did not seem to pose problems.*

Thus, although the hypothesis was not supported statistically, the qualitative comments received seem to elucidate the findings and provide a good line of reasoning as to why an administrative purpose had a positive association and predictive ability over employee reaction to MSF systems.

5.6.3   Interaction Between COMPLEX and REACTION

H9: Perceptions of the level of complexity related to MSF process (COMPLEX) are negatively associated with employee reaction to MSF (REACTION).

The hypothesis for the association between COMPLEX and REACTION was strongly supported under both tests in the relationship and predictive models. In the former, the Pearson correlation was a highly significant r=-.484, p<.01, whilst the β coefficient was highly significant -.372, p<.01 in the latter.

As theorized, the proposition that COMPLEX was negatively associated with REACTION was evidenced. It was observed that having MSF systems that were viewed as user-friendly and easy to work with correlated significantly with favourable reactions towards the system.

All three company representatives concurred with the importance of user-friendliness in achieving ultimate MSF system success. As the representative from Company C put it

> *Having invested so much time and money into this new leadership program [referring to the MSF system], it is imperative for us to get feedback from the different levels of managers. A complicated interface may deter them from proceeding with the feedback at all.*

These comments demonstrate the dangers of having an MSF system too complex to understand, which consequently may jeopardize the content and quality of feedback solicited from the raters participating in the system.

On a slightly different note, the representative from Company B offered some comments about the user-friendliness issue in terms of disparities in the usual job requirements their employees are used to.

> *Our engineers do not have experience in providing managerial level feedback in a structured manner like in our new 360-degree feedback system, so we had to take some time to expose them to the new system when we first introduced it eight years ago. From the technical side there appeared to be no problems. We do make adjustments from time to time on the actual questions used to rate the manager, based on changes in work demands and KPIs [key performance indictors].*

In a nutshell, based on the correlation and regression analysis results, augmented by the comments received in the qualitative feedback sessions with the key HR representatives from the organizations, hypothesis H9 on the relationship between COMPLEX and REACTION is taken as strongly supported.

5.6.4 Interaction Between ANONYM and REACTION

H10: Perceptions of rater anonymity (ANONYM) are positively associated with employee reaction to MSF (REACTION).

The results for the relationship and predictive models examining the interaction between ANONYM and REACTION do not support one another. In the relationship model, the correlation result was r= .172, p<.01, suggesting a significant relationship

between ANONYM and REACTION as expected. Employees demonstrated a preference for the rater anonymity as can be seen from the positive correlation with their reactions to MSF systems. Note, however, that the correlation coefficient value was not very high (less than .3).

On the other hand, in the predictive model, alongside the other predictors to REACTION, ANONYM failed to attain significance at the .05 level. The regression parameter for ANONYM was β= .023, p= .153. Consolidating the results, it is demonstrated that ANONYM had a significant bivariate correlation with REACTION. However, for reasons of multicollinearity, ANONYM failed to make a significant additional contribution to predicting REACTION in the presence of the more powerful predictors.

It should be highlighted that relative to the other predictors within the model, ANONYM had the weakest calculated Mean-score of 3.19 (see Chapter Four: Table 4-37). This value barely passes the neutral mark of 3.0 being 'neither agree nor disagree' on the five-point Likert scale. A possible explanation for the above phenomenon was the possibility that ANONYM had different repercussions on REACTION as far as employees' perceptions were concerned. This argument supports the espoused findings of Bamberger et al. (2005) that demonstrated negative outcomes to conditions of rater anonymity. The logic underlying the argument seems to provide a natural and simple reasoning: employees can be held accountable for their given feedback when the ratings are not given anonymously. This view can be seen in Game Theory where downward biasing of others (in the MSF ratings) may be made easier when the ratings cannot be traced back to the raters.

Despite the pre-dominant view that rater anonymity would have positive repercussions on overall MSF system effectiveness (Landy & Farr 1980; London et al. 1997; London et al. 1990; Tornow & Tornow 2001), the argument presented above on the issue of accountability and the possible effect this phenomenon may have had on the weak results between ANONYM and REACTION cannot be dismissed. In fact, the contradictory repercussion anonymity has on designing the MSF system warrants great attention to scrutinize the actual affects such a decision would have on the different stakeholders within the system.

Comments from Company A's HR representative indicated that the organization treated maintaining conditions of anonymity very seriously. They were certain that the raters knew their anonymity was assured.

> *We do not have a choice about that [maintaining anonymity] because the evaluations made through this PMS system affect pay and bonuses, and sometimes promotions too. We are certain that the raters are accountable for their evaluations even though the ratees cannot trace the feedback back to them.*

Company B's representative's remarks on the issue of anonymity indicated a different approach to the issue. The superiors have access to all the feedback data, as they will moderate the evaluations before they are used in the appraisal decisions, as well as the training programs. When asked whether the management felt their approach lead to the assurance of anonymity on the part of the raters

> *The raters cannot be identified. The only individuals who know who they [the raters] were are the bosses. They [the bosses] handle the feedback information with strict confidentiality.*

The comments above highlighted the paradoxes inherent with the issue of anonymity. Maintaining the so-called anonymity at Company B seemed to be rather paradoxical since confidentiality of the feedback information and the rater source seem to be at stake. Also the issue of anonymity is intertwined with the issue of purpose since the latter issue of purpose will have repercussions over the handling of the feedback data and, possibly, source of data as well. Logically, this inevitably will translate into anonymity being compromised, at least to a certain extent.

Ultimately, it is the perceived raters' anonymity as viewed by the employees, which really matters. Companies may say that they have certain policies of maintaining anonymity and protecting employees but, ultimately, the policies will not translate into favourable reactions towards the MSF system unless employees believe and see them working. Hence, this was the logic of operationalizing the constructs within the models to tap into perceptions of employees rather than what has been stated by management.

The situation at Company C was depicted as the following

> *Anonymity of the raters is not an issue. The ratings given by the ratees are*
> *filtered through into an index without having any trace to the raters.*

In a nutshell, the statistical analysis and qualitative comments received concerning the issue of anonymity lead to the decision that the hypothesis that ANONYM has a positive association with REACTION is moderately supported. When taken in the context of the other predictors to REACTION, evidence suggests that ANONYM fell behind in terms of relative predictive power.

5.6.5 Interaction between ASSGN and REACTION

H11: Perceptions of the rater assignment process (ASSGN) are positively associated with employee reaction to MSF (REACTION), such that a favourable ASSGN is positively related to REACTION.

Statistical analyses suggest a significant relationship between the perceptions of the rater assignment process (ASSGN) and REACTION as indicated by the Pearson correlation coefficient of r= .333, p<.01. In the predictive model, ASSGN emerged as a significant predictor with a β-coefficient β=.120, p<.05.

The most plausible explanation for the above findings rests with the subject of selecting raters (Barclay & Harland 1995). For example, in a study on peer appraisals, managerial implications on the issue of selection of raters were highlighted as important. The findings in the current research extend the findings of Gilliland & Langdon (1998) which demonstrated the influence of procedural factors over perceptions of a feedback system's effectiveness. Thus, when taken in the context of an MSF system and perceptions of procedural factors specifically, the rater assignment process was found to be a significant determinant of employee reaction towards the system.

Given the significant findings, when asked to comment, all three representatives were in agreement as to the importance of portraying a fair system in terms of rater selection. Even though Company A actually gave some flexibility over rater nomination, the final selection was still not the ratee's. Ultimately, it was these perceptions of whether the different constituents other than the usual boss that is being the subordinates and peers, could represent reliable sources for feedback information which mattered the most.

The hypothesis H11 for the association between ASSGN and REACTION was taken as supported.

5.6.6 Predictors to the Reaction Model

H12: Psychological climate for MSF implementation (CLIMATE), Perceived MSF purpose (PURPOSE), Perceptions of the level of complexity related to MSF process (COMPLEX), Perceptions of rater anonymity (ANONYM), and Perceptions of the rater assignment process (ASSGN) are together predictors of the employee reaction to MSF (REACTION).

This hypothesis follows the theoretical logic of individual hypotheses within the Reaction Model. Here, the predictors to REACTION were assessed collectively to determine the predictive ability of each to the outcome variable REACTION. The multiple regression results lead to the conclusion that the Reaction model-hypothesis as stated above was partially supported. With the exception of ANONYM, all the other predictors surfaced as significant predictors to REACTION. The predictor PURPOSE surfaced as a significant predictor but, ironically, in the opposite direction than was hypothesized, as discussed earlier.

There is a small likelihood that the omission of ANONYM from the predictive model was due to construct redundancy. From the correlation matrix in Chapter Four (Table 4-37), it can be seen that the issue of collinearity is not the main culprit since all correlation values between ANONYM and the other predictors within the Reaction model do not exceed a value of .3. As mentioned earlier, the correlation coefficient

between ANONYM and REACTION of .172 is considered relatively weak (even though it is significant at the 1%-level) compared to the other predictors' correlation values to REACTION. This logic could be an important piece of information in elucidating the patterns that emerged in the Reaction model.

Of interest here is the possibility that ANONYM may not be considered such a critical determinant to employee MSF reaction. However, evidence is rather equivocal on this. Qualitative comments from the company representatives all supported the idea that anonymity was important and, thus, was well-maintained within their respective MSF systems. On the contrary, findings in the current study do not replicate the sentiments in previous studies which demonstrated that anonymity was a critical issue determining rating behaviour and studies which purported that anonymity would promote feedback candour and hence favourable reaction towards the system (London et al. 1990). Mindful of the espoused strong impact the issue of anonymity has over MSF implementation as indicated in extant research, the findings on ANONYM is deemed to be inconclusive.

Similar to the Climate model earlier, the Reaction model did not hypothesize strengths of relationships between the constructs. Nevertheless, it is worthwhile to note the order of constructs in relation to the relative predictive power indicated by the β coefficients. The strongest predictor in terms of β values were CLIMATE and COMPLEX with strong and significant β values at the .01 level, then ASSGN which had less predictive value in terms of β, also significant at the .01 level, and further on PURPOSE which had the lowest predictive power, significant at the .05 level.

It should be highlighted again that omission of important causal variables or the inclusion of extraneous variables can change markedly the beta weights and hence the interpretation of the importance of the constructs. However, as qualified earlier, the current research has delimited the scope of research for purposes of parsimony and feasibility; the constructs included in the model, therefore, are representative but by no means exhaustive.

Associated with the results of multiple regressions, was R^2, multiple correlations, which is the percent of variance in the dependent variable, explained collectively by

all of the predictors. In the Reaction model, the four significant predictors as highlighted above explained 50% of the variance in CLIMATE. It is worthwhile to note that the inclusion of the non-significant predictor, ANONYM within the model would lead to a lower adjusted R^2 of 49.9%.

Therefore, there is evidence to suggest that complexity and climate are the two most important determinants influencing employee reaction to MSF systems. This is followed by perceptions of the rater assignment process and then perceived MSF purpose. The finding on the predictive power of perceived anonymity over employee reactions to MSF remains inconclusive. As such, the hypothesis on the collective predictive abilities of the five constructs to REACTION is partially supported.

5.7   Main Research Question 3: The Outcomes

The third research question required an exploratory investigation into the construct of employee reaction to MSF (REACTION) and the extent to which this construct represents predictors of two different outcome constructs: employee acceptance to MSF (ACCEPT) and perceptions of usefulness (POU).

There were two hypotheses developed to address the research question. The results acquired from the quantitative analysis in Chapter Four for the hypotheses testing were as follows.

Table 5-3: Hypotheses Testing Results (Research Question 3)

#	Hypothesized Relationships	Results	Reference Table #
H13	Reaction to MSF systems (REACTION) is positively associated with employee acceptance towards MSF systems (ACCEPT)	Supported	Table 4-37 (Correlation) Table 4-65 (Regression)
H14	Reaction to MSF systems (REACTION) is positively associated with perceptions of usefulness towards MSF systems (POU)	Supported	Table 4-37 (Correlation) Table 4-68 (Regression)

5.7.1 Interaction Between Employee Reaction to MSF (REACTION) and Acceptance of MSF Systems (ACCEPT)

H13: Reaction to MSF systems (REACTION) is positively associated with employee acceptance towards MSF systems (ACCEPT)

The relationship hypothesized between REACTION and ACCEPT is a direct relationship which required analysis using simple regression. From the results, the amount of variance explained (R^2) by the one variable, employee reactions to MSF (REACTION) in relation to acceptance of MSF systems (ACCEPT) was 29.8%. The predictive ability of REACTION was strong and highly significant, where $\beta=.548$, $p<.01$. As theorized, REACTION had a significant predictive ability over the Outcome construct ACCEPT.

5.7.2 Interaction Between Employee Reaction to MSF (REACTION) and Perceptions of Usefulness (POU)

H14: Reaction to MSF systems (REACTION) is positively associated with perceptions of usefulness of the MSF system (POU)

Hypothesis H14 resembles the hypothesis earlier, with the outcome variable being perceptions of usefulness instead of acceptance. From the simple regression results, the amount of variance explained (R^2) by the one variable, employee reactions to MSF (REACTION) in relation to perceptions of usefulness of MSF systems (POU) was 36.9%. The predictive ability of REACTION was strong and highly significant, where $\beta=.609$, $p<.01$. As theorized, REACTION had a significant predictive ability over the Outcome construct POU.

Comparing the two results of H13 and H14 in terms of R^2 and β values, there may be evidence to suggest that the relationship and predictive ability of REACTION over POU superior to the counterpart ACCEPT. REACTION, which is seen as an antecedent to the two outcomes, appears to explain about seven percent more of the level of variance in POU than in ACCEPT.

5.8 Main Research Question 4: The Link between Acceptance and Perceptions of Usefulness

The fourth main research question of the current research required an investigation into the relationship between the two outcome constructs of interest, i.e., employee acceptance towards MSF systems (ACCEPT) and perceptions of usefulness (POU), to determine whether the constructs were synonymous or distinct.

Table 5-4: Hypothesis Testing Results (Research Question 4)

#	Hypothesized Relationships	Results	Reference Table #
H15	There is a positive relationship between employee acceptance of MSF systems (ACCEPT) and perceptions of usefulness (POU), but statistically ACCEPT and POU are distinct constructs.	Supported	Table 4-74 (Correlation) & Table 4-72 (EFA)

To test the hypothesis, two statistical tests were utilized: the simple correlation to examine the extent of correlation between the two variables, and exploratory factor analysis (EFA) to determine whether the constructs were in fact distinct or synonymous. The Pearson correlation result was r= .625, p< .01 demonstrating the strength of the relationship between ACCEPT and POU. The two constructs materialized as strongly related. The EFA results on the other hand, confirmed that the two factors, in fact were distinct as all items loaded onto two separate components as demonstrated in the structure matrix (see Table 4-76). Hence, these results together provide support for the hypothesis that ACCEPT and POU are related, but statistically distinct, constructs.

Conclusions drawn in this section of the current research extend findings from Facteau et al. (1998) who proposed the idea that the two constructs of acceptance and usefulness to be segregated from one another. Extending the rationale presented by Facteau and his colleagues, it may be possible for employees to demonstrate acceptance for the MSF system, acknowledging that the feedback is an accurate portrayal of performance, yet these employees may not perceive the feedback to be useful for development. On the other extreme, an employee who decides that the MSF feedback is not accurate and has very low acceptance of it, concurrently may

perceive it to be useful for purposes of addressing discrepancies in perceptions of others towards them.

5.9 Ancillary Research Questions: A Discussion

As identified in Chapter One, the current research had some ancillary questions to be dealt with. The questions were addressed using the qualitative approach that was two-fold; first, by analysing the open-ended comments solicited from the survey-respondents at the end of the questionnaire, and second, by making a comparison between qualitative information that was elicited from the HR representatives and the quantitative results. The next two sections discuss these findings. The ancillary research questions were:

1. What issues are perceived as pertinent to the overall success of MSF implementation?
2. Are employee perceptions of the MSF system aligned with or de-coupled from the original intention of management?
3. To what extent is management aware of the employees' acceptance of the MSF system and perceptions of its usefulness?

5.9.1 Content Analysis over the Open-Ended Questions

The web-survey included a question eliciting suggestions and comments from respondents to the MSF survey on what they thought could be done to improve the system. Such an action was targeted to bring to the fore any other issues prevalent with regard to MSF design and implementation. The comments also were thought useful as a basic form of check and balance to verify whether the sentiments from the comments received in the open-ended question was reflected in the actual construct measures. Specifically, the few comments that erred on the extremely negative side were compared against the Mean scores for the outcome constructs to see if they tallied. On the surface, there were no abnormalities to be reported from this observation. The comments addressed the first ancillary question on issues perceived as pertinent to the overall success of MSF implementation.

There were some interesting issues of concern that surfaced during this stage. Out of 420 useable surveys, a total 189 contained responses to the open-ended question at the end. These responses were content analysed to categorize main themes underlying the comments and recommendations given. Some responses had a few different subjects and ideas incorporated within the one response. Results from the analysis demonstrated a few key findings that warrant attention and suggest potential avenues for future research.

Some qualitative comments offered additional support for the quantitative results derived from the model testing. In particular, there were a number of remarks on the issue of training (similar to those addressed by the SUPPORT construct), user-friendliness (similar to those addressed by the COMPLEX construct), and rater selection (similar to those addressed by the ASSGN).

A large number of comments touched on the issue of training as a means of easing the MSF system implementation process. Among others, comments encompassed statements such as 'road show to introduce (MSF) to staff', 'briefing to be conducted before implementation to give better understanding to all' and 'educate staff on the benefit of the (MSF) system'. These comments further emphasize the salience of the value of operational support (SUPPORT) in improving the MSF implementation climate for the MSF system.

User-friendliness was another frequently mentioned issue. Apart from that, the respondents also expressed concern over the rater assignment process. One comment suggested that 'to be fair perhaps 75% of raters should be chosen by ratee and 25% random to ensure objectivity'. Another comment read 'raters must be selected from persons who are familiar with the ratee's work performance, job scope/description and background'. These comments illustrate the importance of such design issues, and provide further elucidation on why they were included in the research.

There were many other comments, which offered new insight into issues that should be attended to by organizations and possibly some avenues for future inclusion of new constructs. The full listing of these open-ended comments is included in the Appendix F for reference. In short, the other comments offered can be categorized

into a number of broad categories, as follows: 1) Face-to-face feedback is preferred in MSF; 2) Weighting for different feedback sources should be fair and equal, instead of being heavily weighted towards feedback from the direct superior; 3) Evaluations done through MSF should be final and not subject to 'moderation' or review by the Head of department; 4) The Key Performance Indicators (KPIs) and competencies to be rated within the MSF system should be appropriate to the respective employees; 5) Small units or departments posed a threat to maintaining rater anonymity; 6) Certain technical problems occurred in the MSF process; 7) More training is required 8) User-friendliness is critical in the MSF system; 9) The possibility of manipulation and 'gaming' within the MSF system where ratings are not done sincerely and either positively or negatively biased; 10) Self-evaluations are biased; 11) Results of the MSF system must be explained to the employee to make it useful for development; 12) In the rater selection process it is critical to ensure raters know how to rate; and 13) Lower level management should be allowed to evaluate upper level management.

Even though the comments offered were unstructured, a number of clearly defined issues emerged from the content analysis of the comments. Issues raised can be a stepping-stone for new research or could be used as a guide to further incorporate critical constructs into the MSF design and implementation model. To reiterate, the comments from the respondents addressed the first ancillary question, which encompassed issues that were viewed as pertinent to the success of the MSF system implementation as far as employee perceptions were concerned.

5.9.2 Evidence of Alignment or De-Coupling Between Policy and Practice

The next ancillary research question was 'are employee perceptions of the MSF system aligned with or de-coupled from the original intention of management?'

Surface comparisons were made between the quantitative results, open-ended comments received from the respondents and claims made by HR representatives on the policy of MSF implementation at the respective companies.

On the whole, there appeared to be a minimal degree of de-coupling between policy and practise highlighted by certain key indicators. The main issue of concern lies in the fact that the stated purpose for the MSF system at the respective companies was not reflected in the perceived purpose as solicited in the survey. For instance, at Company C, the MSF system was used only for leadership development and not for administrative purposes; but the Mean score for PURPOSE of 2.52 suggests that perceptions of purpose at the company erred in the direction of administrative uses (note the comments were actually reversed; see Appendix C for the complete survey instrument). The message that MSF was used for developmental uses only and that a separate system was used for appraisals did not filter through from management to the employees. However, perceptions and policy seemed to be aligned in Company A and B as far as the results were concerned, as the MSF system in those organizations were used for both developmental and administrative purposes.

In terms of the other constructs, discussions with the HR representatives portrayed a general level of alignment between the intentions of management for the design of the MSF system and perceptions of employees towards the respective facets. For instance, the average scores for the perceptions of anonymity (ANONYM) were positive and this tallied with what was stated as policy by all three organizations; that they maintained anonymity within the MSF system. Complexity (COMPLEX) was rated low by employees as evident in the negative mean score supporting the HR representatives' views that the organizations had minimal problems in terms of complexity within the system since they stressed the promotion of an 'uncomplicated interface' for the MSF process.

As was highlighted in Chapter Two, authors Morgan, Cannan & Cullinane (2005) espoused the need for closing a gap that was revealed between the role of MSF as perceived by employees and the role intended by the organisation. The alarm was raised when significant divergence was found in what the employees viewed and what the implementers (HR management) intended. Bearing in mind that the current study addressed the issue above as an ancillary objective, only superficial conclusions could be drawn on the level of de-coupling evident from the research data. Hence, results on this section of analysis should be interpreted with a certain degree of caution.

On the whole, the finding from this section of the study suggests that there is minimal evidence of de-coupling between what management intended and what employees perceived. Apart from the issue of MSF purpose at Company C, employee perceptions of all other facets of the MSF system appear to be aligned with managements' intentions.

The final ancillary question 'to what extent is management aware of the employees' acceptance of the MSF system and perceptions of its usefulness?' was assessed in the same manner as the assessment for ancillary research question two. The HR managers for the companies were asked how successful the MSF system has been as far as employees' receptivity was concerned. They were asked to rate on a scale of 1 to 5 what they thought the level of acceptance and perceptions of usefulness were for the MSF system at their respective organizations.

Representatives of Company A and Company C gave a conservative rating of '3' for both acceptance and perceptions of usefulness. Company A's representative claimed '*[name of company] still has a long way to go to make sure all employees are thoroughly trained to use the system; so, I suspect that many workers are still in the dark as far as the purposes and uses of the system (MSF) is concerned*'. Company C attributed the low estimate of the acceptance and perceptions of usefulness to the general application of the MSF system being only for leadership development. It was argued that their narrowed purpose for the MSF system at their organization might be a reason for employees to feel that not all of them are subjected to the same development system, and thus may result in some dissatisfaction. Company B was the only one with an optimistic estimate score of '4' for both acceptance and perceptions of usefulness of the system.

The quantitative results demonstrated relatively similar values for acceptance and perceptions of usefulness for all three companies. The mean scores for ACCEPT and POU were 3.24 and 3.36 for Company A; 3.38 and 3.43 for Company B; and 3.28 and 3.31 for Company C. This pattern reflects the reality that Company B does indeed have the highest level of acceptance and perceptions of usefulness compared to the other two companies. Nevertheless, the difference is relatively small. Another interesting observation is the fact that all mean POU values were larger than the

ACCEPT values. This pattern may suggest that employees tend to view the system as more useful compared to their acceptance toward the system. It is noted that each management group is quite aware of the level of acceptance and perceptions of usefulness of the MSF system.

5.10 Summary on Overall Findings

In a nutshell, all four main research questions and the ancillary research questions were successfully addressed in the current research. This section presents a synopsis over the overall findings according to the research questions.

To answer the first main research question, it was suggested that there is a relationship between the constructs of UNDERST, SUPPORT, FSE, POLIT and CTRL and Climate. In terms of predictive power, it was found that all of the predictors above were significant predictors with the exception of CTRL. The construct CTRL failed to attain significance at the 5% level, as it might have been redundant in the model where the other predictors already may have absorbed most of the information for the construct CTRL. As a consequence the construct UNDERST, SUPPORT, FSE, and POLIUT were retained within the Climate model, whilst CTRL was omitted.

The second main research question involved testing the Reaction-model. The results demonstrated that all the predictors of CLIMATE, ASSGN, ANONYM, PURPOSE and COMPLEX had a significant relationship with Reaction. Moreover, the results suggested that an administrative purpose had a positive relationship with reactions to MSF systems, contrary to what had been hypothesized earlier in the model. Apart from this finding, all the other hypothesized associations were supported. In the predictive model, ANONYM was the only predictor that failed to attain significance when regressed against the other predictors. For this reason, ANONYM was omitted from the Reaction-model.

The third main research question involved testing for the relationship between the outcome constructs – Reaction, Acceptance and Perceptions of Usefulness. The

results demonstrated that Reactions was a significant predictor to Acceptance as well as Perceptions of Usefulness.

The fourth and final main research question concerned an investigation into the extent to which the outcome constructs of Acceptance and Perceptions of usefulness were distinct. The results indicated that despite a high level correlation between the two, Acceptance and Perceptions of usefulness proved to be significantly distinct from one another as evident from the exploratory factor analysis results, which revealed all items loading onto two distinct factors.

The results addressing the ancillary research questions revealed a few interesting insights. The content analysis for the open-ended questions demonstrated some common themes for issues that were viewed as important to employees as far as MSF implementation was concerned. There appeared to be a reasonably respectable level of alignment between the views of employees and management intentions in terms of MSF implementation. Finally, the results suggested that management was aware of the level of employee acceptance and perceptions of usefulness towards the MSF systems in the respective companies.

5.11 Final Model

Figure 5-2: Final Research Model
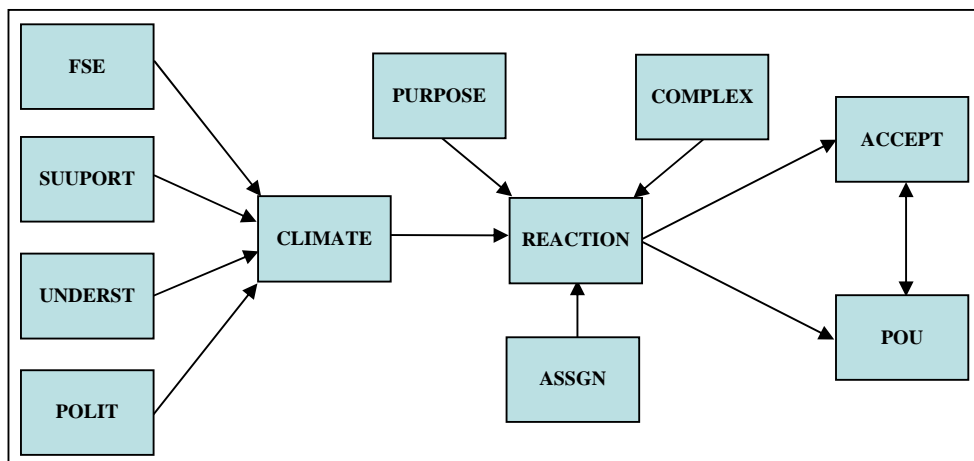
The Figure 5-2 above represents the final research model ensuing from the current research results. At one glance, the model seems like a replica of the original hypothetical model set out for this research. However, in the Climate model, POLIT replaced CTRL, and in the Reaction model, ANONYM was removed as it failed to significantly contribute to predicting REACTION. Since most of the hypotheses were supported, the other predictors and outcomes were accepted as theorized in the hypothetical model.

The Final Research Model should be used for future research to test whether or not the results could be replicated in other research settings.

5.12 *Potential Strengths and Limitations of Research*

This empirical study employed a scientific and rigorous research methodology. From the initial conceptualisation of the hypothetical model comprised of sub-models (Figure 2-2), to the development of scales to measure the constructs outlined in the model, the final analysis and interpretation of the data, due care was taken to ensure that the various stages were systematic and robust. Such a multi-stage research design was an important strength of the current study and is explained in detail along with other strong points of the study.

Before adopting any conclusions arising from the current research, it is necessary to take into account the limitations and possible errors that may have arisen during the conduct of research. The findings and conclusions drawn from the results of the current study should be interpreted with six limitations in mind.

1. As the study was cross-sectional in design, causality among the constructs cannot be determined, but inferences can be made from the associations. This was further supplemented by the pluralist design where qualitative feedback supplemented the quantitative analyses, and this aided in providing some inferential knowledge about the assessed linkages.

2. The study was constrained by the properties of the sample. The quantitative sample was limited to 420 employees, with 121 from

Company A, 207 from Company B and 92 from Company C. Furthermore, the qualitative sample was restricted to one main HR representative from each company. Nevertheless, these representatives were the key persons for the MSF implementation in those organizations. However, due to the complexity of the research model, it may be necessary for the model to be tested with a larger, more diverse sample in order for more comprehensive generalizations about organizations to be made.

3. It is critical to bear in mind the limitations of the study as they may restrict the degree to which the results found herein can be generalized to other organizations in different industries and locations (Remenyi et al. 1998). The study described in this thesis has been limited to a specific group of managers from three different Malaysian organizations in the Oil and Gas, Telecommunications and Energy and Resources industries. A particular combination of principally quantitative and some qualitative contribution was used employing a cross-sectional time frame. Other studies probing the same issue, but operating under different circumstances and employing different populations and research tools, will not necessarily generate the same results (Hussey & Hussey 1997).

4. A further limitation of the study was the lack of objective data to corroborate the extent of de-coupling between policy and practice, a call for scrutiny made by significant number of authors in the field. This limitation could not be addressed in the study because of the constraints in time, and addressing it may entail an unreasonable amount of data and information to be processed.

5. It is worthwhile to note common errors which may have occurred in the current research in four broad domains: bias in sample, inaccuracy in construct measures, errors arising during statistical analysis and problems inherent in the phenomena being measured.

6. The data collected via the web-surveys were administered to employees who have been evaluators and also been evaluated. Their responses may be subject to response-response and memory bias. Another possibility could emerge from the fact of the attention paid to participants – a Hawthorne effect (Cass & Zimmer 1975).

As the saying goes, 'Not all cracks in the chain links will cause the pallet to fall'. However, it has been argued that whether the chain will hold the pallet depends on the strength of the links, the depth of the cracks and the weight of the pallet; thus it would be a mistake to assume every pallet would fall. Similarly, it would be a mistake to assume that any potential shortcoming in a study reduces its value.

Despite the inherent limitations of every research study, the strengths of the current study were enhanced to compensate for relative constraints; e.g.,

1. The study evaluated a wide spectrum of the dynamics of MSF systems design and implementation. The current research is the first of its kind in International Management Literature to investigate the relationships between the MSF design and implementation determinants and employee reactions towards MSF systems. To reiterate, a preliminary effort towards seeking MSF best practices was achieved.

2. The measurement scales incorporated in the current study were found to have validities and reliability estimates that were robust. Pilot testing the instruments across Malaysian academics and practitioners was considered vital in this regard.

3. The quantitative data was collected through three multinational organizations in Malaysia, representing corporate giants in the rapidly developing nation. The response rate of 45% was highly respectable.

4. An integrated series of statistical analyses were employed to evaluate the data. Firstly, the presence of any outliers and missing data was investigated. Secondly, factor analysis and reliability analysis were used

to assess the psychometric properties of the instrument. The results of the psychometric assessments, along with correlation analysis provided assurance that further analysis could be conducted with confidence. Thirdly, the correlation analysis was used to test the relationship model, and provide part results for the hypotheses developed. Subsequently, multiple regression analysis was conducted to test the postulated hypotheses of the predictive relationships. The impact of demographic characteristics on the outcome variables was assessed using the means comparisons of t-tests and analysis of variance (ANOVA). The use of these multiple statistical techniques enhanced the researcher's confidence in interpreting the results.

5. The pluralist design of the study included use of qualitative feedback to elucidate findings from the quantitative section of the study. Such an approach provided first hand experiential evidence to explain the quantitative findings.

5.13   Implications on Theory and Practice

The results of the current study on the key design and implementation determinants to employee reaction towards MSF systems have several implications for research and practice. The study offers a number of theoretical contributions as the research make a unique contribution to international management literature on the application of MSF systems. In addition to theoretical contributions, related practical implications are apparent. In particular, the research findings offer organizations insights into the ways in which employees react towards the different approaches an organization may follow to implement its MSF system. Ultimately, organizations should be compelled to understand and take action based on what influences the employees the most as far as MSF systems are concerned. The implications are discussed in the two following sub-sections, first being the theoretical implications, followed by the implications for practice.

5.13.1 Theoretical Implications

Multisource Feedback systems (MSF) are perhaps one of the most prolific feedback systems to emerge in the last two decades, seeking to provide a panacea to many demands of the performance managements or feedback systems in large organizations (Brutus, Derayeh, Fletcher & Bailey 2006; Hezlett 2008; McCarthy & Garavan 2007; Morgeson et al. 2005). The premise of the approach is that multiple sources of feedback tend to provide a more valid and comprehensive picture of individual performance than does one-way, top-down feedback. Largely, the argument has been driven by proponents of procedural fairness (Greenberg 1986) and supported by a plethora of research validating MSF instruments in terms of the soundness of psychometric properties as well as determining the comparability of feedback sources such as peers subordinates and superiors (Atwater & Yammamarino 1992; Brett & Atwater 2001; Patiar & Mia 2008; Stryker 2001; Yammarino & Atwater 1993). The catalyst for the current study was the dearth of empirical research investigating employee reactions towards the MSF system. Given that reaction to the MSF systems may represent strong precursors to the ultimate success of such systems, understanding it is crucial. Given this requirement, the first important theoretical implication arising from the current research is with respect to integrating past research and extant literature to culminate a multi-faceted model of determinants to employee reactions to MSF systems.

The current study offers one of the first known initial efforts to consolidate a prescription for managing employee reactions to MSF systems by factoring in what are known to be the key determinants influencing the investigated outcomes. Although the difficulty in incorporating an exhaustive list of factors influencing reactions to MSF is recognized, the current study does help to answer many calls for a more fine-grained focus into analysis of user reactions (Morgan et al. 2005; Smither et al. 2005a; Waldman & Bowen 1998). Underpinned by academic rigour, the current research successfully has addressed a series of main and ancillary research questions.

According to Hezlett (2008), adoption and research on MSF is quite large and growing. Upon close inspection, most studies tend to be idiosyncratic in that they

focus on comparing results from the different sources within MSF (e.g. studies on self-other agreements) or on the validity of the feedback generated from the system. Limited studies have actually addressed how the users in the system (namely the raters and ratees) feel about participating in the system and more specifically their preference about the different ways of designing and implementing MSF systems. Hence, the theoretical implication is that the study provides a unique approach towards investigating the success of MSF systems by way of examining employee perceptions towards how the system is implemented and links that to their reactions towards the system.

Employee perceptions being the proxy measure, gives the study a distinctive approach rather than merely using policies as stated by management as proxy measures. As Maurer et al. (2002, p. 104) so eloquently emphasized the importance of perceptions, "From a psychological perspective, perceptions and beliefs are more proximal to subsequent thoughts and actions than is objective, but unperceived reality". Testing the theoretical and empirical assertions of MSF systems and well known paradoxes such as MSF purpose and conditions of anonymity are a logical and important step for moving the body of knowledge forward. The current study offers one of the first known tests of the MSF paradoxes in which the perceived purpose and perceived anonymity are used rather than general stated policies. If, as Maurer and colleagues (2002) assert, perceptions are the building blocks of identifying what is really fundamental to the success of a system, then verifying the employees' perceptions of the dynamics within the system was justified in order to extend the body of knowledge in the field.

The next important theoretical implication is that the current study adds to the international management literature on the dynamics of MSF systems, specifically in the Asian context. The pressures of maintaining an effective and efficient pool of human capital have been the focus of much debate and dialogue between academics and practitioners and, increasingly, have become an avenue for research. Many developed nations have seen organizations rushing to join the bandwagon in implementing MSF systems so as to keep up with their competition, without really knowing what they seek to accomplish; Malaysia is no exception. As such, the current research examines these issues as a backdrop for assessing the application of

MSF systems at organizations taking on Eastern evidence as opposed to the plethora of research which is pre-dominantly western-based. While there have been a limited number of studies on employee reaction to MSF systems, very few have been in the Asian context.

Another contribution in the academic field relates to the inclusion of the constructs purpose and anonymity. Despite the large body of literature and theoretical models about these constructs, they are known to be the source of paradoxical circumstances (as discussed in Chapter Two), and are empirically underdeveloped. To fill the void, the current research presents preliminary findings to the paradoxical phenomenon. Perceptually, anonymity does not offer any significant unique contribution to employee reactions alongside other predictors such as complexity and climate. Additionally, contrary to the prevailing belief that an administrative purpose would result in negativities on behalf of employees, the current study found the opposite. This discovery is an important contribution to theory in that it further confirms the inconsistency with regard to the issue of purpose. The unexpected purpose-anonymity relationship may be due to method bias or response consistency. Notwithstanding the evidence being preliminary and indicative, the notion of an administrative purpose being favoured over and above a developmental one leads to certain levels of optimism that the MSF system can eventually penetrate well into performance management systems to be accepted for administrative purposes. Mindful of the fact that the current research was based on three large organizations in Malaysia, further research should delve into cultural factors that may broaden the domain of generalizability to other countries.

Another theoretical contribution of this study is the systematic conceptualisation of Western developed instruments to measure certain identified constructs in the hypothetical model in Asian settings. Empirical assessment of paradigms leading to the operation of perceptual constructs such as those included in the current study is scarce in the international management literature. To add to that, there are many inconsistencies and inconclusive indications from literature as to the relationships between certain design-issues within MSF systems as identified in the review of literature; limited empirical findings on the MSF design and implementation issues of interest were gained by means of anecdotal evidence. The current study adapted

existing instruments to suit the Malaysian context of the study site, and used meticulous pilot testing. For instance, the study adapted instruments developed by Ashford (1986) to measure feedback-seeking environment, and Facteau et al. (1998) to measure perceptions of usefulness and empirically tested them in an Asian setting. As far as possible, items were adapted from the original versions to maintain consistency and encourage comparability. Discussions held in the pilot stage where feedback was solicited not only from pilot study respondents but also from Malaysian academics and practitioners to suit the cultural context of the study were considered imperative. A later assessment of the psychometric properties indicated that these adapted instruments, and also the self-developed ones, had acceptable validities and reliabilities. The unique account of psychometric soundness is yet another contribution of the current research. Future researchers are encouraged to utilize these instruments to further test them across different industries and nations.

5.13.2 Managerial Implications

The current study has several practical implications. First, it provides a practical investigation of the complex dynamics between the various MSF design and implementation determinants. In this hyper-turbulent era of relentless economic change, organizations have been confronted by the daunting forces to adopt any management tool promising to arm them with the much-needed competitive edge. MSF systems are one example used by organizations to join the bandwagon often implementing the tool without much preparation. As some experts put it, "MSF looks deceptively easy. It is like watching a proficient athlete and saying 'I could do that' without any knowledge and the training and the preparation required for excellence" (Bracken et al. 2001c, p.17).

The *sine qua non* for practice really lies in the potentially rich source of information the current research has to offer regarding the relationship between the MSF determinants and employee reaction. Given that reactions to feedback may be precursors to using the feedback, understanding employees' reactions may enable organizations to design systems which ultimately encourage these employees to take positive actions to improve. Further, understanding employee reactions may permit

organizations to encourage a feedback tradition without having to set up formal organizational mechanisms such as extrinsic rewards or punishments to monitor and ensure employees apply feedback information for development.

More specifically, based on the results of the current research, organizations would be advised that the psychological climate for MSF implementation and the perceived level of complexity are the two strongest influences over employee reaction to MSF systems. To a lesser degree, the perceptions over the rater assignment process and perceived purpose for the MSF system also have an influence over the reactions. In retrospect, the climate itself had understanding of the organizational events and operational support with the strongest levels of predictive ability. Organizations would be well advised to invest in MSF initiatives bearing this information in mind, so that employees' preferences are well considered. After all, as highlighted throughout the thesis, without employee endorsement, MSF systems may never achieve their full potential.

A further practical implication of this study is to consider the possibility of implementing MSF for both developmental and administrative purposes since the results have demonstrated a preference for the latter as cued by the reactions of employees. Bearing in mind that the results on the matter were against indications from literature, and were merely suggestions, there was sufficient qualitative support from the HR representatives to demonstrate that the employees were supportive of an administrative purpose for the MSF. Thus, an implication for policy makers and HR managers who want to get more bang for every buck they invest in MSF system, would be pointing in the direction of eliminating the presence of an additional feedback system for appraisals and, instead, implementing the MSF for both administrative and developmental purposes.

The ancillary research questions also highlighted a number of issues worthy of attention, specifically from the practitioner's standpoint. Current research findings have significance for calibrating MSF systems and delving further into facets of employee reactions. Moreover, the qualitative feedback received from the employees adds depth into understanding mindful processing and impact associated with MSF systems.

In terms of alignment between policy and practice, it is a matter of concern that the stated and perceived conditions within the MSF system were not well aligned. Although the results were not surprising, it was a matter of interest to investigate how perceptions of these design issues related to reactions towards the MSF system. The de-coupling between policy and practice (between what was stated by management and how employees perceived the MSF system) should not be overlooked. Practitioners should acquaint themselves with the broader perspective to gain a panoramic view of how to position MSF to be aligned with organizational strategy, mission and culture.

5.14 Suggestions for Future Research

A number of possibilities for future research investigation and analysis arise from the study.

The primary focus among these is the robust measurement of reaction, acceptance and perceptions of usefulness, followed by a proposal on the order of importance of key determinants. Robust measures are the foundation for any rigorous model assessment of the relationship between MSF design factors and reaction towards MSF systems. Recalibration and validation of the MSF design factors and reaction instrument used for the current research would be especially worthwhile. This would involve replicating and extending the study in other organizations and countries. Another avenue would be to examine the same issues in the same or similar settings, but at a different point in time.

Simultaneously, the current study adapted a number of scales from previous studies, and developed some for the purposes of the research. Validating the scales, especially the developed ones would be particularly worthwhile. A range of expert reviewers, managers and executives are needed to rate the suitability of the scales. An EFA of the results, similar to the approach used in the current research, would need to be used, preferably with independent samples.

There have been calls (e.g., Atwater, Brett & Charles 2007; Brutus et al. 2006; McCarthy & Garavan 2007; Ramachandran, Garg, Narayanan & D'Souza 2006; Sargeant, Mann, Sinclair, Van der Vleuten & Metsemakers 2007) to expand the limited amount of research that has been conducted in non-Western countries, and this was the one of the main catalysts for the current research. Much research still needs to be conducted to increase the level of understanding and expand the body of knowledge on the dynamics of MSF systems beyond the Western context. Potentially, the process would be aided by the development of the MSF design and reaction instrument that should be transferable across cultures, particularly in countries with similar organizational cultures and individual cultural dimensions. Nonetheless, the MSF design and reaction instrument needs to be further tested in other cultures to provide validation for its use beyond Malaysia.

In terms of questions included in the instrument for this study, it should be noted that efforts were made to maintain parsimony without compromising integrity. Adapting only suitable scales that related to the construct of interest did this. In the event that a suitable scale was not found, one was developed with short, straight-to-the-point items so that less time would be taken to complete the surveys. Even though Toegel & Conger (2003) suggest putting questions required for qualitative responses at the beginning of a survey before respondent fatigue sets in, the open-ended question for the current study was left to the end. Out of 420 surveys completed, 129 had responses to the qualitative question. The order followed in this research was to reflect the pre-dominance of the quantitative method employed for research. Future research in the area may consider altering the sequence of questioning to identify whether Toeger & Conger's (2003) proposal does prove to be a better strategy in terms of gaining a higher response rate for the open-ended questions.

A considerable amount of research has attempted to investigate the validity of multisource feedback ratings and compare the results of the ratings from the different sources within the scheme, such as peers, superiors, subordinates and self-ratings. Recently, calls for more research beyond assessment of the psychometric properties of MSF ratings have been answered (Atwater & Brett 2005; Brett & Atwater 2001; Smither et al. 2005b); yet, despite the advances, research into reactions towards MSF systems is still under-developed. It goes without saying that reactions towards MSF

systems, particularly those of employees as users of the system, represent the surrogate for MSF system effectiveness. Additional research is needed to stabilize the conceptualisation and measurement of reactions, acceptance and perceptions of usefulness specifically for the employees targeted by MSF. The current research has begun the process of identifying and understanding all the significant predictors to reaction MSF systems; it needs to be clarified whether the determinants identified as antecedents and impact of reactions towards MSF are the most important predictors. Future findings in this area may lead to important practical applications for human resource practices, especially in the related areas of performance management and leadership development.

Longitudinal studies are recommended to determine whether modifications made to the MSF design and reaction model can be fruitful. Specifically, it would be worthwhile to investigate the changes in employee reaction and behaviour when particular facets within the design and implementation of the MSF system are changed. On a related note, studies can be developed to compare the traditional top-down feedback with that of MSF systems, assessing outcomes of each in a similar approach where employee reactions are treated as a proxy for system effectiveness. The results from the current research on the treatment of inconsistencies within MSF systems are indeed compelling, but more research is needed to re-examine the paradoxical issues identified in the current study.

Taking a broader perspective, as Lassiter (2003) claims, there is an absence of empirical research proving that MSF actually improves productivity, reduces turnover and is superior to standard performance appraisal; definitely an avenue for future research. By their very nature, all models are inadequate representations of reality, but some can be a useful explanation of it. Constructs incorporated into models are meant to be representative of reality, but are by no means exhaustive. Other outcome constructs, such as those of productivity and turnover, can be incorporated into the MSF design and reaction model as the next level of consequences to be investigated.

In short, MSF has been criticized for being an area where practices have preceded research, so MSF systems remain a fertile avenue for research. Additional theory

building would be useful to advance the understanding of this seminal management tool and improve the ability of organizations to tap into its full potential.

5.15 Conclusion

In the current study, the key determinants to employee reaction, acceptance and perceptions of usefulness of multisource feedback systems were examined in relation to the various facets of MSF design and implementation. As a seminal management tool during the past two decades, it has had many paradoxes surrounding its nature and is known to have great variability in the ways it has been implemented. The current study aimed to shed some light on the contradictory and limited indications from extant research over the so-called MSF best practices as far as maximizing favourable reaction to the feedback was concerned. Robust measures of the constructs under contention were used to identify the extent of relationships and their predictive power within the hypothetical model.

The hypothetical model, comprising fifteen constructs, was developed and tested after a thorough review of extant literature ranging within, but not limited to Management, International Management, Human Resource Management, and Organizational and Personnel Psychology. Feedback was solicited from academics and practitioners to ensure a valid instrument was compiled for the quantitative data collection. The model was tested using a pluralist research design employing rigorous quantitative analysis and supplementary qualitative feedback. The two-tier approach in analysing the data provided first-hand interpretation of the results alongside the researcher's understanding based on extant literature. The study was designed to enable more meaningful interpretation of the significant and non-significant patterns obtained from the empirical investigation.

Despite some limitations, the strengths of the study lay in the theoretical and practical implications that provided a unique contribution to understanding the various design and implementation issues surrounding MSF systems across organizations; especially those in an Asian setting. The generally acceptable validities and reliabilities of the survey instruments provide researchers with confidence in applying both the adapted and originally developed scales to future studies. Further, results from the study may be used as a diagnostic exercise for

appropriate performance management and leadership development strategies to improve the overall quality of human capital within organizations.

An important issue to bear in mind is that the findings reported in the study are provisional and suggestive, not definitive. Clearly the dynamics of MSF systems will vary across organizations and countries depending on the ways the systems are designed and implemented in accord with variations due to the diversity of workplace cultures and structures in organizations across the globe. Hence, alternative models of the determinants to the reaction model possibly may be explored and eventually consolidated. More sophisticated quantitative and qualitative techniques will be employed in the future, extending the present study by further rigorous research that refines MSF theories, designs and testing measures.

The ultimate goal for organizations is to strike the right balance between customizing the MSF system design and process implementation to the users' needs and likes so that they are receptive to the entire process and, consequently, make it a success, while simultaneously maintaining a sufficient level of system design control so that the integrity of the MSF system cannot be compromised.

In conclusion, the current study has made substantial progress towards meeting its overriding objective; *viz*., to advance the understanding of what is currently known and what still needs to be learned about effectively implementing multisource feedback systems to maximize the favourable reaction, acceptance and perceptions of usefulness of employees.

5.16 Chapter Summary

In the final chapter, the concluding discussion for the thesis has been presented. The chapter began with an introduction and an overview of the study, followed by a reiteration of the main and ancillary research questions. Next, each main research question was addressed individually by way of presenting a discussion of the respective hypotheses related to those questions. The ancillary questions also were addressed individually by presenting the results of the content analysis and

comparing the quantitative and qualitative results. A short synopsis on the overall finding was furnished, followed by the final model developed from the entire analysis. A section on limitations and strengths for the research, as well as implications for theory and practise, was presented. Finally, a number of suggestions for future research were offered.

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APPENDICES

Letter of Invitation

STUDY INTO THE CRITICAL DETERMINANTS INFLUENCING EMPLOYEE REACTION TO MULTISOURCE FEEDBACK

Dear Sir/Madam

Malaysian organizations are facing unprecedented challenges in relation to their Human Resource functions. In dynamic markets successful organizations require managers to maintain sustainable levels of performance. Accordingly, the phenomenon of multisource feedback has taken centre stage in the practice and research on performance evaluation. Multisource feedback, also known as 360-degree feedback, refers to the process by which performance evaluations are collected from many individuals - supervisors, peers, subordinates, and customers. These multiple perspectives assume attainment of unique feedback from the various constituents thereby adding incremental validity to assessment of individual performance.

The complexity of multisource feedback lies in the many ways it can be put in practise, and the ultimate effect implementation has on the accuracy, usefulness, and acceptance of the feedback. It is proposed that each decision made in the implementation of multisource feedback has implications for the managerial acceptance and perceptions of usefulness of the overall feedback system.

With these challenges in mind, The Higher Degree Research Unit of the Curtin Business School wishes to invite your organization to participate in a research project to determine the critical factors influencing managerial acceptance and perceptions of the usefulness of the multisource feedback system.

From the information gathered, determinants of employee reaction towards multisource feedback design and its implementation will be elucidated better. Analysis of this information will permit specific actions to be taken to address paradoxes incumbent within the multisource feedback system and, hence, modify the design to increase the acceptability of the core users – being the managers. After all, the reactions of managers will have important repercussions on the overall success of the MSF system in Malaysia.

I would humbly like to invite your organization to assisting in making this project a success. Please refer to the Information Sheet for details, or contact Amina Kayani on telephone at +61-402-910458 or via email at Amina.Kayani@postgrad.curtin.edu.au or aminakayani@hotmail.com.

Thank you for your generous support.

Yours sincerely,

Dr Laurence Dickie
International Programs
Academic Director of Teaching and Learning, Research
Curtin Business School
Curtin University of Technology, WA

Information Sheet

STUDY INTO THE CRITICAL DETERMINANTS INFLUENCING EMPLOYEE REACTION TO MULTISOURCE FEEDBACK (MSF)

The Curtin Business School at the Curtin University of Technology is inviting you to participate in an applied research initiative into how employees react to certain variations in multisource feedback design and implementation.

The relationships between various critical factors and reaction criterion-acceptance and perceptions of usefulness will be explored. From the information gathered, determinants of employee reaction towards multisource feedback design and implementation issues will be better elucidated. Analysis of this information will permit specific actions to be taken to address paradoxes incumbent within the multisource feedback system, and hence, modify the design to increase the acceptability of the core users- being the managers. After all, the reactions of employees will have important repercussions on the overall success of the MSF system.

This study has clear practical benefits for your organization. From the data gathered, it will be possible to identify which factors within the MSF system determine MSF system acceptance and perceptions of usefulness. Analysis of this information will permit recommendations to be made for improving those aspects of the MSF implementation, which influence the overall success of the MSF system.

Direct benefits to your organization

Provide independent, confidential and accurate information on the acceptance and perceptions of usefulness of the multisource feedback system.

Identify preference for the purpose of feedback whether it should be used for purely developmental initiatives or administrative uses as well.

Provide an overall model of best practises in MSF system application.

Identify and target improvements to specific facets of the MSF system.

Understand the level of alignment between MSF policy and perceptions of employees towards the system.

Improve employees experience in performance management.

Data collected will be subject to strict confidentiality agreement with the participating organization. The anonymity of employees participating in surveys and discussions are assured. Results of the survey will only be

reported in the thesis and to the organization at the aggregate level (i.e. averages of responses at the organization, division, section of group category) to ensure the privacy and integrity of the data collected. Under no circumstances will individual level reports of MSF Reaction be available to any third party. Participants are free to withdraw or refuse to participate in the research.

Thank you for taking the time to help us.

CBS Higher Degree by Research
Curtin Business School
Curtin University of Technology
Western Australia

Survey Instrument

(Note: This survey was downloaded from the 'Question Pro', the web-based survey provider. The general look and feel of the instrument is not the same as it would have been on the web-survey. The questions remain unchanged. However, all organization names have been removed to maintain anonymity of participant organizations. Questions were split up into different pages to maintain parsimony and to portray a short and simple survey. The entire survey fitted into six pages which a percentage gauge at the top to specify how close the respondent was to the end of the survey).

Survey on Multisource Feedback Implementation.

<u>Thank you in Advance for completing this short survey</u>

Dear Participant,

You are invited to participate in our survey on employee reaction to Multisource Feedback (MSF) Systems. In this project, selected employees in your organization will be asked to complete a survey that asks questions about your perceptions over various MSF design and implementation issues. It will take approximately 15 minutes to complete the questionnaire.

Your participation in this study is completely voluntary. However, it is very important for us to learn your opinions. Data collected will be subject to strict confidentiality agreement with the participating organization. The anonymity of employees participating in surveys and discussions are assured. Results of the survey will only be reported in the thesis and to the organization at the aggregate level (i.e. averages of responses at the organization, division, section of group category) to ensure the privacy and integrity of the data collected. Under no circumstances will individual level reports of MSF Reaction be available to any third party. You are free to withdraw and stop proceeding with the survey at any point in time.

If you have questions at any time about the survey or the procedures, you may contact Amina Josetta Kayani at +61-402-910458 or by email at Amina.Kayani@postgrad.curtin.edu.au. Thank you very much for your time and support. Please start with the survey now by clicking on the Continue button below.

Cheers!

Amina Kayani

Feedback environment:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The way things are set up where I work, it would take a lot of effort to get feedback from others.	❏	❏	❏	❏	❏
I can get feedback from others with little effort whenever I want it.	❏	❏	❏	❏	❏
I think that my boss will think worse of me if I asked him/her for feedback.	❏	❏	❏	❏	❏
Where I work, it is not a good idea to ask your co-workers for feedback, they might think you are incompetent.	❏	❏	❏	❏	❏
Where I work, it is better to try figure out what you are doing on your own rather than ask others for feedback.	❏	❏	❏	❏	❏

Extent of environmental control:

	Great Extent	Reasonable Extent	Moderate	Little	Very little
To what extent do you have influence over the things that affect you on the job?	❏	❏	❏	❏	❏
To what extent do you have input in deciding what tasks or parts of tasks you will do?	❏	❏	❏	❏	❏
To what extent do you have the opportunity to take part in making job-related decisions that affect you?	❏	❏	❏	❏	❏
To what extent can you set out your own work deadlines?	❏	❏	❏	❏	❏
To what extent does your job allow you the opportunity for independent thought and action?	❏	❏	❏	❏	❏
To what extent do you control the pace and scheduling of your work?	❏	❏	❏	❏	❏

Extent of understanding over work events:

	Great Extent	Reasonable Extent	Moderate	Little	Very little
To what extent do you know why others at work act the way they do?	❏	❏	❏	❏	❏
To what extent do you understand the way organization changes occur?	❏	❏	❏	❏	❏
To what extent do you understand the reasons why job-related decisions are made?	❏	❏	❏	❏	❏
To what extent do you understand how your organization works?	❏	❏	❏	❏	❏
To what extent do you understand why most things happen in your organization?	❏	❏	❏	❏	❏
To what extent do you know what information you employer uses when making decisions?	❏	❏	❏	❏	❏

Level of perceived operational support towards the Multisource Feedback (MSF) implementation:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
There is sufficient guidance given prior to the Multisource Feedback (MSF) system implementation.	❏	❏	❏	❏	❏
If I have a problem using the MSF system, I can easily find someone to help me.	❏	❏	❏	❏	❏
Overall, I have had enough time to use the MSF system and to perform my regular job tasks.	❏	❏	❏	❏	❏
I am well informed about the MSF process.	❏	❏	❏	❏	❏
My boss/manager has encouraged me to use the MSF system.	❏	❏	❏	❏	❏

Psychological climate for Multisource Feedback system implementation:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The environment I work in is suitable for MSF system implementation.	❏	❏	❏	❏	❏
MSF would work well with the general work practices in my work place.	❏	❏	❏	❏	❏
The work values inculcated at my work place supports MSF system success.	❏	❏	❏	❏	❏

Perceived purpose of the Multisource Feedback system implementation:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The MSF system influences whether or not I get an increase in my salary.	❏	❏	❏	❏	❏
The MSF system influences my chances for getting promoted.	❏	❏	❏	❏	❏
A good MSF assessment can help me get a better job within this organization.	❏	❏	❏	❏	❏
The MSF system increases my chances for training that may help me in the future.	❏	❏	❏	❏	❏
The MSF system determines whether or not I get rewarded.	❏	❏	❏	❏	❏

Level of complexity perceived to be associated with using the Multisource Feedback system:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The MSF system is fast and responsive to commands.	❏	❏	❏	❏	❏
The MSF system has a lot of "bugs".	❏	❏	❏	❏	❏
In general, the MSF system is easy to use.	❏	❏	❏	❏	❏
The MSF system is "user-friendly".	❏	❏	❏	❏	❏

Rater anonymity within the Multisource Feedback (MSF) system:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The MSF system is carried out as such that the rater is anonymous to the ratee.	❏	❏	❏	❏	❏
Anonymity of the rater is well maintained throughout the whole MSF process.	❏	❏	❏	❏	❏
With reasonable effort taken, I could find out who my raters of an MSF assessment were.	❏	❏	❏	❏	❏

Process of assignment (selection) of raters for the Multisource Feedback system:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
My organization makes sure that I am assigned raters who are qualified to evaluate my work.	❏	❏	❏	❏	❏
Procedures ensure that I am assigned a rater who knows what I am supposed to be doing.	❏	❏	❏	❏	❏
My organization makes sure that I am assigned a rater that understands the requirements and constraints of my work.	❏	❏	❏	❏	❏
My organization ensures that my assigned rater is familiar with the rating format and procedures.	❏	❏	❏	❏	❏
My organization procedures make sure that I am assigned a rater that knows how to evaluate my performance.	❏	❏	❏	❏	❏

Reaction towards the Multisource Feedback (MSF) system:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I believe the MSF system is well designed.	❏	❏	❏	❏	❏
I believe the MSF system has potential to achieve the intended goals.	❏	❏	❏	❏	❏
I somehow feel that the MSF system is a waste of time.	❏	❏	❏	❏	❏
I prefer to receive feedback the traditional top down way rather than via MSF feedback	❏	❏	❏	❏	❏

MSF Acceptance:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Overall, the MSF assessments have been giving an accurate picture of my performance.	❏	❏	❏	❏	❏
Generally, I agree with the assessments produced by the MSF system.	❏	❏	❏	❏	❏
The MSF assessments are an acceptable evaluation of my work performance	❏	❏	❏	❏	❏

MSF perceptions of usefulness:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Generally, the MSF assessments have provided useful information for my development.	❏	❏	❏	❏	❏
MSF would give employees a sense of participation in the feedback system.	❏	❏	❏	❏	❏
MSF does not add value to the quality of feedback employees receive before the MSF system was in place.	❏	❏	❏	❏	❏
MSF assessments provide me with valuable information that I would not have otherwise.	❏	❏	❏	❏	❏
MSF assessments give me a clear understanding of my job-related areas that require improvement.	❏	❏	❏	❏	❏

What is your age? *(Bullet type question)*

1. 18 - 24 years
2. 25 - 34 years
3. 35 - 44 years
4. 45 - 54 years
5. 55 - 64 years
6. 65 years and over

Appendix C

Gender? *(Bullet type question)*
1. Male
2. Female

Kindly type in the Department/Unit/Subsidiary you are attached to?

What is your current position level?
1. Executive
2. Senior Executive
3. Manager
4. Senior Manager
5. General Manager
6. Other, please specify _____

What is your current Job Grade?

How many years have you been working for this organization?
1. Less than 1 year
2. 1 year to less than 3 years
3. 3 years to less than 5 years
4. 5 years to less than 10 years
5. 10 years to less than 15 years
6. 15 years and above

Comments or suggestions to improve the current Multisource Feedback system in your organization:

You have reached the end of the survey. Thank you again for your valuable time and support.

Amina Kayani
CBS Higher Degree by Research
Curtin Business School
Curtin University of Technology
Western Australia

Semi-Structured Interview Questions (Pre-survey)

Interview Contact Details

Name:

Organization:

Position:

Date:

- When did the Organization start implementing the MSF system?

- What is the feedback results used for (e.g. administrative-appraisal, development, leadership development only or a combination)?

- How often are the MSF feedback assessments conducted?

- Is there a separate performance appraisal system?

- What kind of training and support is provided to employees (pre, during and post feedback)?

- Is (and how is) rater anonymity maintained within the MSF process?

- How is the rater selection done?

- What are management's perceptions of the general level of complexity felt by employees to participate in the MSF system?

Semi-Structured Interview Questions (Post-survey)

<div style="border:1px solid black; padding:10px">

Interview Contact Details

</div>

<div style="border:1px solid black; padding:10px">

Name:

HR Representative for Organization:

Position:

Date:

</div>

1. How does your organizations address the following issues in MSF implementation?

    - MSF Purpose conveyed to employees
    - Maintenance of rater anonymity
    - Complexity in using the MSF system
    - Rater Assignment Process

2. Comments and In-depth Discussion on quantitative findings addressing Research Questions 1-4.

    (Furnish a copy of the hypothesis results and quantitative analysis to aid discussion)

    Climate Model - discussion over significant and insignificant predictors

    Reaction Model - discussion over significant and insignificant predictors

    The Outcomes (REACTION to ACCEPT and REACTION to POU)

    The Linkage (ACCEPT and POU)

3. What is management's observation of employees' level of acceptance and perceptions of usefulness towards the MSF system?

4. Brief discussion (furnish summary) on employee responses to open-ended question for organization's perusal.

Appendix E

Appendices for the Statistics (Appendix E1 – Appendix E7)

Appendix E1: Case-wise Diagnostics Model B

Case Number	Std. Residual	REACTION	Predicted Value	Residual
4	-2.115	2.75	3.6232	-.87321
17	-2.616	2.50	3.5797	-1.07971
113	2.016	5.00	4.1680	.83201
115	2.372	3.75	2.7709	.97909
121	2.086	4.50	3.6390	.86099
159	-2.740	2.75	3.8812	-1.13119
178	-2.033	2.00	2.8393	-.83933
214	-2.371	1.75	2.7289	-.97888
232	2.535	3.50	2.4537	1.04628
258	-2.373	3.00	3.9796	-.97955
260	-2.123	3.00	3.8762	-.87618
261	-2.551	2.50	3.5531	-1.05312
267	-2.614	2.75	3.8290	-1.07896
286	2.190	3.50	2.5960	.90397
288	2.355	4.25	3.2778	.97216
301	-2.250	1.75	2.6786	-.92860
314	-2.116	2.25	3.1235	-.87352
330	-2.072	2.75	3.6054	-.85537
347	-2.123	2.25	3.1265	-.87650
364	2.238	5.00	4.0760	.92395
404	-2.030	2.25	3.0879	-.83793

Dependent Variable: REACTION

Appendix E

Appendix E2: Case-wise Diagnostics Influence Statistics Model B

	Case Number	Standardized DFBETA Intercept	Standardized DFBETA CLIMATE	Standardized DFBETA PURPOSE	Standardized DFBETA COMPLEX	Standardized DFBETA ASSGN	COVRATIO
1	4	.07408	-.01869	-.02482	-.01657	-.11002	.95436
2	17	-.18051	.15025	.03658	.18345	-.02716	.92318
3	113	.09533	-.01261	-.15495	-.12296	.05653	.97101
4	115	.22371	-.22096	-.04600	-.02479	-.11020	.94739
5	121	-.05708	.01146	-.01294	.02210	.10415	.95609
6	159	.15479	-.10874	-.32608	.16733	-.14465	.92392
7	178	-.22294	.21993	.14631	.00261	.07097	.97260
8	214	-.31405	.50008	-.27885	.36570	-.10443	.99390
9	232	.03619	-.04586	.05678	.20919	-.20438	.94229
10	258	.01603	-.13472	.11498	-.00608	.02069	.94158
11	260	-.03112	-.08689	-.03992	.10429	.06184	.95603
12	261	.08133	-.16012	.03456	-.11937	.06957	.92681
13	267	-.12181	-.13621	.01386	.12832	.22208	.92715
14	286	-.22070	.00970	.33314	.17361	.07070	.97816
15	288	.20287	-.37411	.02746	-.23540	.22095	.96285
16	301	.12972	-.05772	-.00115	-.31251	.06202	.96161
17	314	.12631	.00266	.18327	-.29129	-.12347	.97451
18	330	.05376	-.17571	-.24408	.07802	.14412	.97433
19	347	.23984	-.14642	-.21376	-.17654	-.03345	.96865
20	364	.04719	-.00575	-.17830	-.06482	.10567	.95564
21	404	-.21226	.10748	.23865	-.04617	.15290	.97503

Appendix E

Appendix E3: Case-wise Diagnostics Influence Statistics Model B (con't)

	Case Number	Mahalanobis Distance	Cook's Distance	Centered Leverage Value
1	4	1.07581	.00556	.00318
2	17	2.21773	.01327	.00656
3	113	4.99720	.01493	.01478
4	115	4.83257	.02009	.01430
5	121	1.04305	.00532	.00309
6	159	6.41065	.03441	.01897
7	178	5.96690	.01776	.01765
8	214	21.85389	.08746	.06466
9	232	7.40674	.03360	.02191
10	258	2.61968	.01231	.00775
11	260	1.87472	.00779	.00555
12	261	1.76788	.01083	.00523
13	267	3.76815	.01982	.01115
14	286	11.62588	.03865	.03440
15	288	10.23003	.03942	.03027
16	301	7.04108	.02526	.02083
17	314	8.54976	.02679	.02530
18	330	7.47153	.02264	.02211
19	347	6.58154	.02116	.01947
20	364	4.52125	.01691	.01338
21	404	6.77394	.01985	.02004

Appendix E4: Case-wise Diagnostics Model C

Case Number	Std. Residual	ACCEPT	Predicted Value	Residual
4	2.003	4.00	2.8888	1.11123
17	2.278	4.00	2.7365	1.26345
55	-2.373	2.33	3.6499	-1.31657
144	-2.047	2.67	3.8021	-1.13546
149	2.003	4.00	2.8888	1.11123
157	2.003	4.00	2.8888	1.11123
177	-2.700	2.00	3.4977	-1.49767
178	-2.582	1.00	2.4321	-1.43209
207	-2.373	2.33	3.6499	-1.31657
215	-2.373	2.33	3.6499	-1.31657
268	-2.700	2.00	3.4977	-1.49767
286	2.330	4.33	3.0410	1.29234
305	-2.307	1.00	2.2799	-1.27987
310	-2.151	2.00	3.1932	-1.19322
342	-2.373	2.33	3.6499	-1.31657
344	-2.099	2.33	3.4977	-1.16434

a Dependent Variable: ACCEPT

Appendix E

Appendix E5: Residual Statistics Model C

	Minimum	Maximum	Mean	Std. Deviation
Predicted Value	2.2799	4.2588	3.3174	.36281
Std. Predicted Value	-2.860	2.595	.000	1.000
Standard Error of Predicted Value	.030	.090	.041	.012
Adjusted Predicted Value	2.2602	4.2647	3.3176	.36259
Residual	-1.49767	1.29234	.00000	.55394
Std. Residual	-2.700	2.330	.000	.999
Stud. Residual	-2.705	2.335	.000	1.002
Deleted Residual	-1.50309	1.29827	-.00019	.55728
Stud. Deleted Residual	-2.730	2.350	-.001	1.004
Mahal. Distance	.006	8.179	.997	1.354
Cook's Distance	.000	.075	.003	.007
Centered Leverage Value	.000	.024	.003	.004

Dependent Variable: ACCEPT

Appendix E6: Case-wise Diagnostics Model D

Case Number	Std. Residual	POU	Predicted Value	Residual
10	-2.362	2.25	3.3374	-1.08736
128	-3.005	2.25	3.6334	-1.38344
176	-3.005	2.25	3.6334	-1.38344
211	-2.262	2.00	3.0413	-1.04127
214	-2.241	2.75	3.7815	-1.03148
234	-2.041	2.25	3.1893	-.93931
256	-2.784	2.50	3.7815	-1.28148
260	-3.127	1.75	3.1893	-1.43931
310	-2.462	2.50	3.6334	-1.13344
313	-2.041	2.25	3.1893	-.93931
335	-2.262	2.00	3.0413	-1.04127
336	-2.141	2.50	3.4854	-.98540
341	-2.462	2.50	3.6334	-1.13344
344	2.283	3.50	2.4491	1.05090
384	-2.462	2.50	3.6334	-1.13344
385	-2.041	2.25	3.1893	-.93931
389	-2.584	2.00	3.1893	-1.18931
404	-2.584	2.00	3.1893	-1.18931

a Dependent Variable: POU

Appendix E

Appendix E7: Residual Statistics Model D

	Minimum	Maximum	Mean	Std. Deviation
Predicted Value	2.4491	4.3737	3.4589	.35305
Std. Predicted Value	-2.860	2.591	.000	1.000
Standard Error of Predicted Value	.025	.075	.034	.010
Adjusted Predicted Value	2.4203	4.3822	3.4590	.35310
Residual	-1.43931	1.05090	.00000	.45965
Std. Residual	-3.127	2.283	.000	.999
Stud. Residual	-3.134	2.314	.000	1.002
Deleted Residual	-1.44596	1.07971	-.00004	.46242
Stud. Deleted Residual	-3.175	2.329	-.001	1.005
Mahal. Distance	.006	8.181	.997	1.355
Cook's Distance	.000	.073	.003	.006
Centered Leverage Value	.000	.024	.003	.004

a Dependent Variable: POU

Responses for Open-Ended Questions

Organization 1

1. MSF system needs to be more focus by not doing it through system. Feedback received must be clear and need face to face session.

2. To avoid bias, discrimination and victimization from Immediate Manager, the weightage (%) allocated for Immediate Manager, Self, Subordinates and peers should be the same i.e 25%. Currently Immediate Manager (70%), self (15%), peers (10%) and subordinates (5).

3. Evaluations done by boss, peers and subordinates should be final, not subject to review by Head of Dept.

4. There must be a constant, fixed evaluation plan throughout the years so that the employee can perform accordingly, and feel being evaluated fairly. The evaluation guidelines must be made clear enough.

5. MSF is ok but how rating is done need to be improved.

6. None

7. MFS will be a reliable performance measuring tool only if the setting of KPI and selection of competencies are relevant, realistic and evaluation are done objectively.

8. The MSF is also link to the annual rewarded that will be get such as bonus and salary increment. Thus, sometimes it probably not shows a true picture of the actual performance, as you want it to be reasonable for the rewarded that might get. For example, you might perform well with what will be rated in your MSF but the rating for the other responsible or job might not be considered or vice versa.

9. Raters and ratees are easily identified especially if you are in a small unit with only a few staff. System uses too general selection of categories and you find it very tedious to get one category that fits a particular task that one does. There should be some user-customable categories to fit it some uncommon tasks or duties.

10. The print format of report is problematic, it does not print onto one A4 page properly.

11. System change yearly to further improve.

12. To much weightage for immediate manager.

13. I believe the PMS system developed is good and can achieve the objectives of the PMS. However, I believe that more training and user awareness programs should be carried out. The current training program emphasizes more on the 'how' to use the PMS. But more efforts must be put on achieving results/marks that truly depicts the performance of the individual. Some managers are still not 'honest' in their assessment and tend to sympathize.

14. Tools to linkage MSF system with business KPI plan & reporting, training plan & reporting, etc., or 'Employee's Portal'.

15. The system could only be effective if users rate sincerely without trying to manipulate their assessment.

16. The system disregards and ignores personality conflicts between superiors and subordinates. Similar to more traditional appraisal systems, such conflicts often lead to 'rater' abuses of process. Hence while the MSF system is commendable, it does not address the real issue of abuse, and this inhibits the system from being truly effective.

17. Multirater score, i think it shouldn't be 4 way. Just 2 way, within worker & manager.

18. Weightage for worker only 25% & manager 75%. I think it should be worker 40% & manager 60%, to be fair to the worker.

19. Number of KPIs should not more then 10.

20. KPI for non-executive is to simple, easy. End of the year simply can get 2.75 & above. But for executive, too many KPIs & struggle to get even 2.5.

21. Why only executive using online PMS? Non-executive still using handwriting form?

22. No proper & enough development program for executive E07-E13. Non-executive got too many mandatory courses.

23. Increment & bonus for the past 3 years is not competitive.

24. Pls review for more percentage (weightage) set-up for peers and subordinates. With current percentage in PMS it does not give a significant value for overall results (too small for peers plus subordinates). I suggest PMS is to give percentage by 50-50.

25. Attitude changes needed in order to make use of MSF.

26. Review the competencies so can suit better with organization/ department requirement

27. Increase in salary can do separately not thru this system.

28. The Multisource Feedback can be improved further if the Raters need not be anonymous. What's more important is for the Raters' score to be kept confidential and the appointment of the Raters to be fully justified and jointly agreed by the Superior and Subordinate.

29. There is still loophole where employee can manipulate the result, but yet it is still within control. This system is very good in ensuring the productivity of company.

30. Make it more user friendly

31. Ensure that the info or feedback keyed in by the rater is confidential to the ratee

32. Evaluation to be based on the current system is good but the implementation of the moderation system for the total score is not appropriate.

33. The rater must be well informed regarding the list of items involved in the rating process (raters dont understand the definition, actually). This process leads to a wise decision to rate the person.

34. Integrity of self-evaluation is morally in doubt. Prone to rate ourselves to the max.

35. The system is designed well and so professional but people wrongly gives the rating and it spoils someone's future.

36. MSF has not produced any visible / perceivable results.

37. The system to be more user friendly and to increase the description on KPI so that it reflected the true KPI that relates to my current job

38. The Multisource Feedback System does not work well in my organization mainly due to the bell curve system where the final results from the MSF will be readjusted by the management to fit into the organization preset bell curve. Thus it does not reflect the actual performance of staff through MSF.

39. I would say that MSF system is actually beneficial if correctly used. There will be major disadvantages of MSF when someone takes the opportunity to de-grade someone else who actually performs excellently due to some personal misunderstanding. This could actually lead to work stress and de-motivation (reduction in performance) of those who really have worked hard.

40. Need review all part for achieve target.

41. Ok

Organization 2

42. Sometimes the feedback that we get does not represent the actual performance that we have achieved. May be this will the room for 'alien' to personally attacked and not evaluate the person sincerely?

43. No great improvements in the lot of mankind are possible until a great change takes place in the fundamental constitution of their modes of thought.

44. Too many questions. Should be customized.

45. 360 degree doesn't make any sense of my opportunity and career development here in ORG 2. But maybe in (ORGANIZATION 2) parent company it does. A numbers of General Manager/Department Head has a very minimum level of professionalism or unprofessional at all, biases, hatred in their mindset (to a number of staff), dictatorship and or even CO***PT.

46. Road show to introduce 360 to all staff to give a clear picture what going on.

47. The system is there but the implementation of the result is unclear.

48. Unlike (ORGANIZATION 2), another Dept does not reveal the result. Therefore ratee never knows what areas need improvement and what are she's good in. Additionally, result helps ratee to identify conflict between rater, which never revealed before.

49. It's a good move. Should do it regularly in order to get good result.

50. Only good at some particular unit.

51. The system is good but it should also be transparence and can be viewed back on the result by the personnel.

52. The result should be explained to the ratee to benefit from the survey done.

53. Should it be kept only by HR, ratee wouldn't know his/her own strength/weaknesses as qualitative thoughts can be pondered upon & analyzed by the individual himself for self development i.e. Attitude.

54. Should training development is centralized and analyzed fairly for Group program, then, this surveys should be continued by all means, as it gives a clear path for ones career growth - surveys output would be more appreciated.

55. I suggested that the staff whom participate in 360 degree given a chance to check what is the comment from the management in order to be improved.

56. Well done.

57. An overall briefing should be conducted before the implementation thus to give a better understanding to all and to ensure the important of the rating/feedback that need to be given. Result/finding should be shared for further improvements..

58. Simplify the explanation for every question.

59. All, ok.

60. Very kindly, hard working, proactive, sensitive and responsive in dealing with customer needs. Can delivered all clients needs in a timely and with high quality.

61. To make the 360-Degree Feedback system more user-friendly & sufficient time for implementation of developmental programs in order to close the competency gaps.

62. With hidden comments from the raters is not fair for the ratee.

63. Should be all level of employees.

64. We should be able to see the result after assessment on us by rater.

65. Appreciate if simplified and summarized feedback are given as soon as we completed the 360 Deg system.

66. Make it user friendly.

67. Excellent tool for self-developments.

68. Questions should be cut short, direct & not redundant.

69. The project owner should give talks / road show to the users so that the users (like me), have a better picture on 360 Degree

70. The selection of rater must be accurately selected based on criteria / standards sets.

71. The system seems to be excellent. Some how rather the raters' perceptions seem to be somewhat different.

72. Well designed and covered wide aspect of (ORGANIZATION 2) environment.

73. Make questionnaires clear, precise and easy to understand.

74. Identify feedback givers (raters) who are involved with the feedback seeker not only in daily-basis works, but also to include project-basis, consultancy-basis etc.

75. Eliminate contribution of own feedback (seeker rates himself) in the overall assessment, as some people tend to give high ratings towards themselves. Find the most accurate alternative way to do this.

76. The appraisal should be selected among those who know he staff.

77. I can't comment since I've not given much attention on this feedback system.

78. To improve 360 Degree for me is very simple, (a) invite customers to fill - AE job to approach at least 10 customers (b) invite non-executive with a simple form means easy to understand to fill, (c)ensure person who fill because of the sincerity not because of force this will impact the outcome if you force people to fill.

79. (ORGANIZATION 2) should ensure continued and proper awareness of the process and particularly pay more attention in matching raters with ratees. There have been cases where random selection ahs happened and this should not be the case. To be fair perhaps 75% of raters should be chosen by ratee and 25% random to ensure objectivity.

80. Your Division should stressed the importance of 360 Degree to all Executives.

81. The evaluations criteria's must be easily understand for all levels.

82. System is expected to work efficiently and fast.

83. Assessment results should be made known immediately to those being rated.

84. For example, until now we still don't know how is our 2006 rating and areas to improve.

85. The result of 360 Degree Feedback is not well updated and feedback to the ratee.

86. None.

87. Rater must be honesty, realistic, and prevent from abusing his/her position to rate others badly. For example, I do not like the superior. Therefore, I should rate him/her badly as a mean of revenge.

88. Raters must be selected from persons who are familiar with the Ratee's work performance, job scope/description and background.

89. There should be awareness and education to staff on what is 360D is all about. Understanding and interpretation may vary from one employee to the other so there should be some kind of method to minimize these differences. 360D is a good way of getting feedback on one employee, but our current working culture and environment may not made it possible for it to work effectively. It's a process of reengineering the whole working culture, mindset and environment. 360D should be a journey not a destination. I believe given the

right and clear direction and adequate support and resources, 360D shall be a very powerful and wonderful mechanism to upgrade our performance evaluation system. One thing for sure, we need the right people with the right value and skills to promote 360D.

90. To give 360 Degree Results to ratee. Rater should be immediate superior where he/she can help staff to understand the value of 360 Degree and coach the staff to improve professional development skill.

91. There should be a standard format for the summary of the feedbacks to be received by the ratee.

92. The questions used are not straightforward and clear. Some questions not relevant to certain level. In some situation, you don't really know the person that you are evaluating.

93. System to monitor that all feedback received from actual rater not from someone else. Relevant questions to be asked for each company. The feedback system is very subjective.

94. Overall.

95. 360 degree will work superb if the whole of performance review is embedded and being rated professionally. Removal of rating discretion or bell curve concept from management side will improve staff loyalty and 'die for the company' initiatives.

96. The real 360 degree feedback should be applied and implement for all.

97. Overall 360-degree system is good but carrying it out in (ORGANIZATION 2) is not showing a true picture of you. The evaluator should be from the neutral side especially the internal users working with you not coming from the selected people like your own boss cause there will be a bias evaluation on this either pro or con which is now happening in (ORGANIZATION 2). So the system just like the old traditional way but computerizes by a system.

98. The current 360 Degree assessment is not 'user-friendly' in a way that the design, text/words used is to high of a standard to a certain group who understands only basic English Language.

99. Towards the end of evaluation we don't even know our final marks because it never been shared with the employees. Normally the reward is prorated for all staff, thus, no matter how many you got the reward is same for everybody.

100. I strongly agreed with the 360 Degree and all staff should follow the procedure given.

101. The system as intended could be good, but generally from where I stand, the 360 degree was not inculcated, neither was it part of any developmental plans, but merely as a tool that was used during the typical year end appraisal.

102. System needs to be user-friendlier. Currently, the interface encourages 'screen fatigue'. The whole process and interface must be simplified somehow, especially for those who have to evaluate a lot of staff.

103. Some of the questions need to be reviewed and explicitly segregated i.e. some may apply for all, others for only support functions or front liners, etc. Raters & Ratees must agree which ones are applicable and which ones are not.

104. Please provide training to understand the questions of 360 Degree rather than our own assumption on the meaning of the questions.

105. GOOD

106. For better improvement, the 360 Degree Evaluation should allow the non-management employee to evaluate even all the Level 2/Head of Division of the (ORGANIZATION 2) subsidiary because the Head determines the objectives and direction of the Division. By having this, we will know whether the Head is carrying ample effort to ensure that his Division is healthily being managed to achieve the defined KPI s. Congratulations 360 Degrees Evaluation.

107. Specific questions tailored to job grades will be better in determining the overall results of 360 evaluation. TQ.

108. No comment.

109. Some of the questions in 360 Degree Feedback should not be asked to the incumbent as it is outside of their jurisdictions. It is supposed to be a tool to pool feedbacks from staffs on the overall perception of the organization and not a tool to rate performance.

110. To give more understanding of 360-degree feedback to all staff involved. 2. Understanding of Malaysian culture should be taken into consideration.

111. Feedback on the result should be made known. It may be able to improve the quality of the personnel being rating.

112. Overall the system is good but some of the employee or rater are not given the real rate. It might be not accurate.

113. To simplify the process.

114. Actually, the system is good. However, whether any result of assessment will be taken into account in promoting the staff especially in term of career development is still in question. Why? Because the boss will use his or her discretionary power. Think about it.

115. Make it more transparent. Do make known the rating/marks received by the individual.

116. 360 Degree assessment should work as an additional bonus point to the current performance management system (PMS) rating.

117. The current practice of performance appraisal is too loose. It was not used as a firm review but rather to accomplish the annual activities. Recommendation and issues highlighted in the form itself was not taken care seriously. Matter such as promotion, salary revised were ignored upon completed the activities.

118. Marks given was slashed without prior notice resulted to de-motivation among the victims.

119. 360 degree only contributed to 20% weighted and it is actually contributed little effect to overall impact

120. Generally, this system is useful to provide basic guidelines of employee self development program. In order to give better impact and well reception among the employee, firstly, the selection of rater should be scrutinized whereby the raters sometimes were selected those not familiar with the ratee nature of jobs. Secondly, the 360% shall be given higher percentage into overall Performance Management System (PMR)evaluation.

121. Appreciate to have the 360D being shared and escalated to the subsidiary with more time.

122. Give opportunity to lower level employees to give feedback or comments for top-level management such as GM up to CEO so that the upper level management are well aware of employees perception towards their performance in the company.

123. 1.To provide example/specific case related to each question. This will ease up clear understanding of each question.

124. The system should be able to inform everybody what they have scored after consolidating the feedbacks. The system must also inform employees what areas they should improve. Also recommendation as to how company can help in the improvement exercise.

125. The Performance Management Rating (PMR) has lost its credibility since HR has the right to 'adjust' the individual rating. This happened in the 2006 staff performance rating (bonus).

126. Aggressive and well-planned and systematic implementation of the briefing sessions should be carried out first- perhaps. In this way situations where -'not so sure situations' will not happen. Staff would have much clearer picture on what are expected of him or her.

127. The finding of 360 Degree feedbacks should have summary so the ratee can know exactly which area they need to improve.

128. Awareness on the system implementation

129. Train the user on proper application.

130. Increase transparent and reduce bureaucracy in implementation.

131. Reengineer, simplify and much more user-friendly system.

132. The System is still new with us need to gauge feedback and buy in from others to use it.

133. We will get truthful feedback if the rater comes from same unit or division with the ratee example: staff to TL to HOU to HOD or fm other dept /division that we liaise with

134. The contents in 360 Degree Feedback are to complex if it is been use by our non executive staff.

135. Sometime I feel that this exercise is more to who you like most will get higher marks.

136. Provide training how to use. Explain the user what to achieve. What is the objective of 360? What is the benefit to me? Will it be manipulate/adjusted by the management?

137. Brief to all concerned, and track. Don't rely totally on IT in the initial stage.

138. Discuss and agree with incumbent who are the raters.

139. More 'User-friendly'

140. Provide the training for user.

141. The current system is already good. The issue is (some) of the 'rater' ; 'ratee' takes very lightly and always having last minute syndrome for completion.

142. The 360 degrees feedback system is not a true reflection of one's performance or contribution to the organization as the raters could be biased, the raters know who the ratee's are and there were no feedback given to the employee on areas to be improved, training, etc. The 360 degrees feedback system is no better than the traditional PMR as the employees overall performance rating is sometimes slashed by HR or the Divisional Head to cater for a more balance performance for the entire unit or division.

143. Too academic and suits to certain division. Not applicable to all.

144. 360 Degree what?

145. Have no comments on the system, but more on the questions, which need to be simplify i.e. Simple English for better understanding.

146. Simplify the process and description of competencies and produce an example for each.

147. The access network need to be upgraded in such away to more easier during perform the assessment.

148. Each questionnaires of the current 360 Degree feedback used in (ORGANIZATION 2) should be constructed in simple & easy understand description. Some questions are redundant, difficult to understand & too general to relate to job scenarios.

149. The previous 360 degree doesn't really work with me since my previous boss have already decided what points to give me. Since the 360 degree is just a percentage of the total score, the boss can still manipulated the other part of the assessment and come up with the points that he originally wanted to give me. The 360 should be final and no individual should be allowed to manipulate the scores. Also, the rater should be an independent rater who knows our work, not people who are 'close' to us and be bias.

150. To conduct a briefing to all user.

151. Thanks.

152. The last 360-degree feedback exercise was done in unfair manner. Some of the rater and ratee had collaborated in ensuring their marks are higher. They did not telling the truth. Thus, the result does not reflect the real situation and unfair to those who sincere.

153. 360 degree is a good evaluation system however make it more simpler so that every level of staffs understand the requirement & feedbacks they need to provide.

154. We would like to have a detail feedback and how to improve my human skill (action plan) . Currently, I do not get the detail feedback - just getting the overall percentage and no further discussion done after that.

155. Feedback givers Should be across divisions for continuous improvement

156. Feedback givers should be objective in evaluation.

157. Need to provide briefing on 360-Degree implementation. Use simple words in 360 Degree systems for better understanding.

158. Need further Improvement on the questionnaire on the job related and personality relationship between peers.

159. Well planned communications b4 implementation of systems.

160. 360 Degree Feedback system is a good practice. However, when it comes to real rating of staff for Increment, bonus and other purposes, the final decision

and fate of staff is manually determined by Leaders and most probably not based on the 360 degree feedback system + other Performance ratings! It is suggested that Top Management ensures that the results of the 360 Degree Feedback System + other performance ratings are utilized to the fullest and not on paper only.

161. I was not communicated of the results of the survey. It would have been helpful for me to improve if I know my strengths and weaknesses and also of my subordinates. I also need to know how much my subordinates appreciates my efforts or comments on my management techniques for improvement.

162. Very good system to be implemented in future.

163. Keep it simple & user friendly
164. Select ratee that knows their rater (same unit or work with).
165. Info must kept secret.

166. Very good.

Organization 3

167. Have to be more friendly user.

168. Many say that Multisource Feedback system (PMS) wastes a lot of time. But actually, within (ORGANIZATION 3) environment, it becomes very easy, fast enough and pleasant since it can be done through email. Maybe the option should be provided to raters (whether they want to do it or not). Current implementation is sort of like forcing us to do that. Option should be provided without any bad perception be given to the unwilling raters.

169. Educate other staff the benefit of this PMS.

170. As the rater appointed by the individual, the organization/system does not determine who the rater should be.

171. It does not have a tracking mechanism to assess whether the raters are suitable candidate or vice versa

172. Rating could be bias as raters are appointed by individual whom might have personal connection with each other

173. Although the system is user friendly, it is time consuming

174. As nearing the deadline, no reminder sent to rater for them to complete rating.

175. I thing u could give us summary of Multisource Feedback system where newcomers like me understood what MFS system look like and it function.

176. Currently, ratees can select their choice of raters (peer level), so by human nature ratees have tendency to select raters who will give good feedback. It may be a good idea to allow some assigned raters by the supervisors (peer level) in addition to chosen raters but the raters must have working experience with the ratee.

177. Most of the staff selects their peers within the same section and good friends. Therefore, the rates given are not really accurate. To avoid that, peers should be selected from other section or department and not a good friend.

178. I would naturally disappointed that there should be any need for our HR committee to over-rule 360 degree assessment made by around 10 personnel (Superior, peers, subordinates). In this circumstances perhaps HR should not undermine judgment made by these 10 personnel, and I hope, that your thesis will propose improvement to maintain impartiality in these assessments.

179. At executive level, how is the 360-degree feedback works? When only peers and superior can give feedback whereas the subordinates who are non-executive is unable to give feedback.

180. PMS should reflect a true performance of staff and rewarded based on that feedback without interference from bosses that can lead to manipulation.

181. This survey is best to be filled by users of Multi Source Feedback (MSF). I am not the one, that's why I answered 'neutral' on elements related to MSF.

182. My source of info is from other sources; colleagues, e-publication like IEU, woodside etc.

183. Although I am only been in subsidiary for less than 1 year, in total I have been in (ORGANIZATION 3) for close to 20 years.

184. Some people choose their friends who have no direct working relationship to be raters.

185. Response should be withheld until every rater has submitted comments.

186. Should choose raters who have direct working relationship with ratees.

187. At present, the new PMS system has proven its reliability as it smoothen the PM process for all staff.

188. No comments and suggestions.

189. The incumbent should strictly follow the regulation generated by (Organization 3) in PMS system.