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Power and Influence in Matrix Organisations

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ABSTRACT

Since its inception more than three decades ago, there has been a prolific adoption of the matrix organisational design across diverse industries. Despite the ubiquity of matrix organisations, there remains several challenges primarily related to interpersonal relationships; most notably ambiguity of authority as a result of the dual command structure. This study examines the perceptions of the types of power and influence mechanisms used by the direct functional manager and the indirect project manager to influence project personnel. The effect of the types of influence mechanisms used on attitudinal outcomes is also examined with a view to understand the impact on project personnel performance.

The research was conducted using a two phase design. The first phase was qualitative with various stakeholders required to validate the constructs of power and influence identified in the literature and identify new constructs. The results from phase one and the literature review findings were used to develop a self-administered questionnaire for phase two. Quantitative data was obtained from 23 functional managers, 28 project managers and 101 project personnel in South Africa, Italy and Canada from one large project execution and technology company.

There appears to be a large perceptual gap between managers and project personnel. Two themes that emerge are the perceived use of aspirational and personal influence mechanisms by managers in comparison with the perceived use of coercive punitive mechanisms by project personnel. Relationships were observed between the perceptions of the type of influence mechanisms used on project personnel and their satisfaction with manager, performance and the amount of effort expended. Relationships were also observed between satisfaction with each type of manager and performance & employee engagement. Finally the results indicate a strong relationship between the functional manager and overall job satisfaction, highlighting the role of the direct line management relationship.

KEYWORDS: Power, Influence, Matrix Organisations, Attitudes, Functional and Project Managers

DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Dylon Deremis Moodley

05 November 2013

DEDICATION

I dedicate this research to my wife and children.

To my beautiful wife Angeline, thank you for your love and support during this MBA, I dedicate this thesis to you. You have been a pillar of strength to me and our family. Without you this would not have been possible. I love you.

To Ethan Elisha, Mercedes Ysanne, Skylar Katie, you are the brightest part of our lives and we love you dearly.

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CHAPTER 1: INTRODUCTION TO THE RESEARCH PROBLEM

1.1. Introduction

Business is accelerating at a rapid pace; information availability is increasing to the extent that it threatens to overwhelm organisations; markets are becoming more globalised and competition is intensifying both domestically and internationally (Kates and Galbraith, 2007; Preble, 2010; Stiglitz, 2007). Increasingly markets are becoming more complex and in response to the changing global context, companies are adopting more complex forms of organisational design (Sy and Côté, 2004).

“In response to strategies that require increased collaboration across customer, geographic, function, and product dimensions, many companies are using a matrix to formally connect the disparate elements of their organizations. Despite advances in communication technology, formidable challenges of coordinating work across organizational boundaries remain” (Kates and Galbraith, 2007, p. xii). The adoption of the matrix organisation design, in lieu of traditional organisation designs, still remains the structure of choice, of companies, three decades later (Galbraith, 2000).

Academic literature has focused primarily on the structural design, process issues and description of the matrix organisation; however, many of the known challenges in the matrix organisation relate to ambiguity of authority. This is related to the dual command structure and unclear roles and responsibilities (Goold and Campbell, 2003; Sy and D’Annunzio, 2005). Building internal stakeholder relationships is therefore critical to the success of the matrix organisation. The attributes of power (related to the various bases of power), legitimacy (related to authority) and urgency (related to task execution) play a pivotal role in understanding and defining these stakeholder relationships (Mitchell, Agle, and Wood, 1997).

Given the overarching theme of a changing global business environment, this research study will examine stakeholder relationships in a matrix organisation. Two focal points will be the influence sources of project and functional managers on project personnel, and the resultant work attitudes developed by as a result of the influences. This study

aims to replicate in part a study published in 1978 by Dunne, Stahl, and Melhart. The original study was conducted in a military environment. This study will be conducted in a multinational research, technology and project management company. The issues prevalent in the matrix organisational design related to authority ambiguity in the original study; still exists today. This study will examine perceptions of the sources of influence used by managers and the resultant work attitudes of employees. An important question that this study attempts to answer is, how have the use of the sources of influence and effect on employee attitudes changed given the different context.

1.2. Background of the Research Problem

Kates and Galbraith (2007) define a matrix as an organisation in which “some employees have two or more bosses.” (p. 110). In the traditional hierarchical organisational structure, leadership rights were clear and unambiguous. Leaders were not accustomed to sharing the right to make decisions and generally perceived their roles as one of taking charge. The decision making processes was not one of collaboration, this was an intended consequence of the functional organisational design structure (Sy and Côté, 2004; Sy and D’Annunzio, 2005).

This problem was selected because the central issue of authority versus responsibility is evident in a matrix organisational structure, and this remains a prominent issue in matrix organisations today (Goold and Campbell, 2003; Kates and Galbraith, 2007). The evidence that underpins this problem is demonstrated in the design, in that formal authority to direct project personnel lies with functional managers whilst the responsibility for coordinating and executing work efforts lie with project managers (Dunne *et al.*, 1978; Goold and Campbell, 2003). The ambiguity, in terms of authority, resultant from this organisational design (Sy and Côté, 2004), requires a deeper understanding of how different managers influence project team members to respond to the execution of project responsibilities.

Matrix organisations have a broad range of stakeholders; this study focuses on the functional manager, the project manager and project personnel. From a stakeholder management perspective, each individual has a relationship with the other either formally or informally, typically referred to in literature by the dotted and solid line relationship. This is a consequence of the dual chains of command found in the matrix organisation, essentially having two bosses (Davis and Lawrence, 1978; Dunne *et al.*, 1978; Galbraith, 1971; Joyce, 1986). The result of this design is that project personnel have two internal stakeholders with different expectations, who have to be managed.

Figure 1: Simplified Matrix Organisation Diagram Illustrating Focus of Research

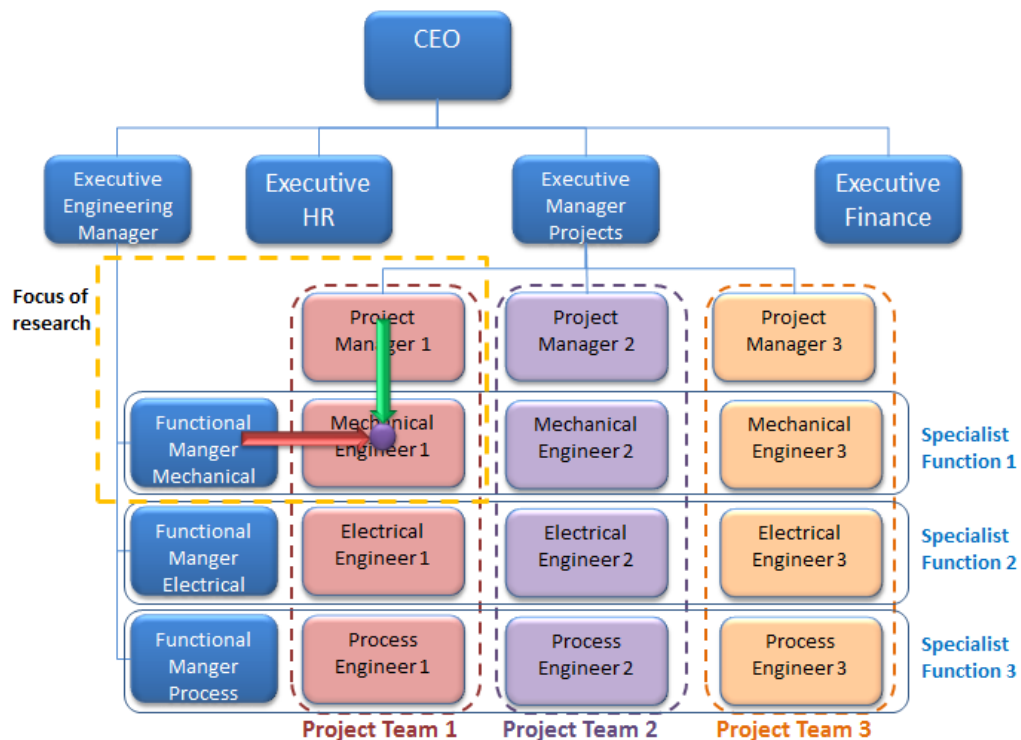


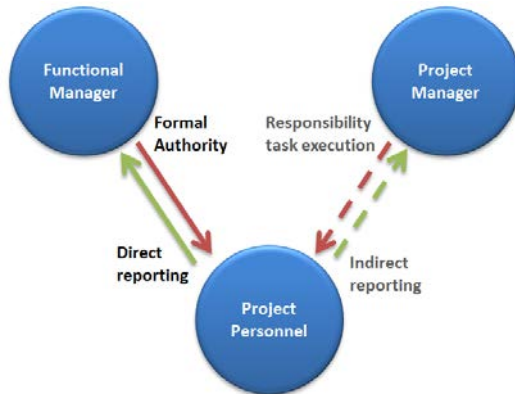
Figure 1 illustrates the dual command structure diagrammatically. In considering the dual reporting structure; for the purposes of this study the key stakeholder relationships that will be explored are indicated below (Bartlett and Ghoshal, 1990; Dunne *et al.*, 1978; Galbraith, 1971; Gould and Campbell, 2003; Joyce, 1986; Knight, 1976):

- the relationship between the project manager and project personnel

- the relationship between functional manager and project personnel

The specific relationships being studied are depicted diagrammatically in **Figure 2**.

Figure 2: Diagram Depicting Stakeholder Relationships in a Matrix Organisation



This problem was selected to evaluate the perception of how stakeholders influence each other, in an attempt to overcome the ambiguity of authority issues, depicted by **Figure 1** and **Figure 2** above. It is relevant as an issue today, as much as it was, more than 30 years ago when the issue was studied.

Senior leadership strongly influences organizational performance (Wellman, 2007). As this responsibility cascades to managers in the matrix, they have a role to play in driving overall business performance. It is proposed that that one of the skills critical for matrix performance are persuasion (Hodgetts, 1968; Sy and D’Annunzio, 2005). According to Sy and Côté (2004) there have been few studies that have examined the interpersonal skills and abilities required for effective operation in a matrix organisation. The effective acquisition and use of power and influence is necessary for managing relationships and success in organisations (Benfari, Wilkinson, and Orth, 1986). Building on this argument Yukl and Falbe (1990) point out that “One of the most important determinants of managerial effectiveness is success in influencing subordinates, peers, and superiors (p. 132).

Bartlett and Ghoshal (1990) propose that designing a superior structure on its own does not ensure success; successful management and leadership are required within a structure. The implication being; that all stakeholders (managers and project

personnel), must have the appropriate skills and abilities to influence employee behaviour's. In spite of the importance of this subject, little empirical research has been conducted on the influence behaviour of managers (Yukl and Falbe, 1990).

Finally, power and organisations are linked by noting that power and influence are expected to be found together in structures, like the matrix organisation (Willer, Lovaglia, and Markovsky, 1997). This proposition will be used to understand, sources of influence derived from the original five power bases (French and Raven, 1959) and the implications for performance in a matrix organisation. This study will examine the effect of power and influence as found in structures by understanding how stakeholders in different parts of the structure use power.

The study will consider the impact on project personal attitudes that result from exposure to different sources of influence. In considering the effects of the matrix power relationship on attitude, studies by Reeser (1969) and Rizzo, House, and Lirtzman, (1970) have shown that the introduction of the dual reporting system can cause role conflict and ambiguity, with the resultant effect being, the production of "negative effects on work attitudes like job satisfaction and involvement" (Joyce, 1986, p. 536). This study relates attitude; cognitive, affect and behavioural components (Breckler, 1984; Robbins, Odendaal, Roodt, and Judge, 2009), to the perception of project personnel. The behavioural implications of attitude are then further examined in terms of the discussion on performance outcomes.

1.3. Research Objectives and Motivation

This study was selected due to the central issue of authority versus responsibility that is prevalent in a matrix structure by virtue of the design. Formal authority lies with functional managers whilst the responsibility for coordinating and executing work efforts lie with project managers (Dunne *et al.*, 1978). The ambiguity, in terms of authority, resultant from this organisational design (Sy and Côté, 2004), requires a deeper understanding of how project personnel are influenced to respond to the execution of project responsibilities.

The original study was conducted 35 years ago in a military matrix environment. Given the following factors; the changing global context, the prevalence of the adoption of the matrix structure today and the lack of research into the interpersonal dynamics of the matrix; (Davis and Lawrence, 1978; Kates and Galbraith, 2007; Sy and Côté, 2004; Sy and D'Annunzio, 2005) the author will attempt to replicate part of this study to test the validity of the original findings and extend the findings to issues relevant today. One of the major focus areas of this study is the impact of the type of influence mechanisms used by managers on project personnel performance.

The aim of this research project therefore, is to:

1. To establish sources of influence and work attitudes from the literature review and make comparisons between groups
2. To rank the effectiveness of the perceptions sources of influence, of project managers and functional managers, on project personnel, and make comparisons between the across all groups.
3. To establish the relationship between work attitudes (effort, willingness to disagree with manager, satisfaction with manager and impact of manager on personnel performance) and the sources of influence for both project and functional managers.
4. To establish the relationship between satisfaction with supervision from manager (project and functional) and overall job satisfaction, employee engagement and impact of manager on personnel performance.

In summary, the purpose of this study is to examine perceptions of the sources of influence and work attitudes. An important question that this study attempts to answer is, have the sources of influence and effect on employee attitudes changed given the different context?

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

This chapter provides a literature review, which covers academic literature for the major themes of this research study. The literature review begins by discussing changes in the external environment that have affected the way business is conducted and ultimately organisational design. Theory on the matrix organisation, stakeholder management, power and influence, perception and work attitudes are discussed.

2.2. External Environment

2.2.1. The Changing Environment

Dunne *et al.* (1978) conducted a study that related examined sources of influence in matrix organisations. The changing business environment during the 1970's, required a different form of organisational design due to the complexities that existed. The relevance of the study was attributed to the conceptualisation of the matrix organisations in the aerospace industry and the resultant challenges (Galbraith, 1971; Knight, 1976; Sy and Côté, 2004).

More than 30 years later, the rate of change, in the business environment has increased and continues to increase. Globalisation has brought about economic integration and trade liberalisation (Preble, 2010). This has created companies that are bigger than the economies of some countries. These large multi-national companies have brought together, markets, technology and capital (Stiglitz, 2007). More recently growth is driven by China, India and other emerging economies; due in part, to the easing of global trade restrictions, deregulation, new sources of competition, an increase in disposable income and the phenomenal growth of information and interconnectedness due to the internet (Kates and Galbraith, 2007).

2.2.2. The Changing Organisation

During the time period from the 1970s to the early 2000, there has been a 16 fold year on year increase in the number of new customer products. Companies have had to react faster and become more complex to deliver customer focused solutions. Strategies developed by companies to cope with the complex business environment tend to adopt complex organisational designs (Kates and Galbraith, 2007).

The matrix organisational design, has the ability to deliver solutions across geographic boundaries and provide multiple product dimensions with increased internal collaboration (Kates and Galbraith, 2007); this is evidenced by the prolific adoption of the matrix organisation across multiple industries. The matrix organisation is poised to take advantage of the ambiguity in the external environment, by responding to form specific teams to deliver a range of multidimensional products (Sy and Côté, 2004). Inherent in the design of the matrix organisation are many traits necessary for managing global organisations (Bartlett and Ghoshal, 1990).

2.2.3. The Changing Employee

Complex organisations are staffed with managers and employees who are equipped with the correct tools and skills and understand the configuration of their organisation to meet the environmental demands (Kates and Galbraith, 2007). The changing business environment has produced changes in organisations and this has produced changes in the type of employees required.

“The centre of gravity in employment is moving fast from manual and clerical workers to knowledge workers ...” (Drucker, 1988, p. 3). Productive knowledge workers are regarded as the most valuable asset of a business in the 21st century. Productivity of knowledge workers is dependent on the knowledge worker wanting to work for an organisation. One aspect that is relevant to knowledge workers is the attitude of the worker and the whole organisation (Drucker, 1999).

This brief review on the changing business environment, organisational complexity and type of employee serve to highlight that research performed in organisational design and behaviour, in the past decades will have to be tested for relevancy in today's complex business world.

2.3. Matrix Organisations

2.3.1. Definition and History

The development of matrix organisational structure; has its origins in the American aerospace industry (Galbraith, 1971; Knight, 1976; Sy and Côté, 2004). The American government made it a consideration for the award of contracts, that the firms should have a system, which included project management that was linked to top management. There was a need for a single individual, who was responsible for meeting cost and schedule deadlines, as opposed to several, partially responsible functional heads. Firms were therefore faced with a situation in which both coordination and technical performance was required (Galbraith, 1971). This resulted in a project management system being overlaid on a traditional functional system and the eventual conception of the matrix organisational design (Knight, 1976).

The adoption of the matrix organisational design garnered popularity in the 1970's and 1980's. Research and literature on matrix organisation designs, have since decreased considerably, yet there is still prolific adoption of the matrix structure by numerous industries including aerospace, banking, energy, computer, automotive etcetera (Davis and Lawrence, 1978; Galbraith, 2000).

2.3.2. Matrix Organisational Design Characteristics

The matrix organisational form can be construed to be a mixed organisational form, with lateral responsibility and authority layered over the typical vertical hierarchy (Knight, 1976). In a matrix organisational structure, employees report to multiple

managers, whom in this study this would typify the functional and project manager. The matrix organisational structure is a grid like structure with horizontal and vertical dimensions representing functions and projects or products (refer to Figure 1 for an illustrative diagram). This structure allows multiple business dimensions to be executed simultaneously (Sy and Côté, 2004; Sy and D'Annunzio, 2005).

The functional structure facilitates the development and provision of expert inputs (Galbraith, 1971), this specialisation provides organisational capability in terms of why and how. The project lateral structure provides the coordination function in terms of completion times and budget requirements (Galbraith, 1971); this specialisation provides organisational capability in terms of the what and when. At the intersection of the vertical and lateral structures are people who belong to more than one grouping (Knight, 1976) refer to **Figure 2**; this combination of the how, why, what and when competencies provide the organisation with the capability to execute a multi-dimensional business model.

The matrix organisational design provides for the mobilisation of resources in a grouping to work on a common: project, product, geographic area, business function etcetera. The inherent design problem that exists is the choice of authority bases that controls these resources (Galbraith, 1971). The effective mobilisation of resources and the prolific development of new products and services is one the key design characteristics of the matrix and a key reason for adoption (Larson and Gobeli, 1987).

2.3.3. Reasons for Adoption and Known Challenges

There is extensive coverage in academic literature on the reasons why, matrix organisations are adopted and the practical challenges that are prevalent in organisations. A summary of the recurring themes that are covered in the literature are listed below in **Table 1**.

Table 1: Reasons for Adoption and Challenges of the Matrix Organisation

| Reasons for adoption | Practical Challenges |
|---|--|
| Major themes: | |
| <ul style="list-style-type: none"> ▪ Efficient use of resources ▪ Integration and coordination across organisational boundaries ▪ Improved information flow, in terms of communication and learning ▪ Pursuit of multiple business goals with equal focus ▪ Improves response time to market for products, services and projects | <ul style="list-style-type: none"> ▪ Ambiguous authority between vertical and lateral structures ▪ Unclear roles and responsibilities between project (product) and functional managers. ▪ Decision strangulation, leaders unaccustomed to sharing decision rights ▪ Power struggles |
| Minor themes | |
| <ul style="list-style-type: none"> ▪ Flexibility in decision making and project team formation ▪ Improved motivation and commitment by employees ▪ Establish economies of scale | <ul style="list-style-type: none"> ▪ Competition over scarce resources ▪ Silo-focused employees ▪ Misaligned goals ▪ Excessive overheads |

Source: (Davis and Lawrence, 1978; Galbraith, 1971; Kates and Galbraith, 2007; Knight, 1976; Larson and Gobeli, 1987, 1987; Sy and Côté, 2004)

The major and minor themes provide a useful understanding for the reasons behind the prolific adoption of the matrix organisational structure and why the challenges have been a source of business and academic research. On examination of the challenges, it is seen that these are largely related to interpersonal issues, which are inherent in the design. Academic research has primarily focused on addressing the structural issues not the interpersonal issues (Sy and Côté, 2004) in which these challenges are rooted.

2.3.4. Dual Command Structure

“The open violation of the principle of unity of commands is the trademark of a matrix management” (Larson and Gobeli, 1987, p. 2). Key roles in the matrix are subject to dual influence and coordination is achieved through lateral relationships across organisational boundaries (Knight, 1976).

A central issue of authority versus responsibility is evident in a matrix structure. The functioning together of the what (functional) and how (project), requires shared responsibility and authority over the operational flow of work (Larson and Gobeli, 1987). Formal authority lies with functional managers whilst the responsibility for coordinating and executing work efforts lie with project managers (Dunne *et al.*, 1978; Sy and Côté, 2004). The ambiguity, in terms of authority, resultant from this organisational design (Sy and Côté, 2004), requires a deeper understanding of how different managers influence project team members to respond to the execution of project responsibilities.

Companies that succeed recognize that it is more important to focus on the behaviours and performance of managers, rather than focusing on creating an ideal structure (Bartlett and Ghoshal, 1990). To develop this concept further, the distribution of power can be determined by the interaction of behaviour and structure (Brass and Burkhardt, 1993). The need for the development of this study is demonstrated by noting firstly that the dual command structure produces ambiguity and the understanding that this is rooted in the matrix design. This is based on a power distribution within a structure based on certain behaviours.

2.4. Stakeholder Management

2.4.1. Definition of Stakeholder

In discussing the concept of a stakeholder Freeman (1994) proposes the notion of “.... Who and What Really Count” (p. 411). This is advanced by Mitchell, Agle, and Wood

(1997) who propose that a key ability of stakeholders, in commanding salience in relationships, is based on, perceptions of key attributes of the stakeholder. Three key attributes of the stakeholder are power, legitimacy and urgency (Mitchell *et al.*, 1997). Exploring this idea in the context of this study, the attributes of power (related to the various bases of power), legitimacy (related to authority) and urgency (related to task execution) play a pivotal role in understanding and defining the stakeholder relationships between the project personnel and functional and project managers.

2.4.2. Stakeholders Defined

Managers are key stakeholders in organisations and in the context of this study can be referred to as “primary stakeholders” since they have “direct control of essential means of support required by the organisation” (Garvare & Johansson, 2010, p. 739). Managers in this context are differentiated from interested parties since they have the ability to take action to achieve results (Garvare & Johansson, 2010). For the purposes of this study the following definition of stakeholder management will be used “. . . entities or persons who are or will be influenced by or exert an influence directly or indirectly on the project” (Littau, Jujagiri, & Adlbrecht, 2010, p. 29).

Matrix organisations have a broad range of stakeholders; this study focuses on the functional manager, the project manager and project personnel. From a stakeholder management perspective, each individual has a relationship with the other either formally or informally, typically referred to in literature by the dotted and solid line relationship. The specific focus of this study, is the examination of power use and distribution in this triangular arrangement (Davis and Lawrence, 1978) of stakeholders.

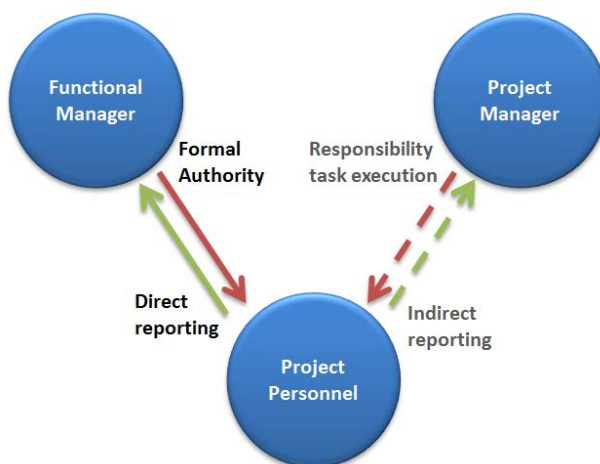
In considering the dual reporting structure; for the purposes of this study the key stakeholder relationships that will be explored are indicated below:

- the relationship between the project manager and project personnel (Dunne *et al.*, 1978),

- this relationship is characterised by informal reporting, expressed below by the dotted line relationship
 - project personnel report temporarily to a project manager for the purposes of executing a specific project
 - this is not a line management function
- the relationship between functional manager and project personnel (Dunne *et al.*, 1978).
 - The project personnel, are located within the functional hierarchy from an organisational perspective
 - Specific expertise related are developed in the functional domains of the organisation
 - Formal reporting, depicted by the solid line defines this relationship
 - This study considers all managers with direct reports as functional managers, not just the head of a function.

The relationships are depicted diagrammatically in **Figure 3**.

Figure 3: Diagram Depicting Stakeholder Relationships in a Matrix Organisation



2.4.3. Stakeholder Management

Academic literature provides a wide spectrum of reasons for stakeholder management, issues related to the management of stakeholders in this context of this study are listed below:

- Identifying key stakeholders (Assudani and Kloppenborg, 2010; Preble, 2005).
- Understand the stakeholder claims and power implications (Preble, 2005).
- Building relationships (Assudani and Kloppenborg, 2010).
- Prioritising demands (Preble, 2005)
- Satisfy needs and expectations (Garvare and Johansson, 2010).
- Manage expectations (Assudani and Kloppenborg, 2010).
- Effective communication (Assudani and Kloppenborg, 2010).

Stakeholder management is relevant in the context of this study, since the design of the study is to make comparisons about the perceptions of the use of power and influence by various stakeholders. The fundamental issue is not to determine the existence of power but to make comparisons (Dahl, 1957). This is important as many organisations seek the redistribution or equalization of power and this is often in opposition to certain internal stakeholders whose personal agendas may be different example job survival (Schein, 1977).

2.5. Power and Influence

Bierstedt (1950) describes power as a universal phenomenon that exists in all relationships and is generally present in social interaction. Power is further described as a social phenomenon and “the concept of power is as ancient and ubiquitous as any that social theory can boast” (Dahl, 1957, p. 201). The existence of power is generally disguised in society whilst the processes of power are both pervasive and complex. Various distinctions are made of the difference types of social power and social influence; in different fields of study, for example political science and sociology

(French and Raven, 1959). These distinctions in the types and sources of power and influence are examined in the context of a matrix organisation.

2.5.1. Definition of Power

Power is generally defined in terms of a relationship, whereby an agent influences, or attempts to influence a target, with the intended outcome being some form of action or behavioural change. This is an oversimplification, but captures the essence of the definition of power (Benfari *et al.*, 1986; Bierstedt, 1950; Dahl, 1957; French and Raven, 1959; Schein, 1977; Yukl, Kim, and Falbe, 1996). Power is more specifically defined as: “the capacity to influence the behaviour of others” (Benfari *et al.*, 1986, p. 12) and the ability to modify the behaviour of the target (Schein, 1977). Power is also defined as the resultant of two forces, one in the direction of the influence attempt and an opposite resisting force (French and Raven, 1959).

2.5.2. The Theoretical Relationship between Power and Influence

To understand sources of influence, a fundamental consideration that is required, for the execution of this study, is the link between power and influence. Power and influence exist in a dyadic relationship between agent and target (French and Raven, 1959). Researchers are divided as to whether these are distinct constructs (Bierstedt, 1950; Yukl *et al.*, 1996) or exist together in structures (French and Raven, 1959; Willer *et al.*, 1997). **Table 2** highlights important theoretical distinctions and similarities.

Table 2: Distinctions and Similarities Between Power and Influence

| Influence | Power | Source |
|---|--|-----------------------------|
| Power and influence, similarities | | |
| Socially induced modification of a belief, attitude effected ... without recourse to sanctions. | Structurally determined potential for obtaining favoured payoffs. | Willer <i>et al.</i> (1997) |
| Influence can produce power | Power can produce influence | Willer <i>et al.</i> (1997) |
| Influence is kinetic power | Power is potential influence | French and Raven, (1959) |
| Power and influence as distinct constructs | | |
| Influence attaches to an idea... and has its locus in the ideological sphere. | Power attaches to a person ... or an association, and has its locus in the sociological sphere | Bierstedt (1950) |
| Influence is persuasive | Power is coercive | Bierstedt (1950) |
| Submit voluntarily to influence | Power requires submission | Bierstedt (1950) |
| Agent power and influence tactics directly affect influence outcomes | Power affects the agent's choice of influence tactics | Yukl <i>et al.</i> (1996) |

There is both an intimate and complicated relationship between power and influence (Bierstedt, 1950; Willer *et al.*, 1997). Willer *et al.* (1997) expects power and influence to be found together in structures, whilst they can be considered distinct constructs within the limits of the laboratory. On examination of the issues highlighted in **Table 2**, it is evident that to test the subtle differences outside of a laboratory context may prove challenging, if at all possible. The focus of this study will not be on the distinction between power and influence but rather on the areas of overlap between the power bases (French and Raven, 1959) and influence tactics (Kipnis, Schmidt, and Wilkinson, 1980). This is rooted in the assertion that influence finds its source in a power base (Benfari *et al.*, 1986; French and Raven, 1959).

2.5.3. The Existence of Power in Organisations

From an organisational perspective, Bierstedt (1950) describes authority as institutionalised power. Building on this definition, Yukl *et al.* (1996) explores power as the potential influence derived from the attributes of the influencer, the relationship between influencer and influenced and importantly the influencers position in the organisation.

In the context of hierarchical relationships within an organisation, legitimate or authoritarian power resides in the position within the organisational structure (Benfari *et al.*, 1986; French and Raven, 1959). Due to the socially shared nature of position in the organisation, authority (legitimate) power is one of the strongest sources of power (Brass and Burkhardt, 1993). Bierstedt (1950) highlighted that power generally exists in all social relationships. Refining this concept further "... the potential power of the individual manager is embedded in the networks of social interactions that are part of the work setting." (Benfari *et al.*, 1986, p. 12). Power exists in an organisation by virtue of position. Therefore in response to hierarchical power by functional managers, project managers would employ different types of power.

In theory, it is envisaged that in a matrix organisation there would be a balance or equivalence of power between lateral and vertical structures (Davis and Lawrence, 1978; Galbraith, 1971; Joyce, 1986). This refers to the balance of power between functional and project managers in this study. In practice however, the dual reporting structure in a matrix presents unavoidable challenges when responsibility and authority overlap in vertical and lateral structures (Davis and Lawrence, 1978).

2.5.4. Sources of Influence

The literature review has established that there is a divergence of thought in terms of whether power and influence are linked. To this extent **Table 3** below indicates both bases of power and influence tactics as developed by leading authors. For the purposes of this research study, the view that is adopted is that power and influence are not only linked (French and Raven, 1959; Willer *et al.*, 1997) but are found in structures together. For influence to be effective, it has to be rooted in a base of power, influence is describe as kinetic power (Willer *et al.*, 1997). In this way the type of influence strategy selected has to be rooted in a base of power for it to have any meaningful effect. Raven (2008) discusses the idea of preparatory devices for implementing the bases of power; to do this an influence tactic may have to be used to establish credibility of the power base. An agent will therefore not accept the influence if the power base has not been established.

Table 3: Comparison of the Bases of Power and Influence Tactics

| Bases of power | | | Influence tactics | | |
|---|------------------|------------------------|-------------------|------------------------------|----------------------------------|
| Fench and Raven (1959) *Raven (1965) | **Benfari (1986) | Raven (1992), (1993) | Kipnis et (1980) | Yukl. G and Falbe C M (1990) | Yukl, Seifert, and Chavez (2008) |
| Reward | Reward | Personal reward | Assertiveness | Pressure | Pressure |
| | | Impersonal reward | Ingratiation | Ingratiating | Ingratiation |
| Coercive | Coercion | Personal coercive | Rationality | Rational Persuasion | Rational persuasion |
| | | Impersonal coercive | Exchange | Exchange | Exchange |
| Legitimate | Authority | Legitimate reciprocity | Upward appeals | Upward Appeals | Legitimizing tactics |
| | | Legitimate equity | Coalitions | Coalition | Coalition tactics |
| | | Legitimate dependence | | Inspirational | Inspirational appeals |
| | | Legitimate position | | Consultation | Consultation |
| Referent | Referent | Referent | | | Personal appeals |
| Expert | Expert | Expert | | | Collaboration |
| *Informational | Information | Informational | | | Apprising |
| | **Group | | Blocking | | |
| | **Affiliation | | Sanctions | | |

This discussion on the link between power and influence is necessary as, the survey instrument will be based on both influence tactics and the bases of power, given the intimate relationship between the two constructs. A logical observation between the two indicates that differentiation is practically impossible without having critically studied the overlaps. To the lay person completing a questionnaire, it would therefore be logical, not to go to extraneous lengths to make a differentiation, but explore the

fundamental bases of power related in determining sources of influence. The questionnaire will therefore deliberately test both.

Gupta & Sharma (2008) studied compliance to bases of power and differentiated between soft and harsh bases of power. The findings of their studied indicated that employees attribute more of their compliance to the use of soft bases of power rather than harsh bases of power. Soft bases of power are related to the use of personal rather than organisational resources to gain compliance, whilst harsh bases of power is related to superior position in the organisation (Gupta & Sharma, 2008). This differentiation is necessary and will be considered in the context of the results achieved.

2.5.5. Findings by Dunne, Stahl and Melhart (1978)

A review of the findings of the original study by Dunne *et al.* (1978) is included in this literature review for a basis for comparison. Only project managers and project personnel were interviewed in the original study. This research extends the study to include functional managers as well. The original study focused on reasons for compliance with managers, with a primary focus on sources of power and influence. This research focuses on the impact and outcomes of the use of power and influence. The original study also examined attitudinal variables outcomes on project team members based on the influence mechanism used by managers. This research is extended beyond attitudinal variables and includes a comparison of satisfaction of supervision for each type of manager to attitudinal variable outcomes as well.

The study ranked the perceptions of the managers compared to the employees in accordance as presented in the **Table 4**. The terminology has been changed to reflect the interpretation of similarity of constructs between the two studies. No specific comments are made in the original study about the implications of the ranking between groups either for similarities or differences.

Table 4: Ranking of Constructs from Original Study

| Project Manager | Project Personnel's view of Project Manager | Project Personnel's view of Functional Manager |
|-----------------------------|--|---|
| Highest three ranked | | |
| Respect Knowledge | Position Responsibilities | Position Responsibilities |
| Position Responsibilities | Respect Knowledge | Authority |
| Good Relationship | Professionally Challenging | Respect Knowledge |
| Lowest two ranked | | |
| Authority | Penalty Pressure | Penalty Pressure |
| Performance Rating | Performance Rating | Future work |

Source: Adapted from Dunne *et al.* (1978)

The first finding from the study is that project managers and project personnel have no differences in perceptions for the reasons for compliance, that is, the perception of use of power and influence by managers are the same as those perceived by project personnel. The second finding is that project personnel's reasons for compliance with the functional and project manager are different, implying that both managers use different sources of power and influence as a means for compliance (Dunne *et al.*, 1978). The study also found that the project manager's authority versus responsibility might be less of a problem than suggested by the literature.

In terms of attitudinal variables the original study tested outcomes for Degree of support, Willingness to disagree, Work Involvement and Job satisfaction. For the project personnel's view of the project manager there were three significant correlations for Degree of support: Expertise (Respect Knowledge), Position Responsibility, Professional Challenge. There were also two significant correlations for Job Satisfaction Friendship (Good relationship) and Professionally Challenging. There were no significant correlations for Willingness to disagree and Work Involvement (Dunne *et al.*, 1978).

For the project personnel's view of the functional manager there were three significant correlations for Degree of support: Expertise (Respect Knowledge), Position

Responsibility, Professional Challenge. There were also two significant correlations for Job Satisfaction Expertise (Respect Knowledge) and Professionally Challenging. There were no significant correlations for Willingness to disagree and Work Involvement (Dunne *et al.*, 1978). The key finding of the study was that Position Responsibility, Respect Knowledge and Professional Challenging are positively associated with work attitudes.

This research will compare the results of the original study. Additionally the functional manager will be included in the study to extend comparisons of understanding perceptions between the managers and between the functional manager and project personnel. This will create four groups of comparisons.

2.6. Perception

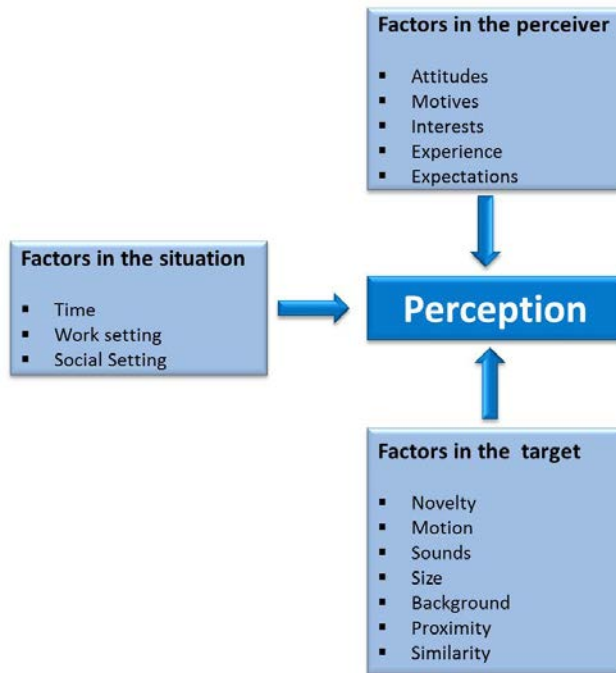
2.6.1. Perceptions

“Perception is a process by which individuals organise and interpret their sensory impressions in order to give meaning to their environment” What individuals perceive however may be substantially different from reality. Importantly people base their behaviour of their perception of reality, not reality itself (Robbins *et al.*, 2009, p. 119). This study examines the perceptions of power and influence from the perspective of the initiator of the use of power and influence, which are the functional and project managers and the perceiver of the power and influence used, which are project personnel. The aggregated view of perceptions of both managers and project personnel will be basis for exploring and understanding perceptual gaps.

Perception is influenced by factors in the perceiver, object and situation. Perception is strongly influenced by the personal characteristics of an individual such as motives, attitudes, interests, experience and expectation. Due to the fact that we don't perceive things in isolation, the target relative to its environment also influences perception. Finally situational factors in terms of the context in which we perceive people can draw

attention to or away from people (Robbins *et al.*, 2009). **Figure 4** shows the factors that influence perception.

Figure 4: Factors Affecting Perception



Source: (Robbins *et al.*, 2009)

2.6.2. Attribution Theory

To understand the application of perception to organisational behaviour, personal perception in terms of attribution theory is discussed. Attribution theory is an attempt to understand how we judge people based on how we interpret their behaviours. Attribution theory suggests that when behaviour is observed, individuals try to determine whether it was caused by internal or external factors, i.e. factors under the individuals control or factors outside the individual controls. In interpreting observed behaviours, distinctiveness, consensus and consistency is analysed to attribute behaviour to a specific cause. Distinctiveness refers to the display of different behaviours in different situations; consensus refers to how other individuals respond in similar situations and consistency refers to repetition of behaviour (Robbins *et al.*, 2009).

Several biases and errors can mislead attribution, the fundamental attribution error states that when observing behaviour, individuals underestimate external factors and overestimate internal factors. Finally in making judgements, individuals take several shortcuts, example. Selective perception, Halo-effect and Stereo-typing (**Robbins et al., 2009**). This study examines the perceptions of managers and employees. The results from this study are entirely dependent on how individuals perceive themselves and others. As part of the discussion of the final results, factors in the target, perceiver and situation will be discussed to interpret the results.

2.7. Work attitudes

The study will consider the impact on project personal attitudes that result from exposure to different sources of influence. In considering the effects of the matrix power relationship on attitude, studies by Reeser (1969) and Rizzo, House, and Lirtzman, (1970) have shown that the introduction of the dual reporting system can cause role conflict and ambiguity, with the resultant effect being, the production of “negative effects on work attitudes like job satisfaction and involvement” (Joyce, 1986, p. 536). “Attitudes are evaluative statements – either favourable or unfavourable – about objects, people or events. They reflect how we feel about something” (Robbins et al., 2009, p. 72). Typically attitudes are made up of three components: cognitive, affect and behaviour (Breckler, 1984; Robbins et al., 2009). This study relates attitude (cognitive, affect and behavioural components) to the perception of the project personnel. The behavioural implications of attitude are then further examined in terms of the discussion on performance outcomes.

2.7.1. Effort

Matrix management requires more than matrix structure and support systems alone, but also a supportive culture as well (Davis and Lawrence, 1978; Joyce, 1986). In a study conducted by Thamhain and Gemmill (1974) it was established that that degree of support was positively correlated with future work assignments, it was also noted that degree of support was negatively correlated with coercive power. Degree of

support is tested via effort on the part of the project personnel. Dunne *et al.* (1978) tested how frequently project personnel met the requests of their manager with maximum effort. This will be replicated in this study and compared with the results of the original study.

2.7.2. Willingness to Disagree

In studies conducted by Dunne *et al.* (1978) and Thamhain and Gemmill (1974), The willingness of project personnel to disagree was used as a measure of the openness of upward communications. The implementation of a matrix structure causes an increase in the quantity of communications and a decrease in the quality of communication. The increase in communications and the channels of communications forces a more participative and confrontational nature of communications in matrix organisations due to responding to multiple managers and objectives (Joyce, 1986).

The effects of organisational processes in the matrix design will affect employees perceptions and work attitudes (Joyce, 1986). It is also noted that quality of interaction has been demonstrated to play a moderating role between the bases of power and compliance and subordinates attitude towards superiors (Gupta and Sharma, 2008).

2.7.3. Job Satisfaction

Job satisfaction can be defined as the positive feeling resultant from the evaluation of the characteristics of a job. This evaluation is complex and takes into account several dimensions including the actual work, interaction with various stakeholders internally, organisational politics & rules and working conditions, to name but a few. The summation of the these individual elements provides the employee with an assessment of job satisfaction (Robbins *et al.*, 2009). Job satisfaction can be measured by either a single global rating or the sum of a number of areas. Harter *et al.* (2002) in researching employee engagement and job satisfaction highlights the importance of the influence of the supervisor over both employee engagement and

satisfaction with the company, additionally the construct most highly related to performance was found to be satisfaction with supervisor.

2.7.4. Performance

Senior leadership strongly influences organizational performance (Wellman, 2007). As this responsibility cascades to managers in the matrix, they have a role to play in driving overall business performance. To do this managers require a shift in mind set to treat personnel as an asset since people have become a key component of business success (Meisinger, 2006). The sum of individual performances by the various actors in the matrix organisation will result in overall organisation performance.

The review on the matrix highlights the inherent design conflict from both the ambiguity of authority as well as roles and responsibilities due to the dual reporting (Kates & Galbraith, 2007). How then is performance managed with two managers? What are the functional and project managers' roles in the performance process? (Appelbaum, Nadeau, & Cyr, 2009). Research by (Appelbaum *et al.*, 2009; Sy & D'Annunzio, 2005a) both indicate that very little work has been done in understanding performance in a matrix organisation.

It is proposed that that one of the skills critical for matrix performance are persuasion (Hodgetts, 1968; Sy & D'Annunzio, 2005a). In the context of this study this raises the question what is the impact of the power and influence mechanisms used to drive performance by each type of manager? The functional manager is responsible for managing the overall performance of the employee, but the project manager has greater day-to-day interaction with the entire project team. Effectively compensation and rewards stem from the functional manager's reviews; the practical results of this, is that if both managers have requests, the project personnel will respond to the solid line manager first.

To resolve conflicting priorities in the matrix organisation it is suggested that managers (direct and indirect) should jointly set goals and objectives to manage performance of shared resources as this will benefit the entire organisation (Kates & Galbraith, 2007).

Without proper performance management processes in place, it is not possible to know the impact of problems on the business. Therefore it is necessary to have the appropriate rewards and consequent management systems that motivate employees and overcome the issues of decision making, goal alignment and roles and responsibilities (Sy & D'Annunzio, 2005a).

2.7.5. Employee Engagement

Kahn, (1990) conceptualized employee engagement in a work context, "I defined personal engagement as the harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances. I defined personal disengagement as the uncoupling of selves from work roles; in disengagement, people withdraw and defend themselves physically, cognitively, or emotionally during role performances" (p. 694). Defined more simply, employee engagement is considered to be, an employee's involvement with, enthusiasm for, and satisfaction with, the work the employee does (Robbins *et al.*, 2009).

Given the appropriate conditions, employees will express different dimensions of themselves, in the course of role performances. The employment of such dimensions is to drive personal energy and cognitive, emotional and physical labour (Kahn, 1990). This expression of employees as a work attitude is critical to the performance of the company as research has shown a correlation between employee engagement and meaningful business outcomes (Harter, Schmidt, Hayes, and others, 2002).

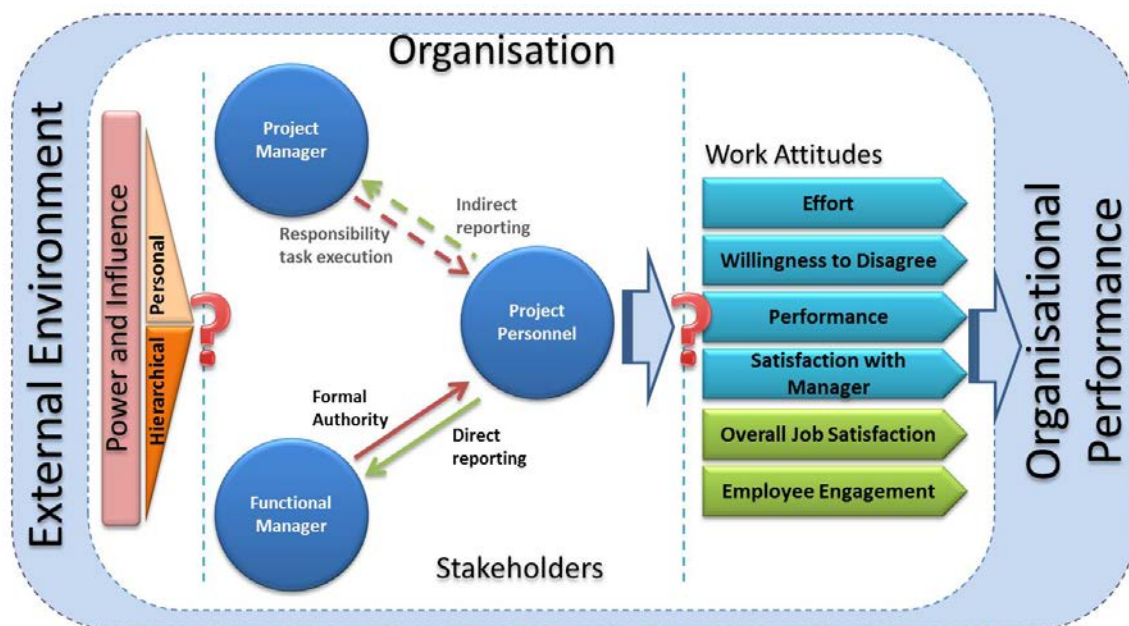
2.8. Conclusion

This research study aims to replicate the study conducted by Dunne *et al.* (1978), in an environment which has substantially changed over the last 30 years. The brief review on the changing business environment, organisational complexity and type of employee serve to highlight that research performed in organisational design and behaviour, in the past decades need to be tested for relevancy in today's complex business world. Given the prolific adoption and pervasive challenges of the matrix

organisation, in the context of a dynamically changing environment, and the emergence of the knowledge worker, this study is relevant for the purposes of academic research. The dual command structure produces ambiguity that is rooted in the matrix organisational design, which is based on a power distribution, within a structure, based on certain behaviours.

This research study also relates attitude (cognitive, affect and behavioural components) to the perception of the sources of influence by project personnel. These will be tested as hypotheses. Figure 5 below illustrates the relationships between the major themes discussed in this literature review.

Figure 5: Stakeholder Power in a Matrix Organisation Affecting Attitude and Performance



CHAPTER 3: RESEARCH QUESTIONS AND HYPOTHESES

The following research questions have been developed from the original study by Dunne *et al.* (1978) and the literature review in chapter two and are in alignment with the objectives described in chapter one.

3.1. Research Question One:

Research question one is a comparison of the perceptions of the use of power and influence between the three stakeholder groups. Hypotheses one to four are used to answer research question one.

3.1.1. Research Question One: Hypothesis 1

Compares perceptions of the use of power and influence between project managers and functional managers:

$$H_{01}: \mu_{PM} = \mu_{FM}$$

Project managers' and functional managers' perceptions of their use of power and influence are the same

$$H_{01A}: \mu_{PM} \neq \mu_{FM}$$

Project managers' and functional managers' perceptions of their use of power and influence is different

3.1.2. Research Question One: Hypothesis 2

Compares the perceptions of the use of power and influence by functional managers on project personnel:

$$H_{02}: \mu_{FM} = \mu_{PP(FM)}$$

The use of power and influence by functional managers is viewed the same by project personnel

$$H_{02A}: \mu_{FM} \neq \mu_{PP(FM)}$$

The use of power and influence by functional managers is viewed differently by project personnel

3.1.3. Research Question One: Hypothesis 3

Compares the perceptions of the use of power and influence by project managers on project personnel:

$$H_{03}: \mu_{PM} = \mu_{PP(PM)}$$

The use of power and influence by project managers is viewed the same by project personnel

$$H_{03A}: \mu_{PM} \neq \mu_{PP(PM)}$$

The use of power and influence by project managers is viewed differently by project personnel

3.1.4. Research Question One: Hypothesis 4

Compares the perceptions of the use of power and influence by the project manager and functional manager on project personnel:

$$H_{04}: \mu_{PP(PM)} = \mu_{PP(FM)}$$

Project personnel perceptions of the type of influence used by the project and functional managers are the same

$$H_{04A}: \mu_{PP(PM)} \neq \mu_{PP(FM)}$$

Project personnel perceptions of the type of influence used by the project and functional managers are different

3.2. Research Question Two:

Research question two is a comparison of perceptions of the use of power and influence across all stakeholder groups. This will be tested by ranking all four groups and the results from hypothesis five. The ranking of the perceptions of the use of power and influence by will be performed for the following groups:

- i. Project managers perceptions of themselves
- ii. Project personnel perceptions of project managers
- iii. Functional managers perceptions of themselves
- iv. Project personnel perceptions of functional managers

3.2.1. Research Question Two: Hypothesis 5

Compares the perceptions of the use of power and influence across all groups:

$$H_{05}: \mu_{PM} = \mu_{FM} = \mu_{PP(PM)} = \mu_{PP(FM)}$$

Perception of use of power and influence are the same across groups

$$H_{05A}: \mu_{PM} \neq \mu_{FM} \neq \mu_{PP(PM)} \neq \mu_{PP(FM)}$$

Perception of use of power and influence are different across groups

3.3. Research Question Three:

Are there relationships between the project personnel attitudinal outcomes and their views of the manager's use of power and influence?

The attitudinal outcomes tested are: amount of effort employed, willingness to disagree with manager, satisfaction with supervision received from manager and impact of manager on performance. Research question three is answered by testing hypotheses six and seven.

3.3.1. Research Question Three: Hypothesis 6

H_{06} : There are no relationships between project personnel attitudinal outcomes and the methods project managers use to influence them.

H_{06A} : There are relationships between project personnel attitudinal outcomes and the methods project managers use to influence them.

3.3.2. Research Question Three: Hypothesis 7

H_{07} : There are no relationships between project personnel attitudinal outcomes and the methods functional managers use to influence them.

H_{07A} : There are relationships between project personnel attitudinal outcomes and the methods functional managers use to influence them.

3.4. Research Question Four:

Are there relationships between the project personnel satisfaction with supervision received from managers and their overall job satisfaction, level of employee engagement & impact of manager on performance? Research question four is answered by testing hypotheses eight and nine.

3.4.1. Research Question Four: Hypothesis 8

H₀₈: There is no relationship between project personnel Satisfaction with the project manager and their Overall Job Satisfaction and Engagement at work.

H_{08A}: There is a relationship between project personnel Satisfaction with the project manager and their Overall Job Satisfaction and Engagement at work.

3.4.2. Research Question Four: Hypothesis 9

H₀₉: There is no relationship between project personnel Satisfaction with the functional manager and their Overall Job Satisfaction and Engagement at work.

H_{09A}: There is a relationship between project personnel Satisfaction with the functional manager and their Overall Job Satisfaction and Engagement at work.

3.5. Research Question Five:

Research question five examines similarities and differences between the original study by Dunne *et al.* (1978) and findings from this study. No functional managers were interviewed in the original study therefore only parts of the findings are comparable.

CHAPTER 4: RESEARCH METHODOLOGY AND DESIGN

4.1. Research Overview

This research topic was selected to address both an academic and business need; to understand how different managers use power and influence techniques, to overcome the authority conflict inherent in a matrix organisational design. The research design was achieved using a two phase approach to gather empirical evidence. The first phase was exploratory followed by a descriptive and explanatory second phase. The “funnelling” effect of a two phase design validated the literature and identified additional constructs (Saunders & Lewis, 2012; Zikmund, 2003).

4.2. Research Setting

The research was conducted in a business unit of a large multi-national company. This company operates in the oil & gas and chemicals industries and has a diverse portfolio of operating businesses internationally. The stand-alone business unit, in which the survey was conducted is the; research and development; technology and project execution partner to the operating businesses of the company. This business unit is based in several geographic locations both nationally and internationally. This study was conducted in the project execution cluster within the specific business unit.

The project execution cluster is primarily responsible for executing major capital projects on behalf of the operating businesses. This cluster only executes projects that are greater than ZAR150 million in value and it has a portfolio of projects in its rolling capital plan in excess of \$20 billion. The project execution cluster executes multiple projects simultaneously and is made up of diverse project teams, with various skills and competencies. There are approximately 2000 employees in the business unit and approximately 800 employees in the project execution cluster.

This business unit organisational structure is characterised by a matrix design. Each area of expertise is called a function (e.g. civil, mechanical electrical, process and control systems engineering; commercial, legal, SHE, cost estimating, cost controls, planning and document control). The functional managers provide resources to project teams. Every project team is made up of project personnel from various functions and headed up by a project manager. The project team members report directly to their functional manager in the structure and indirectly to the project manager for the duration of the project.

The project execution cluster has multiple project teams, executing projects simultaneously. This is a shared resources environment therefore individuals work on several projects at the same time. In this environment the use of power and influence by managers and resulting work attitudes on project personnel will be studied. The primary rationale for choosing this company was that it has a matrix organisational design and exhibited signs, of the inherent conflict theorised in the literature.

4.3. PHASE ONE: QUALITATIVE DESIGN

4.3.1. Research Method

The first phase of this qualitative design was exploratory in nature to achieve depth (Saunders & Lewis, 2012). Experts were approached to provide contextual insights related to the organisation and employee. The information obtained from phase one was used to develop the questionnaire for phase two (Zikmund, 2003); focusing on the use of the bases of power and influence tactics. This research was based on a cross-sectional time horizon (Saunders & Lewis, 2012).

4.3.2. Population and Unit of Analysis

The population for this study was functional managers, project managers and project personnel (individuals who belong to project teams) from the project execution cluster. Access was granted to conduct a survey with the caveat that the company and

individual names were kept confidential. The unit of analysis was perceptions; of project managers, functional managers and project personnel.

4.3.3. Sampling

Non-probability sampling was employed (Saunders and Lewis, 2012). The data was gathered using quota sampling this ensured that all three categories of respondents were included (project managers, functional managers and project personnel). Respondents were selected using judgement sampling; based on their ability to provide meaningful insights. The sample obtained is illustrative, but not statistically representative of the population (Saunders and Lewis, 2012). **Table 5** shows samples response rates. One questionnaire was excluded, because it was not answered correctly.

Table 5: Responses Phase One

| Sample sub-groups | Questionnaires issued | Responses received | Valid responses |
|--------------------|-----------------------|--------------------|-----------------|
| Project Manager | 5 | 2 | 2 |
| Functional Manager | 5 | 3 | 2 |
| Project Personnel | 6 | 3 | 3 |

4.3.4. Data Collection Method

Data was collected by emailing the questionnaire to the respondents. This method was selected in lieu of face-to-face interviews, as the individuals selected, were dispersed geographically. Sixteen respondents were selected, in total seven individuals responded. The data collection process took approximately two weeks.

4.3.5. Data Collection Tool

The data collection tool was a self-administered, open-ended questionnaire (Saunders & Lewis, 2012). A challenge with self-administered questionnaires is ambiguity in interpreting questions (Zikmund, 2003). To overcome this challenge, only short simple open-ended questions were asked. Specific consideration was given to the

organisational design challenge of the direct versus indirect relationships of both managers with a focus on power and influence mechanisms used (Kates & Galbraith, 2007). The self-administered questionnaires for each sub-group, with the cover email containing the purpose of research, consent note and contact details are provided in Appendix A.

4.3.6. Data Analysis

Text data was collected via electronic mail, which facilitated ease of analysis. Given the number of responses, computer aided software was not required. Content and frequency analysis (Zikmund, 2003) was performed manually on the data. The data was analysed using a three-pronged approach as per **Table 6**. The results for phase one analysis are presented in **Chapter 5**.

Table 6: Data Analysis Methods used

| Data Analysed | | Method |
|-------------------------|------------|--|
| Constructs | Literature | Constructs were extracted pertaining to the sources of power and influence. These were divided into those established in the literature and new constructs. Any overlaps in interpreting constructs as either a power base or influence mechanism was noted as both. |
| | New | |
| Most effective methods | | Constructs were listed in Chapter 5 and examined in chapter 6 in relation to actual responses in phase two. |
| Reasons for differences | | Experts views on reasons for differences between managers were analysed and are discussed further in Chapter 6 compared to phase two outcomes. |

4.3.7. Assumptions and Limitations of the Phase One Design

Explorative research progressively narrows the research process but researchers are advised to exercise caution about conclusive statements (Saunders & Lewis, 2012), therefore information from phase one research is only a guide to inform the design of phase two. There are a number of biases introduced into the data sampling process; firstly the researcher in using purposive sampling in the selection process and the

respondent either deliberate or unconscious (Zikmund, 2003). Data gathering was performed using non-probability sampling based primarily on judgement and is therefore not statistically representative of the population.

4.4. PHASE TWO: QUANTITATIVE DESIGN

4.4.1. Research Method

The second phase of the research was quantitative and descriptive by design (Saunders and Lewis, 2012). The constructs identified in phase one and literature review was used to develop a relevant questionnaire to meet the objectives of the research questions and hypotheses. Using this method phase one informs the research design of phase two (Saunders & Lewis, 2012; Zikmund, 2003).

4.4.2. Population and Unit of Analysis

The population for the phase two study comprised of functional managers, project managers and project personnel in the project execution cluster. Access was granted to conduct a survey with the caveat that the company and individual names were kept confidential and that only aggregated data would be used. The unit of analysis was perceptions; of project managers, functional managers and project personnel.

4.4.3. Sampling

The data was gathered using quota sampling to ensure that all three categories of respondents were included (Saunders & Lewis, 2012). Three sub-groups were established, a project manager sub-group, a functional manager sub-group and a sub-group for project team members. The quota sampling selection was informed by the key stakeholder relationships described in **Chapter 2.4.2**. Respondents in each sub-group were selected using the company email distribution list. This was filtered by department to select project managers and project personnel. For the selection of functional managers, all direct line managers who provide resources to project teams

were isolated for inclusion in the sample. Completed questionnaires were obtained from respondents in South Africa (multiple locations), Italy and Canada. The summary of samples collected is show in **Table 7**. Incomplete questionnaires were removed from the sample.

Table 7: Response Rate Summary Phase Two

| Sample sub-groups | Questionnaires Issued | Responses | Valid Responses | Response Rate |
|--------------------|-----------------------|-----------|-----------------|---------------|
| Project manager | 110 | 28 | 28 | 25.45% |
| Functional manager | 142 | 23 | 22 | 16.19% |
| Project personnel | 317 | 101 | 92 | 31.86% |

4.4.4. Data Collection Tool

Self-administered questionnaires were used to obtain primary data during phase two. No open-ended questions were included. Three separate questionnaires were developed, one for each sub-group of respondent (project manager, functional manager and project team personnel).

4.4.4.1. Questionnaire Development

The questionnaire was developed from the literature review, the original study (Dunne *et al.*, 1978) and the phase one results. Only constructs validated in phase one were used. The questionnaire encompassed all constructs except for coalition tactics (Yukl, Seifert, & Chavez, 2008), which was not identified in phase one or the original study.

Two new constructs emerged in phase one, namely, empowerment and meaning & purpose. Empowerment speaks to the idea of having delegated authority, having sufficient tools and skills development to carry out the tasks and job requirements. Meaning and purpose is related to being given professionally challenging work that engages team members. These constructs were incorporated into the questionnaire. **Table 8** indicates the origin of the constructs used in the final questionnaire. **Table 9**

provides a working definition of the constructs as developed from the literature review, the original study and the phase one results.

Table 8: Phase Two Constructs

| Power and influence constructs | Literature review | | Original Study | Phase one |
|--|-------------------|-----------|----------------|-----------|
| | Power | Influence | | |
| Performance rating | ✓ | ✓ | ✓ | ✓ |
| Pressure or penalize | ✓ | ✓ | ✓ | ✓ |
| Formal authority | ✓ | ✓ | ✓ | ✓ |
| Position and responsibilities | ✓ | ✓ | ✓ | ✓ |
| Association with manager | ✓ | ✓ | ✓ | ✓ |
| Passion and optimism | ✓ | ✓ | ✓ | ✓ |
| Good relationship | ✓ | ✓ | ✓ | ✓ |
| Confidence in knowledge and special advice | ✓ | ✓ | ✓ | ✓ |
| Uses logical arguments | ✓ | ✓ | ✓ | ✓ |
| Work together to achieve shared goals | ✓ | ✓ | | ✓ |
| Empowers to carry out responsibilities | | | | ✓ |
| Professionally challenging work | | | ✓ | ✓ |

Table 9: Explanation of Power and Influence Constructs

| Power and influence constructs | Explanation |
|--------------------------------|---|
| Association | Association refers to referent power and the desire by individuals to be linked with a manager in the organisation. |
| Authority | Authority refers to formal authority, derived from a position in the organisational structure. It is typically linked to coercion. |
| Empower | Empower speaks to the idea of delegation of authority, creating a sense of ownership and equipping individuals with the correct skills and tools. |
| Good Relationship | Good relationship refers to influencing based on friendship or a relationship to achieve an outcome. This is also linked to referent power. |
| Passion Inspiration | This refers to influence based on inspiration and personal appeals and is also rooted in referent power. This speaks to leadership ability as a means to influence. |
| Logical Arguments | Logical arguments refer to both informational as well as expert power and the use of rational persuasion by managers. |
| Penalty Pressure | This refers to coercion as a power base and the use of pressure as an influence mechanism to obtain a result or behaviour change. |
| Performance Rating | This is rooted in both reward and coercive power and is executed as either: Ingratiation, Exchange, Apprising or Pressure as an |

| | |
|-----------------------------|---|
| | influence mechanism. Typically refers to company reward system. |
| Position & Responsibilities | This construct is included to create a difference between formal and informal authority. Position and responsibility speaks to legitimate power but is not authority and may come from either a direct or indirect relationship. |
| Professionally Challenging | This construct speaks to the idea of creating meaning and value through work, even a sense of belonging in the organisation. This can be used as an influence mechanism. |
| Respect Knowledge | This refers to expert power. Having respect and confidence in the manager's abilities and advice, therefore responding to a rational persuasive influence mechanism by the manager. |
| Shared Goals | This construct is related to working together to achieve common goals and speaks to the idea of alignment between manager and project personnel. It is executed as an influence mechanism through collaboration and consultation. |

Source: (Dunne *et al.*, 1978; French & Raven, 1959; Raven, 2008; Yukl & Falbe, 1990; Yukl *et al.*, 1996, 2008); Phase one results

Manager's questionnaires only included questions on the types of power and influence used. Project team members were questioned on their perceptions of the types of power and influence used on them. More importantly the effect of the influence mechanism used, by managers on project team personnel; were examined through questions on attitudes. **Table 10** shows the categories of questions posed to each sub-group.

Table 10: Phase Two Questionnaires

| Respondent sub-samples | | Power and Influence | Attitudinal variables |
|--|--------|---------------------|-----------------------|
| Functional manager | FM | ✓ | |
| Project manager | PM | ✓ | |
| Project personnel view of functional manager | PP(FM) | ✓ | ✓ |
| Project personnel view of project manager | PP(PM) | ✓ | ✓ |

The attitudinal variables tested were similar to the original study with the exception of work involvement. The concept of work involvement predates the work on employee engagement and has numerous similarities. For this reason employee engagement was selected as a more relevant measure. Satisfaction with manager was also tested to see if relationships existed with employee engagement and overall job satisfaction and the impact of the manager on performance. **Table 11** indicates the sources from which the self-administered questions were developed.

Table 11: Sources of Influence and Attitude Definitions

| Attitude | Source |
|---|--|
| Sources of influence | (Dunne <i>et al.</i> , 1978), (Yukl <i>et al.</i> , 2008) New constructs from phase one data analysis |
| Effort | (Dunne <i>et al.</i> , 1978; Thamhain and Gemmill, 1974) |
| Willingness to disagree | (Dunne <i>et al.</i> , 1978; Thamhain & Gemmill, 1974) |
| Impact of manager on Performance | (Appelbaum <i>et al.</i> , 2009; Kates & Galbraith, 2007; Sy & D'Annunzio, 2005a) |
| Satisfaction with Manager | (Robbins <i>et al.</i> , 2009) |
| Overall job satisfaction Job satisfaction | (Robbins <i>et al.</i> , 2009; Wanous, Reichers, & Hudy, 1997) |
| Employee engagement | (Kahn, 1990; Robbins <i>et al.</i> , 2009) |

4.4.4.2. Questionnaire Scales

All questions used 5-point Likert items. The Likert scale is a measure of attitude typically from: strongly disagree, disagree, neither, agree to strongly agree. The results of a Likert type scale is ordinal in nature as the distance between scale items is not known (Weiers, 2008; Zikmund, 2003). The scales used for all questions in the questionnaire are described in **Table 12**. The final version of each questionnaire is included in Appendix B.

Table 12: Questionnaire Scales used

| Questions | |
|--|---|
| Power and influence (individual questions) | 12 individual Likert scales from 1 to 5 No summation |
| Effort | One Likert item resulting in a scale from 1 to 5 |
| Willingness to disagree | Two Likert items summated, resultant scale from 2 to 10 |
| Satisfaction with manager | One Likert scale from 1 to 5 |
| Impact of manager on Performance | One Likert scale from 1 to 5 |
| Overall Job satisfaction | One Likert scale from 1 to 5 |
| Employee engagement | Three Likert items summated, resultant scale from 3 to 15 |

4.4.4.3. Questionnaire Relevancy and Accuracy

Questionnaire relevancy refers to the ability to obtain information that is necessary to answer the research questions (Zikmund, 2003). To achieve this only pertinent biographical information was requested to understand the sample distribution. By

design, all questions directly linked back to either a source of power and influence or an attitudinal variable thus ensuring questionnaire relevancy.

Questionnaire accuracy is achieved if the questionnaire is both reliable and valid (Zikmund, 2003). Reliability was achieved by using simple understandable questions that are unbiased and unambiguous. The questions were neither leading nor loaded so as to not influence respondents. Validity refers to the credibility of the research findings and conclusions. Validity is primarily concerned with the data collection process and ensuring that the data measures the variables intended (Saunders & Lewis, 2012). To satisfy the reliability and validity requirement; the questionnaire was developed so that relationships between variables proposed in Chapter 3 could be measured. Validation of the literature review and the new constructs from phase one, improved both the reliability and validity.

4.4.4.4. Survey Instrument:

Using electronic self-administered questionnaires to collect data, is a quick and inexpensive means to target a large audience and improve response rates (Zikmund, 2003). Three questionnaires were created on SurveyMonkey®; the first two were created for the project and functional managers and the third for project personnel. To ensure that separate responses for each category could be managed, individual web collector links were created for each of the three surveys. SurveyMonkey® was programmed to prevent the same computer from responding twice by noting the IP address; this aids in preventing corruption of the data set.

The questionnaire used a paging format as opposed to a scrolling format, so that all questions were immediately visible. A progress bar ensured participants could determine the length and was an attempt to improve the number of completed responses. To improve the integrity of the data collection process, only one response could be selected per question, and to progress on to the next page all questions had to be completed.

4.4.4.5. Pre-testing:

The questionnaire was pre-tested with five individuals to test language, grammar, general understanding and ensuring that the response collector and online questionnaire worked as intended. The pre-testing was performed sequentially and the questionnaire updated to incorporate comments, post each individual pre-test; prior to re-testing.

4.4.5. Data Collection Method

Data was collected using a self-administered questionnaire via the online survey instrument SurveyMonkey®. Emails were sent to recipients in each sub-group with the web collector link. The cover email containing the purpose of research, consent note and contact details are provided in Appendix B. The questionnaire was issued on the 10th of July 2013 and was closed on the 29th of July 2013.

4.4.6. Data Analysis

The raw data collected via SurveyMonkey® was downloaded in Microsoft Excel format. The data was coded in as shown in **Table 13**, questions one to three are nominal data (the use of numbers for descriptive purposes) and questions four to ten are ordinal data using Likert type scales (Weiers, 2008). Microsoft Excel and SPSS 21 were used for the data analysis. A significance level of $\alpha = 0.05$ was used for all tests.

Table 13: Coding of Data for use in Analysis

| Questions 4,7: | | | |
|---|--|---|----------------------------|
| Sources of Power and Influence | Functional managers Project managers Project personnel | 1 | Strongly disagree |
| | | 2 | Disagree |
| | | 3 | Neither agree nor disagree |
| | | 4 | Agree |
| | | 5 | Strongly agree |
| Questions 5,8: | | | |
| Impact of Each Type of Managers Use of Power and Influence on Project Personnel Performance | Project personnel | 1 | Major decrease |
| | | 2 | Slight decrease |
| | | 3 | No impact |
| | | 4 | Slight increase |
| | | 5 | Major increase |

| Questions 6,9,10: | | | |
|---------------------------|-------------------|---|----------------------------|
| Effort | Project personnel | 1 | Strongly disagree |
| Willingness to disagree | | 2 | Disagree |
| Satisfaction with Manager | | 3 | Neither agree nor disagree |
| Overall Job satisfaction | | 4 | Agree |
| Employee engagement | | 5 | Strongly agree |

Descriptive Statistics

Descriptive statistics is used to summarize and describe the characteristics of a sample or population, based on the data collected without making any inferences (Weiers, 2008; Zikmund, 2003). The data was first cleaned by removing all incomplete responses from the sample. The data was coded and further rearranged into a format that could be used for descriptive analysis.

The biographical data collected is nominal. For all other questions, the Likert scale was used therefore all data collected is ordinal in nature. Equidistance between Likert scale items was not assumed for this study therefore the approach taken to analyse the data was to use non parametric testing methods. A frequency distribution was used to graphically present the biographical information. Due to the non-parametric nature of the sampling process, the median, mode and range is used to analyse the data. Central tendency is used to describe data values and was represented by the median and mode; dispersion describes the scatter and variance of data and is represented by the range (Weiers, 2008). The median, mode and range is not presented but calculated and analysed in the tests below. A significance level of $\alpha = 0.05$ was used for all tests.

Testing of Differences of Power and Influence Constructs between each sub-group

Research question one tests the difference between perceptions of type of power and influence used by managers and project personnel views of the manager's use of power and influence on them for paired independent groups. To test the differences a Mann-Whitney U non-parametric test was run in SPSS 21 for the four hypotheses. This test, for two independent samples, was used to determine if any significant

differences existed, between the distributions of each group (Anderson, Sweeney, & Williams, 2008).

Testing of Differences of Power and Influence Constructs across all groups

For research question two, ranking and statistical testing was performed for the perceptions of power and influence used by managers and employees views of manager's use of power and influence on them. A Kruskal-Wallis non-parametric test across the four independent samples was run in SPSS 21 (Anderson *et al.*, 2008). The mean ranks are calculated by ranking every response across all constructs and all four groups and then averaging the constructs per group. The result is calculated mean-ranks for each construct per group relative to other groups. The mean ranks, were ranked from highest to lowest for each sub-group. It is highlighted that the mean ranks calculated are dependent on the number of samples, for the ranking across groups $n = 22 + 28 + 92 + 92$. The Kruskal-Wallis test also calculates significant differences across groups; this was used in answering hypothesis five.

It is highlighted that the mean ranks calculated will differ between Mann-Whitney and Kruskal-Wallis tests because there are fewer samples (2 groups) from which to calculate the mean-ranks using the Mann-Whitney U test statistic. For paired differences the Mann-Whitney test was conducted, for group differences the Kruskal-Wallis test was conducted.

Testing of Correlation of Attitudinal Variables

Research questions three and four are related to the project personnel. Two different sets of relationships are tested as described in Chapter 3. The Spearman coefficient of rank correlation, non-parametric test, was run in SPSS 21. Spearman's ρ measures the strength and direction of association between variables (Weiers, 2008). The test also identifies significant correlations.

Observations between the Original Study and this Research

For research question five general observations were made to assess the differences between the original study and the research conducted. The specific focus was to

understand if the changes in the environment, organisations and employees had in fact changed the outcomes identified in the original study. It is not possible to conduct a one-is-to-one comparison as the constructs were updated based on both the literature and the feedback in phase one. Comparative observations between the original study and the results from Chapter 5 are discussed in the Chapter 6 as part of interpreting the results.

4.4.7. Assumptions and Limitations

Non-probability purposive sampling was employed in both phase one and phase two of the research. The results obtained from this process is not statistically representative of the population. The results were obtained in a single large organisation. It is only possible, to make logical generalizations based on non-probability purposive sampling (Saunders & Lewis, 2012). There were a number of biases introduced into the data collection process, most notably the order of questions and the order in which questions were asked about each type of manager. Non-response error is introduced via the low response rates (Zikmund, 2003). This could introduce bias in the results, in that the respondents not sampled may belong to a group with specific characteristics not represented in the sample, and could result in a type I error (Saunders & Lewis, 2012; Weiers, 2008).

With respect to the context in which the survey was conducted, the research was conducted in a knowledge worker environment (Drucker, 1999; Kates & Galbraith, 2007); the results may not necessarily be applicable to a product environment which typically is made up of blue-collar workers. The survey was conducted using a quota sampling approach based on project managers, functional managers and project personnel, in the context of the company surveyed which has multiple offices in different geographic locations, a way to have enhanced representivity would have been to extend quota sampling to sample quotas within the various geographic locations.

CHAPTER 5: RESULTS

Chapter 5 is a presentation of the results achieved using the methodology from section 4 in two sections, in line with the funnelling effect of a two phase design. The phase one qualitative analysis and results are presented followed by the phase two quantitative analysis and results.

5.1. PHASE ONE RESULTS

5.1.1. Results for Question One

The first question posed to each sub-group group is shown in **Table 14**:

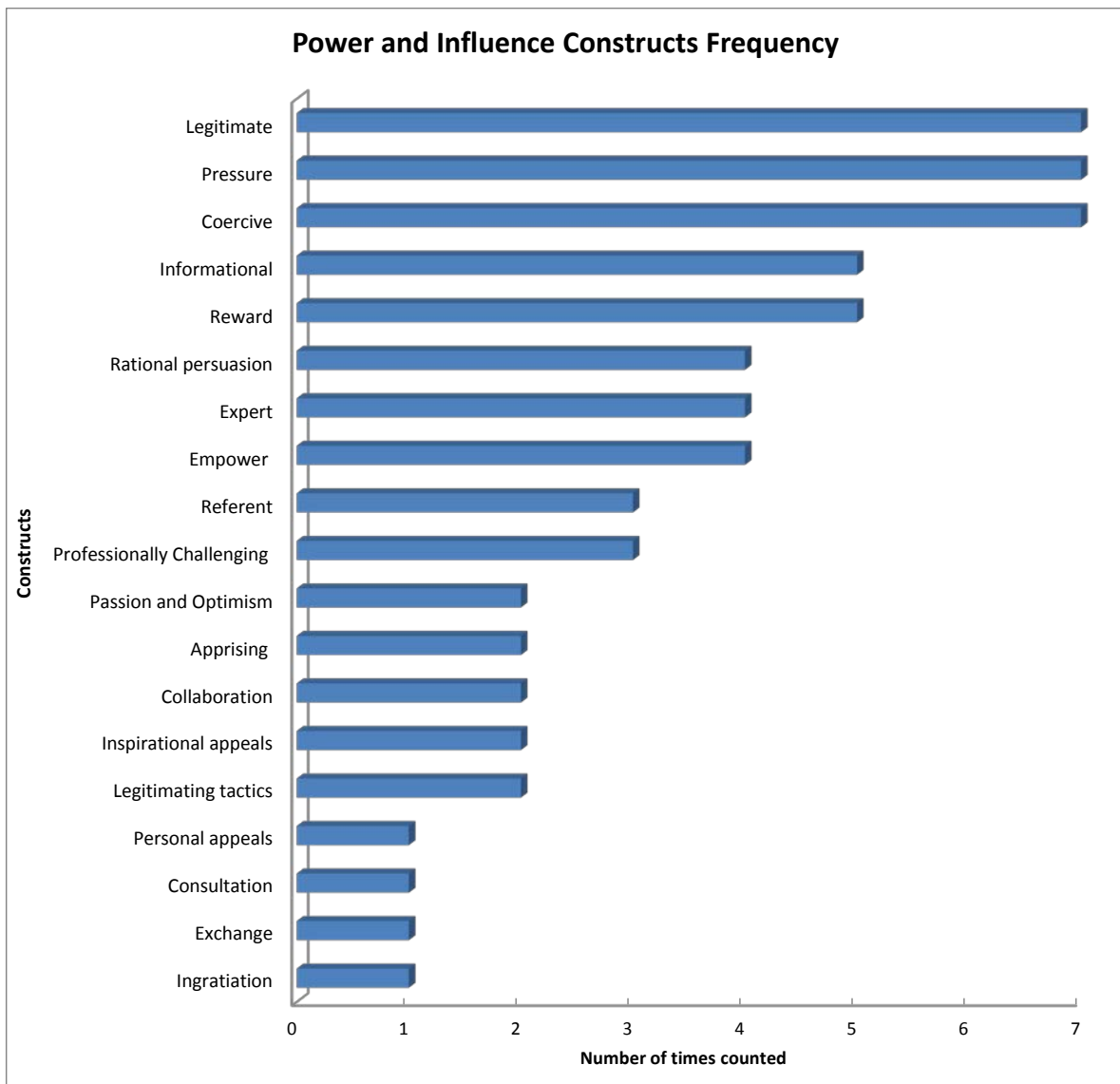
Table 14: Identification of Constructs

| | |
|--------------------|---|
| Functional manager | What methods do you use to influence the performance of your direct reports , please describe how as part of your answer? |
| Project manager | What methods do you use to influence the performance of your indirect reports on the project , please describe how as part of your answer? |
| Project personnel | What methods does your direct functional manager use to influence you? |
| | What methods does your indirect project manager use to influence you? |

Using the qualitative data from the open ended questions, known constructs were counted and mapped to the constructs of power and influence identified in the literature. Unknown constructs that were identified were listed and grouped together in themes; these were also counted and mapped as new constructs. Two additional constructs were identified; these being empowerment and meaning & purpose. Using this methodology all constructs were counted and ranked from highest to lowest. **Figure 6** shows the frequency and ranking of constructs.

The constructs are presented on an aggregated basis summing all three sub-groups. For example, an action that is coercive in nature is executed via a tactic that employs pressure, for this reason, constructs are duplicated for power and influence in the development of the ranking.

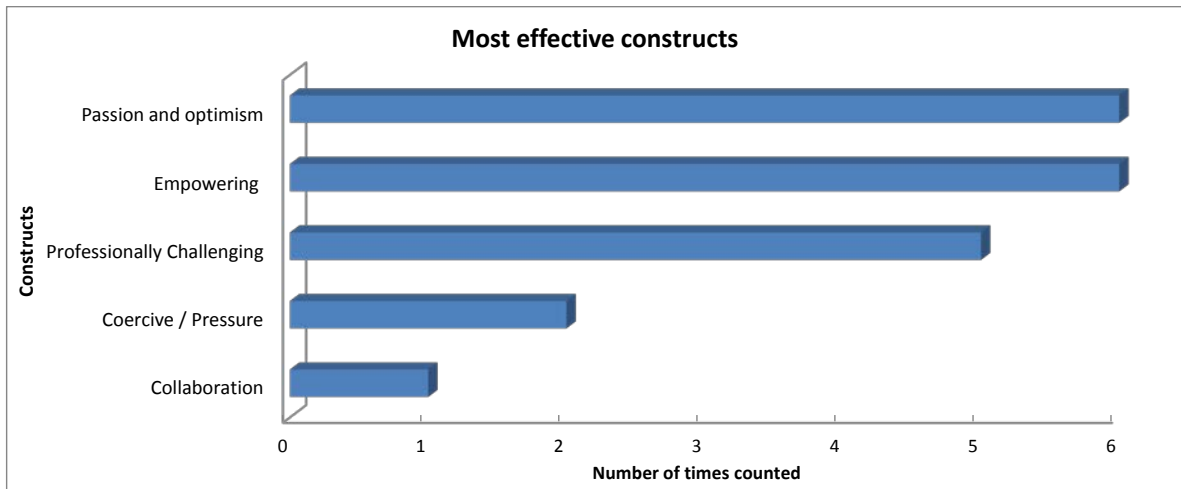
Figure 6: Frequency Distribution of Constructs of Power and Influence



5.1.2. Results for Question Two:

The results presented for question two show the two most effective constructs identified by each type of manager as well as the project personnel. **Table 7** presents the rank order of the most effective constructs, the data was aggregated across all respondents.

Figure 7: Most Important Constructs Identified shown in Rank Order



5.1.3. Results for Question Three (Managers Only):

This question was included to aid in understanding the reasons and motivation behind the sources of power and influence used from the managers perspective. Several reasons emerged for the differences in influence styles used; these are presented in **Table 15**. The reasons are grouped based on the aggregated feedback from the two categories of managers.

Table 15: Reasons for Differences in Power and Influence Styles used between Managers

| Project manager |
|---|
| <ul style="list-style-type: none"> ▪ Project managers are forced to use personal power due to a lack of positional power. ▪ Legitimate power is a default position for functional managers in the event that other influence tactics do not work. ▪ Career advancement is most often linked to performance of functional goals. ▪ The functional relationship is permanent and the project relationship is temporary and therefore project personnel will respond differently to each manager and logically this is more weighted in terms of responding to functional requests. ▪ Engineers are technical by virtue of their training and view functional managers as experts and project managers as generalists; this could be a base of power. |

Functional managers

- Project and functional managers have different organisational drivers.
- As individuals different project and functional managers use different mechanisms to influence project personnel, therefore be weary of “painting all people with the same brush”.
- Project managers are delivery focused (cost and schedule) whilst functional managers are quality focused.
- Both project and functional managers give input into project personnel promotions.
- Functional managers appeal to legal accountabilities, speaking to the issue of legitimacy but also to coercion.
- Functional managers have a more significant long-term impact on performance and behaviour of project personnel compared to project managers who stimulate performance for a short period, being the duration of the project.

The insights from **Table 15** will be used in Chapter 6 to understand and interpret perceived differences in influence styles used.

5.2. PHASE TWO RESULTS

The results of the self-administered questionnaire are presented sequentially in response to the research questions in chapter 3. The phase two survey was conducted on three sub-samples, one for each stakeholder group; project manager (PM), functional manager (FM) and project personnel (PP). Separate questionnaires were developed for each of the three sub-samples to test the use of power and influence. Attitudinal variables are only examined for project personnel, refer to **Table 16**. The questionnaires used for each sub-sample are in Appendix B.

Table 16: Phase Two Questionnaires

| Respondent sub-samples | | Power and Influence | Attitudinal variables |
|--|--------|--------------------------|--------------------------|
| Functional manager | FM | <input type="checkbox"/> | |
| Project manager | PM | <input type="checkbox"/> | |
| Project personnel view of functional manager | PP(FM) | <input type="checkbox"/> | <input type="checkbox"/> |
| Project personnel view of project manager | PP(PM) | <input type="checkbox"/> | <input type="checkbox"/> |

The spread of responses obtained via the questionnaires are shown in **Table 7**. The project personnel sub-group resulted in 92 responses, the project managers and functional manager's responses were also reasonable at 28 and 22 respectively. In all cases the responses are more than double those achieved in the original study.

5.2.1. Summary Of Biographical Information

This section presents the biographical information to indicate the distribution of age, experience and management level across groups. **Table 17** shows the distribution across the three sub-samples. For all three categories, visual observation of the data shows a wide distribution; this improved the relevancy of the analysed data.

Table 17: Descriptive Statistics

| Sample Characteristics | | | | | | |
|--|-----------------|-------------------|---------------------|------------------|-------------|---------|
| | | Project Personnel | Functional Managers | Project managers | Total Count | % Split |
| Age groups | <25 | 4 | 0 | 0 | 4 | 3% |
| | 25 to 30 | 24 | 0 | 5 | 29 | 20% |
| | 30 to 40 | 41 | 7 | 11 | 59 | 42% |
| | 40 to 50 | 11 | 10 | 6 | 27 | 19% |
| | 50 to 60 | 8 | 5 | 6 | 19 | 13% |
| | >60 | 4 | 0 | 0 | 4 | 3% |
| Years of experience on projects | <2 | 6 | 0 | 0 | 6 | 4% |
| | 2 to 5 | 25 | 2 | 4 | 31 | 22% |
| | 6 to 9 | 30 | 3 | 13 | 46 | 32% |
| | 10 to 14 | 17 | 4 | 4 | 25 | 18% |
| | 15 to 19 | 3 | 6 | 2 | 11 | 8% |
| | 20 to 25 | 5 | 4 | 3 | 12 | 8% |
| | >25 | 6 | 3 | 2 | 11 | 8% |
| Management Level | Junior | 33 | 0 | 4 | 37 | 26% |
| | Middle | 53 | 16 | 22 | 91 | 64% |
| | Senior | 6 | 6 | 2 | 14 | 10% |

Figure 8 is a graphical representation of the biographical information for age across all groups. **Figure 9** is a graphical representation of the biographical information for experience across all groups. **Figure 10** is a graphical representation of the biographical information for experience across all groups. The axes for age, experience and management level were kept the same for direct visual comparison across the groups.

Figure 8: Age

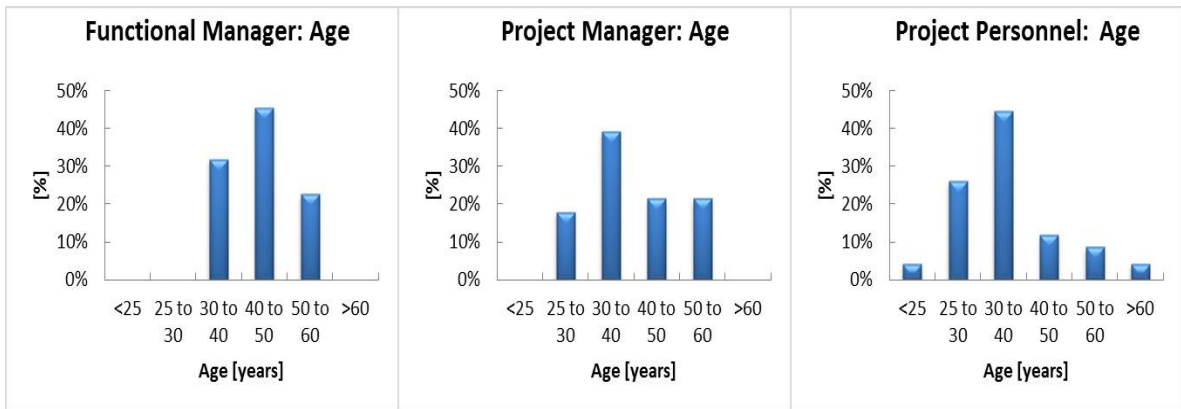


Figure 9: Experience

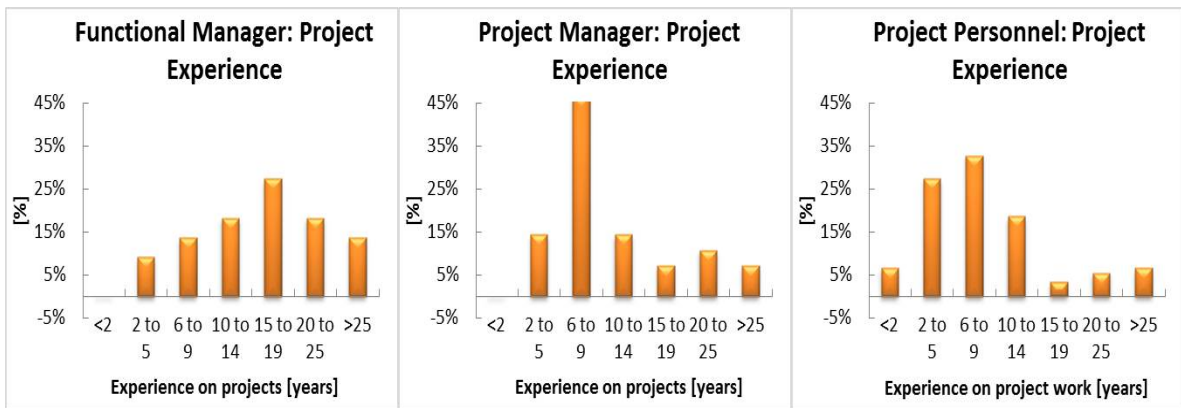
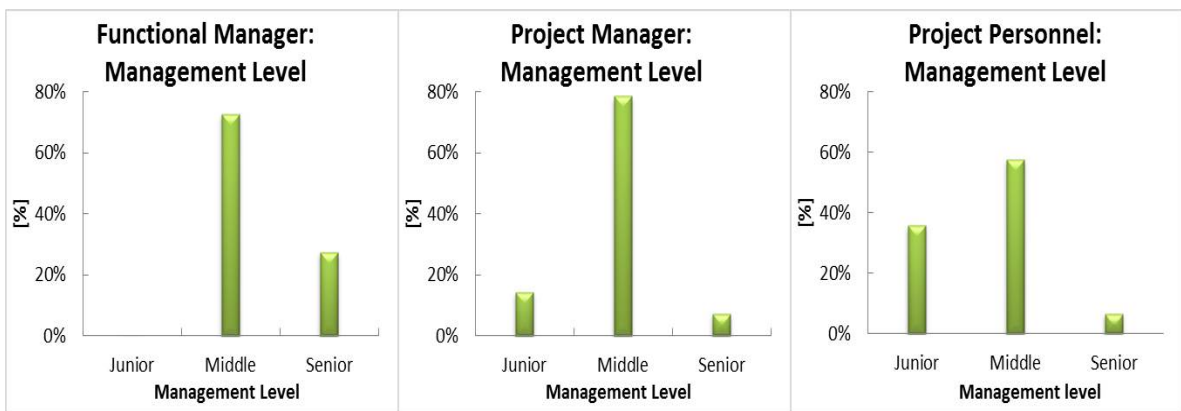


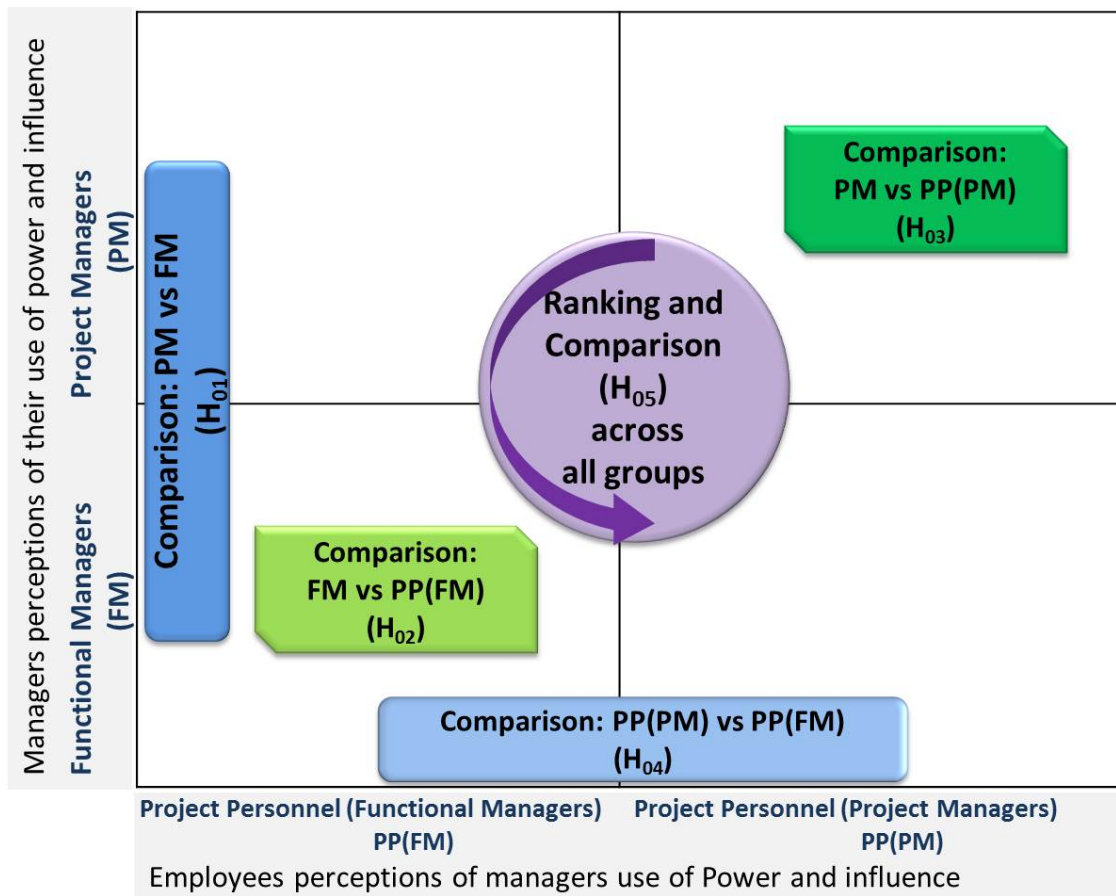
Figure 10: Management Level



5.2.2. Research Question One:

Research question one is aimed at understanding whether perceptual differences exist between the various groups surveyed. To achieve this, Mann-Whitney U statistical tests were conducted using a significance level of $\alpha = 0.05$ for all tests. **Figure 11** presents a 2x2 matrix with each coloured block denoting a test to be conducted and the corresponding hypothesis number.

Figure 11: Tests Conducted for Research Questions One and Two



The survey results are presented in percentage format in **Table 18**, **Table 19**, **Table 20**, and **Table 21**.

Table 18: Functional Manager Self-Report of Use of Power and Influence

| Functional manager | strongly disagree | disagree | neither agree nor disagree | agree | strongly agree |
|-----------------------------|-------------------|----------|----------------------------|----------|----------------|
| Scale | 1 | 2 | 3 | 4 | 5 |
| n = 22 | | | | | |
| Association | 0% | 0% | 27% | 64% | 9% |
| Authority | 0% | 32% | 9% | 55% | 5% |
| Empower | 0% | 0% | 5% | 45% | 50% |
| Good Relationship | 0% | 0% | 5% | 77% | 18% |
| Passion Inspiration | 0% | 0% | 0% | 64% | 36% |
| Logical Arguments | 0% | 9% | 14% | 68% | 9% |
| Penalty Pressure | 0% | 23% | 9% | 64% | 5% |
| Performance Rating | 0% | 5% | 14% | 59% | 23% |
| Position & Responsibilities | 0% | 0% | 0% | 82% | 18% |
| Professionally Challenging | 0% | 5% | 14% | 64% | 18% |
| Respect Knowledge | 0% | 5% | 5% | 77% | 14% |
| Shared Goals | 0% | 0% | 0% | 86% | 14% |

Table 19: Project Manager Self-Report of use of Power and Influence

| Project manager | strongly disagree | disagree | neither agree nor disagree | Agree | strongly agree |
|-----------------------------|-------------------|----------|----------------------------|----------|----------------|
| Scale | 1 | 2 | 3 | 4 | 5 |
| n = 28 | | | | | |
| Association | 4% | 4% | 25% | 57% | 11% |
| Authority | 4% | 46% | 14% | 36% | 0% |
| Empower | 0% | 4% | 11% | 64% | 21% |
| Good Relationship | 0% | 0% | 7% | 57% | 36% |
| Passion Inspiration | 0% | 0% | 4% | 71% | 25% |
| Logical Arguments | 0% | 0% | 11% | 64% | 25% |
| Penalty Pressure | 4% | 32% | 29% | 32% | 4% |
| Performance Rating | 11% | 29% | 11% | 43% | 7% |
| Position & Responsibilities | 4% | 0% | 7% | 71% | 18% |
| Professionally Challenging | 4% | 7% | 18% | 57% | 14% |
| Respect Knowledge | 0% | 4% | 4% | 86% | 7% |
| Shared Goals | 0% | 4% | 11% | 43% | 43% |

Table 20: Project Personnel Perception of Functional Managers use of Power and Influence

| Project Personnel perception of Functional Manager | strongly disagree | disagree | neither agree nor disagree | Agree | strongly agree |
|--|-------------------|----------|----------------------------|----------|----------------|
| Scale | 1 | 2 | 3 | 4 | 5 |
| n = 92 | | | | | |
| Association | 2% | 9% | 28% | 40% | 21% |
| Authority | 0% | 18% | 15% | 54% | 12% |
| Empower | 3% | 16% | 22% | 45% | 14% |
| Good Relationship | 5% | 10% | 16% | 47% | 22% |
| Passion Inspiration | 2% | 16% | 28% | 40% | 13% |
| Logical Arguments | 7% | 21% | 25% | 36% | 12% |
| Penalty Pressure | 1% | 5% | 9% | 62% | 23% |
| Performance Rating | 0% | 11% | 13% | 54% | 22% |
| Position & Responsibilities | 1% | 4% | 15% | 58% | 22% |
| Professionally Challenging | 2% | 14% | 34% | 38% | 12% |
| Respect Knowledge | 2% | 9% | 24% | 39% | 26% |
| Shared Goals | 3% | 12% | 23% | 45% | 17% |

Table 21: Project Personnel Perception of Project Managers use of Power and Influence

| Project Personnel perception of Project manager | strongly disagree | disagree | neither agree nor disagree | agree | strongly agree |
|---|-------------------|----------|----------------------------|----------|----------------|
| Scale | 1 | 2 | 3 | 4 | 5 |
| n = 92 | | | | | |
| Association | 3% | 3% | 25% | 53% | 15% |
| Authority | 1% | 16% | 16% | 59% | 8% |
| Empower | 4% | 16% | 21% | 46% | 13% |
| Good Relationship | 4% | 4% | 18% | 58% | 15% |
| Passion Inspiration | 4% | 10% | 25% | 50% | 11% |
| Logical Arguments | 4% | 7% | 32% | 41% | 16% |
| Penalty Pressure | 0% | 14% | 18% | 62% | 5% |
| Performance Rating | 1% | 14% | 13% | 58% | 14% |
| Position & Responsibilities | 1% | 4% | 12% | 62% | 21% |
| Professionally Challenging | 2% | 8% | 42% | 37% | 11% |
| Respect Knowledge | 2% | 9% | 22% | 59% | 9% |
| Shared Goals | 4% | 5% | 14% | 59% | 17% |

In each test conducted, the null hypothesis states that the perceptions of the use of power and influence are the same; this is a two-tailed statistical test. Every test conducted has different mean ranks; this is purely dependant on the cumulative number of actual responses for all the sub-groups analysed.

5.2.2.1. Research Question One: Hypothesis 1

$$H_{01}: \mu_{PM} = \mu_{FM}$$

Project managers and functional manager's perception of their use of power and influence are the same

$$H_{01A}: \mu_{PM} \neq \mu_{FM}$$

Project managers and functional manager's perception of their use of power and influence is different

To test hypothesis one, a Mann-Whitney U test was run using the data from **Table 18** and **Table 19**. The results are presented in **Table 22**. All constructs with significant statistical differences are denoted with an asterisk (*) and the differences in the mean ranks are highlighted in bold. For this analysis $n = 28 + 22$ which is the sum of responses for both sub-groups.

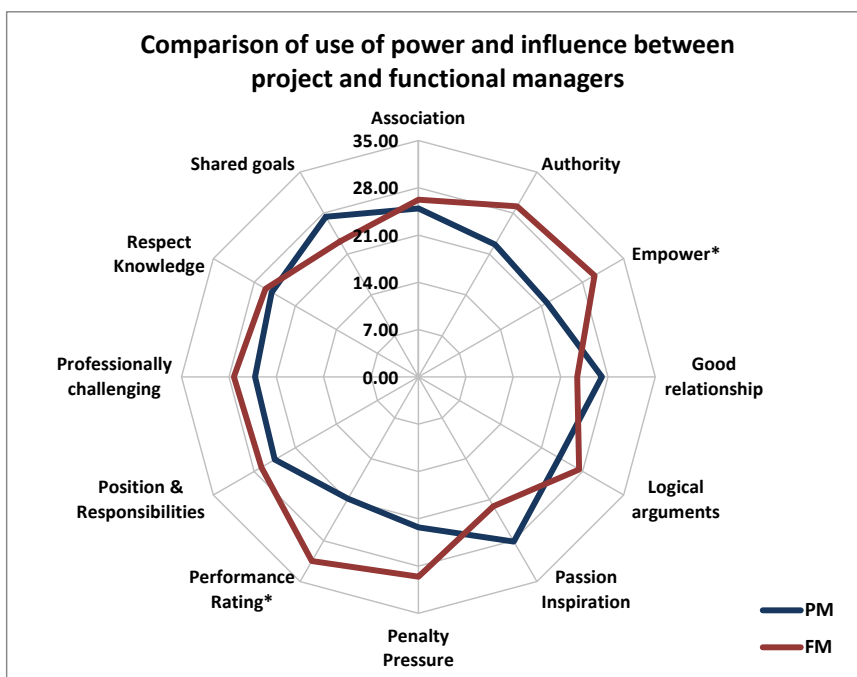
Table 22: Project and Functional Managers Self-Reported use of Perceptions

| Power and influence constructs | Mean Ranks | | Asymptotic significance (2-tailed) | Differences in mean ranks FM - PM | Direction |
|--------------------------------|------------|--------|------------------------------------|-----------------------------------|-----------------|
| | PM | FM | | | |
| | n = 28 | n = 22 | | | |
| Association | 24.93 | 26.23 | 0.721 | | |
| Authority | 22.63 | 29.16 | 0.088 | | |
| Empower* | 21.95 | 30.02 | 0.028 | 8.08 | FM>PM |
| Good Relationship | 27.11 | 23.45 | 0.290 | | |
| Logical Arguments | 24.00 | 27.41 | 0.312 | | |
| Passion Inspiration | 28.16 | 22.11 | 0.083 | | |
| Penalty Pressure | 22.29 | 29.59 | 0.060 | | |
| Performance Rating* | 20.80 | 31.48 | 0.006 | 10.67 | FM>PM |
| Position & Responsibilities | 24.50 | 26.77 | 0.463 | | |
| Professionally Challenging | 24.13 | 27.25 | 0.393 | | |
| Respect Knowledge | 25.04 | 26.09 | 0.704 | | |
| Shared Goals | 27.36 | 23.14 | 0.236 | | |

FM=Functional Manager, PM=Project Manager

Statistically significant differences are noted for two of the 12 constructs for power and influence: empower and performance rating. The calculated differences between the project and functional manager are also shown in **Table 22**. In both cases functional managers perceive that they use more of the construct empower and performance rating to influence when compared to the project manager. **Figure 12** is a graphical representation of the data from the Mann-Whitney U test and highlights significant differences.

Figure 12: Comparison of use of Power and Influence by Managers



5.2.2.2. Research Question One: Hypothesis 2

$$H_{02}: \mu_{FM} = \mu_{PP(FM)}$$

The use of power and influence by functional managers is viewed the same by project personnel

$$H_{02A}: \mu_{FM} \neq \mu_{PP(FM)}$$

The use of power and influence by functional managers is viewed differently by project personnel

To test hypothesis two, a Mann-Whitney U test was run using the data from **Table 18** and **Table 20**. The results are presented in **Table 23**. All constructs with significant statistical differences are denoted with an asterisk (*) and the constructs with the three largest differences in mean ranks are highlighted in bold. For this analysis $n = 22 + 92$ which is the sum of responses for both sub-groups.

Table 23: Perceptions of Functional Manager’s use of Power and Influence Compared to Project Personnel’s Views

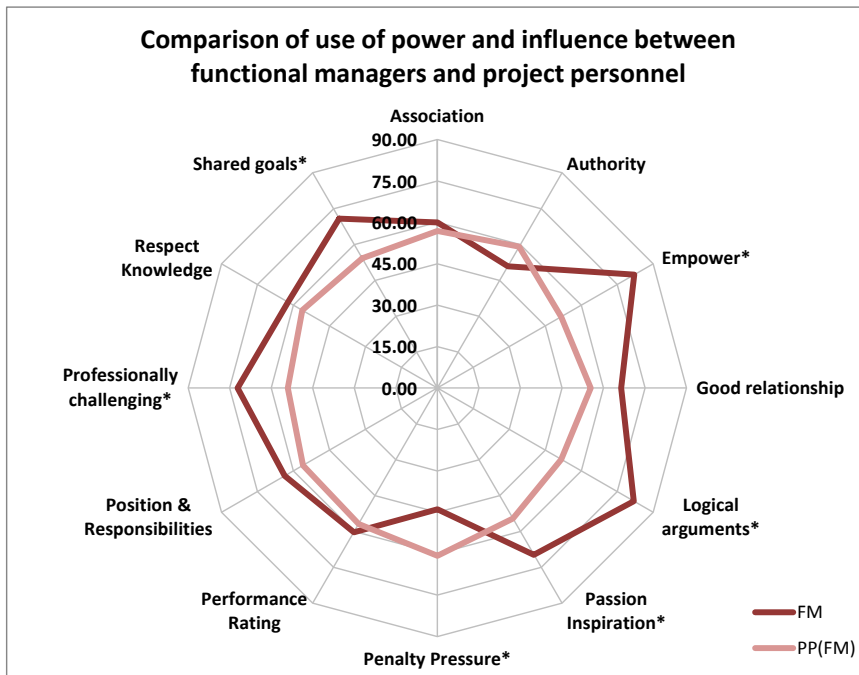
| Power and influence constructs | Mean Ranks | | Asymptotic significance (2-tailed) | Differences in mean ranks PP(FM) - FM | Direction |
|--------------------------------|------------|--------|------------------------------------|---------------------------------------|---------------------|
| | FM | PP(FM) | | | |
| | n = 22 | n = 92 | | | |
| Association | 59.95 | 56.91 | 0.680 | | |
| Authority | 50.86 | 59.09 | 0.249 | | |
| Empower* | 82.11 | 51.61 | 0.000 | -30.50 | FM>PP(FM) |
| Good Relationship | 66.41 | 55.37 | 0.125 | | |
| Logical Arguments* | 81.91 | 51.66 | 0.000 | -30.25 | FM>PP(FM) |
| Passion Inspiration* | 69.73 | 54.58 | 0.042 | -15.15 | FM>PP(FM) |
| Penalty Pressure* | 43.95 | 60.74 | 0.013 | 16.78 | PP(FM)>FM |
| Performance Rating | 60.32 | 56.83 | 0.622 | | |
| Position & Responsibilities | 63.64 | 56.03 | 0.262 | | |
| Professionally Challenging* | 72.18 | 53.99 | 0.014 | -18.19 | FM>PP(FM) |
| Respect Knowledge | 62.27 | 56.36 | 0.421 | | |
| Shared Goals* | 70.89 | 54.30 | 0.021 | -16.59 | FM>PP(FM) |

FM=Functional Manager

PP(FM)=project personnel perception of functional manager

Statistically significant differences are noted for six of the 12 constructs for power and influence. The largest three differences in mean ranks between the functional manager and project personnel are shown in **Table 23**. They are for the constructs: empower, logical arguments and professionally challenging; in all three cases the functional manager perceived usage of power and influence is greater than the project personnel perceived views of manager usage. **Figure 13** is a graphical representation of the data from the Mann-Whitney U test and highlights significant differences.

Figure 13: Power and Influence Functional Manager versus Project Personnel



5.2.2.3. Research Question One: Hypothesis 3

$$H_{03}: \mu_{PM} = \mu_{PP(PM)}$$

The use of power and influence by project managers is viewed the same by project personnel

$$H_{03A}: \mu_{PM} \neq \mu_{PP(PM)}$$

The use of power and influence by project managers is viewed differently by project personnel

To test hypothesis three, a Mann-Whitney U test was run using the data from **Table 19** and **Table 21**. The results are presented in **Table 24**. All constructs with significant statistical differences are denoted with an asterisk (*) and the differences for the top three results are highlighted in bold. For this analysis $n = 28 + 92$ which is the sum of responses for both sub-groups.

Table 24: Perceptions of Project Manager’s use of Power and Influence Compared to Project Personnel’s Views

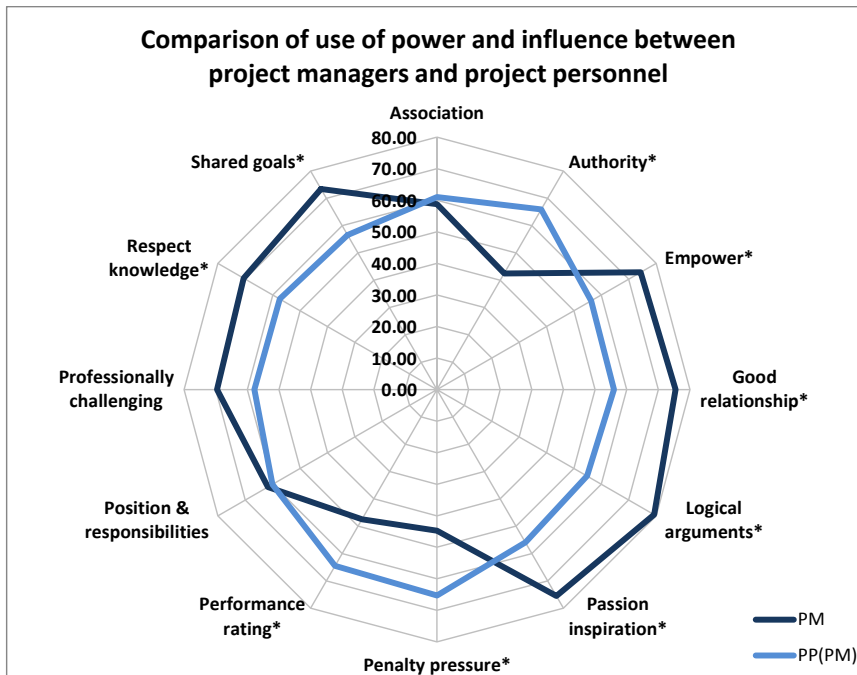
| Power and influence constructs | Mean Ranks | | Asymptotic significance (2-tailed) | Differences PP(PM) - PM | Direction |
|--------------------------------|------------|--------|------------------------------------|-------------------------|---------------------|
| | PM | PP(PM) | | | |
| | n = 28 | n = 92 | | | |
| Association | 58.77 | 61.03 | 0.740 | | |
| Authority* | 42.54 | 65.97 | 0.001 | 23.43 | PP(PM)>PM |
| Empower* | 74.32 | 56.29 | 0.010 | -18.03 | PM>PP(PM) |
| Good Relationship* | 75.46 | 55.95 | 0.004 | -19.52 | PM>PP(PM) |
| Logical Arguments* | 79.27 | 54.79 | 0.000 | -24.48 | PM>PP(PM) |
| Passion Inspiration | 75.54 | 55.92 | 0.005 | -19.61 | PM>PP(PM) |
| Penalty Pressure* | 44.73 | 65.30 | 0.002 | 20.57 | PP(PM)>PM |
| Performance Rating* | 47.45 | 64.47 | 0.013 | 17.03 | PP(PM)>PM |
| Position & Responsibilities | 61.79 | 60.11 | 0.793 | | |
| Professionally Challenging | 69.59 | 57.73 | 0.092 | | |
| Respect Knowledge* | 70.57 | 57.43 | 0.039 | -13.14 | PM>PP(PM) |
| Shared Goals* | 73.39 | 56.58 | 0.013 | -16.82 | PM>PP(PM) |

PM=Project Manager

PP(PM)=project personnel perception of project manager

Statistically significant differences are noted for nine of the 12 constructs for power and influence. The top three differences between the project manager and project personnel are shown in **Table 24**. The constructs are logical arguments, authority and penalty pressure. For logical arguments the project manager perceived usage of power and influence is greater than the project personnel perception. For authority and penalty pressure, project personnel perceive the project manager to use more of these constructs, than the project manager perceives. **Figure 14** is a graphical representation of the data from the Mann-Whitney U test and highlights significant differences.

Figure 14: Power and Influence Project Manager versus Project Personnel



5.2.2.4. Research Question One: Hypothesis 4

$$H_{04}: \mu_{PP(PM)} = \mu_{PP(FM)}$$

Project personnel perceptions of project and functional managers are the same

$$H_{04A}: \mu_{PP(PM)} \neq \mu_{PP(FM)}$$

Project personnel perceptions of project and functional managers are different

To test hypothesis four, a Mann-Whitney U test was run using the data from **Table 20** and **Table 21**. The results are presented in **Table 25**. All constructs with significant statistical differences are denoted with an asterisk (*) and the differences highlighted in bold. For this analysis $n = 92 + 92$ which is the sum of responses for both sub-groups.

Table 25: Project Personnel Perceptions of Project and Functional Manager

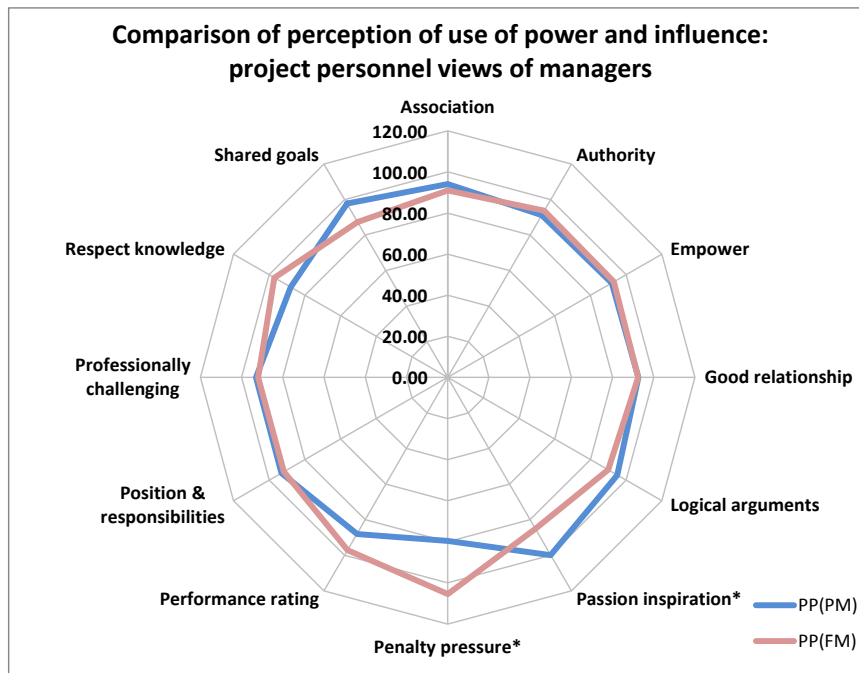
| Power and influence constructs | Mean Ranks | | Asymptotic significance (2-tailed) | Differences PP(FM) – PP(PM) | Direction |
|--------------------------------|------------|--------|------------------------------------|-----------------------------|-------------------------|
| | PP(PM) | PP(FM) | | | |
| | n = 92 | n = 92 | | | |
| Association | 94.06 | 90.94 | 0.671 | | |
| Authority | 91.25 | 93.75 | 0.723 | | |
| Empower | 91.92 | 93.08 | 0.875 | | |
| Good Relationship | 92.57 | 92.43 | 0.986 | | |
| Logical Arguments | 95.07 | 89.93 | 0.487 | | |
| Passion Inspiration* | 99.89 | 85.11 | 0.049 | -14.78 | PP(PM)>PP(FM) |
| Penalty Pressure* | 79.60 | 105.40 | 0.000 | 25.79 | PP(FM)>PP(PM) |
| Performance Rating | 87.96 | 97.04 | 0.200 | | |
| Position & Responsibilities | 93.20 | 91.80 | 0.840 | | |
| Professionally Challenging | 92.97 | 92.03 | 0.900 | | |
| Respect Knowledge | 87.91 | 97.09 | 0.209 | | |
| Shared Goals | 97.67 | 87.33 | 0.153 | | |

PP(PM)=project personnel perception of project manager

PP(FM)=project personnel perception of functional manager

Statistically significant differences are noted for two of the 12 constructs for power and influence: passion inspiration and penalty pressure. For penalty pressure the project personnel perceives that functional manager uses more than the project manager. For passion inspiration the project personnel perceives that project manager uses more than the functional manager. **Figure 15** is a graphical representation of the data from the Mann-Whitney U test and highlights significant differences.

Figure 15: Power and Influence Project Personnel view of Functional and Project Manager



5.2.3. Research Question Two:

Research question two compared the perceptions of the use of power and influence across all stakeholder groups. This was tested by ranking all four groups and interpreting the results from hypothesis five. The mean ranks from the Kruskal-Wallis test ($n = 22 + 28 + 92 + 92$) were calculated and listed per group in **Table 26**. The mean ranks are calculated by ranking every response across all constructs and all four groups, then averaging the constructs per group. The result is calculated mean-ranks for each construct per group.

Table 26: Mean Ranks for all Stakeholder Groups

| Power and influence constructs | Project manager | Functional manager | Project personnel's views of Project manager | Project personnel's view of Functional manager |
|--------------------------------|-----------------|--------------------|--|--|
| Association | 115.18 | 121.23 | 119.46 | 115.36 |
| Authority | 78.04 | 109.02 | 123.03 | 126.01 |
| Empower | 141.07 | 171.75 | 106.71 | 108.15 |

| | | | | |
|-----------------------------|--------|--------|--------|--------|
| Good Relationship | 147.75 | 134.36 | 110.62 | 111.14 |
| Passion Inspiration | 155.27 | 167.00 | 108.82 | 102.85 |
| Logical Arguments | 156.20 | 131.55 | 119.07 | 100.79 |
| Penalty Pressure | 73.09 | 106.77 | 109.71 | 141.38 |
| Performance Rating | 82.89 | 133.82 | 115.13 | 126.50 |
| Position & Responsibilities | 119.80 | 130.32 | 116.51 | 114.72 |
| Professionally Challenging | 133.95 | 149.25 | 111.54 | 110.86 |
| Respect Knowledge | 130.64 | 134.09 | 107.16 | 119.87 |
| Shared Goals | 148.96 | 136.30 | 116.89 | 104.04 |

To answer the research question, the mean ranks, were ranked from highest to lowest for each sub-group. **Table 27** presents the ranked constructs for perceived use of power and influence for each sub-group. The top and bottom three constructs are highlighted and will be compared and discussed in chapter 6.

Table 27: Ranked Constructs across each Stakeholder Group

| Power and influence constructs Ranking | Project manager | Functional Manager | Project personnel views of Project manager | Project personnel views of Functional manager |
|--|-----------------------------|-----------------------------|--|---|
| 1 | Passion Inspiration | Empower | Authority | Penalty Pressure |
| 2 | Logical Arguments | Logical Arguments | Association | Performance Rating |
| 3 | Shared Goals | Professionally Challenging | Passion Inspiration | Authority |
| 4 | Good Relationship | Shared Goals | Shared Goals | Respect Knowledge |
| 5 | Empower | Good Relationship | Position & Responsibilities | Association |
| 6 | Professionally Challenging | Respect Knowledge | Performance Rating | Position & Responsibilities |
| 7 | Respect Knowledge | Performance Rating | Professionally Challenging | Good Relationship |
| 8 | Position & Responsibilities | Passion Inspiration | Good Relationship | Professionally Challenging |
| 9 | Association | Position & Responsibilities | Penalty Pressure | Empower |
| 10 | Performance Rating | Association | Logical Arguments | Shared Goals |
| 11 | Authority | Authority | Respect Knowledge | Logical Arguments |
| 12 | Penalty Pressure | Penalty Pressure | Empower | Passion Inspiration |

5.2.3.1. Research Question Two: Hypothesis 5

$$H_{05}: \mu_{PM} = \mu_{FM} = \mu_{PP(PM)} = \mu_{PP(FM)}$$

Perception of use of power and influence are the same across groups

$$H_{05A}: \mu_{PP(PM)} \neq \mu_{PP(FM)}$$

Perception of use of power and influence are different across groups

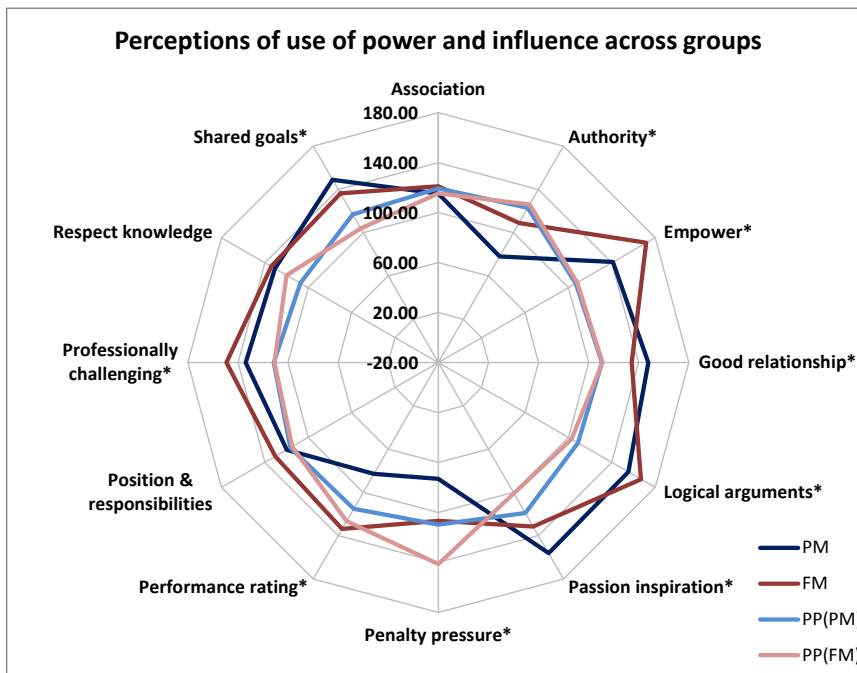
To test hypothesis five, a Kruskal-Wallis non-parametric test across the four independent samples was conducted. The survey results from **Table 18**, **Table 19**, **Table 20** and **Table 21** were used. For this analysis $n = 22 + 28 + 92 + 92$ which is the sum of responses for all sub-groups. The mean ranks were calculated and listed per group in **Table 28**. All constructs with significant statistical differences are denoted with an asterisk (*). **Table 28** is ranked by group differences from highest to lowest.

Table 28: Ranked Differences Across all Group

| Constructs | Kruskal-Wallis mean ranks | | | | Asymptotic Significance | Ranked Group differences (max - min) |
|-----------------------------|---------------------------|--------|--------|--------|-------------------------|--------------------------------------|
| | PM | FM | PP(PM) | PP(FM) | | |
| | n = 28 | n = 22 | n = 92 | n = 92 | | |
| Penalty Pressure* | 73.09 | 106.77 | 109.71 | 141.38 | 0.000 | 68.29 |
| Empower* | 141.07 | 171.75 | 106.71 | 108.15 | 0.000 | 65.04 |
| Logical Arguments* | 155.27 | 167.00 | 108.82 | 102.85 | 0.000 | 64.15 |
| Passion Inspiration* | 156.20 | 131.55 | 119.07 | 100.79 | 0.001 | 55.40 |
| Performance Rating* | 82.89 | 133.82 | 115.13 | 126.50 | 0.006 | 50.93 |
| Authority* | 78.04 | 109.02 | 123.03 | 126.01 | 0.002 | 47.97 |
| Shared Goals* | 148.96 | 136.30 | 116.89 | 104.04 | 0.003 | 44.93 |
| Professionally Challenging* | 133.95 | 149.25 | 111.54 | 110.86 | 0.027 | 38.39 |
| Good Relationship* | 147.75 | 134.36 | 110.62 | 111.14 | 0.014 | 37.13 |
| Respect Knowledge | 130.64 | 134.09 | 107.16 | 119.87 | 0.127 | 26.93 |
| Position & Responsibilities | 119.80 | 130.32 | 116.51 | 114.72 | 0.717 | 15.60 |
| Association | 115.18 | 121.23 | 119.46 | 115.36 | 0.957 | 6.05 |

The top three group differences are calculated by subtracting the group maximum and group minimum values, based on the Kruskal-Wallis mean ranks. The top three group differences are Penalty Pressure, Empower and Logical arguments. **Figure 16** is a graphical representation of the data from the Kruskal-Wallis test and highlights significant group differences.

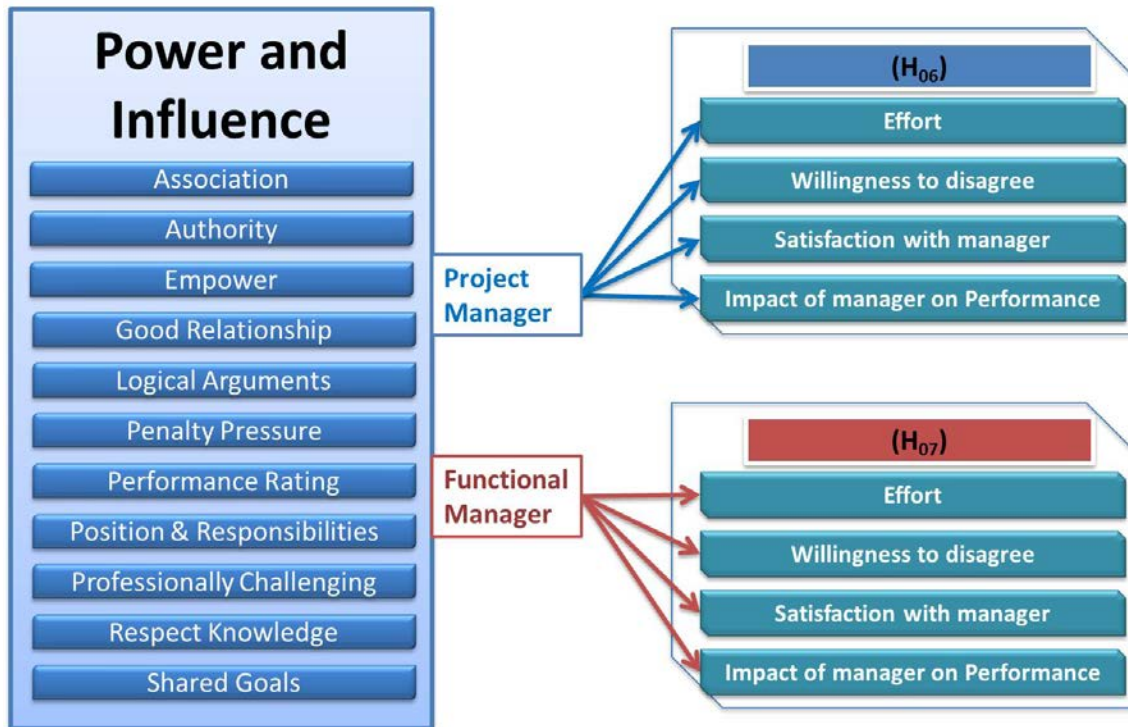
Figure 16: Comparison of Perceptions of Power and Influence Use across all Groups



5.2.4. Research Question Three:

Research question three tests the relationship between the project personnel attitudinal outcomes and their views of the manager's use of power and influence. Based on the type of power and influence mechanism used, by functional and project managers, the effect on employees in terms of: effort, willingness to disagree, satisfaction with manager and impact of manager on project personnel performance are analysed for correlation and significance. To achieve this, Spearman coefficient of rank correlation tests were conducted using a significance level of $\alpha = 0.05$ for all tests. **Figure 17** is a graphical representation of the relationships being tested for research question three.

Figure 17: Illustration of Relationships for Research Question Three



5.2.4.1. Research Question Three: Hypothesis 6

H₀₆: There are no relationships between project personnel attitudinal outcomes and the methods project managers use to influence them.

H_{06A}: There are relationships between project personnel attitudinal outcomes and the methods project managers use to influence them.

Table 29: Work Attitude Outcomes, Project Manager Effect on Project Personnel

| Project Manager method of influence: | major decrease | slight decrease | no impact | slight increase | major increase |
|---|-------------------|-----------------|----------------------------|-----------------|----------------|
| Impact on Project Personnel Performance | 0% | 8% | 35% | 38% | 20% |
| Project Manager use of influence effect on: | strongly disagree | disagree | neither agree nor disagree | agree | strongly agree |
| Effort | 1% | 2% | 17% | 62% | 17% |
| Willingness to Disagree | 2% | 16% | 30% | 43% | 9% |
| Satisfaction with Manager | 3% | 12% | 22% | 52% | 11% |

To test hypothesis six, the Spearman coefficient of rank correlation test was calculated. This measured the strength and direction of the relationship between the 12 constructs of power and influence, used by the project manager on project personnel; and effort, willingness to disagree, satisfaction with manager and impact of manager on personnel performance. The data used for the test are from **Table 21** and **Table 29**.

The correlation results are presented in **Table 30**. All constructs with significant statistical differences are denoted with an asterisk (*). The average correlation for each attitudinal outcome is also calculated and presented in **Table 30**. For effort nine of the 12 correlated power and influence constructs used are significant. For willingness to disagree only good relationship is significantly correlated. For satisfaction with manager 11 of the 12 power and influence constructs used are significantly correlated except penalty pressure. For the impact of the project manager on project personnel performance all power and influence constructs used are significantly correlated.

Table 30: Project Manager Effects on Attitudinal Outcomes

| Influence mechanisms | Attitudinal Variables Spearman's rho (ρ) | | | |
|-----------------------------|--|-------------------------|-----------------------------------|-------------------------------|
| | Effort | Willingness to Disagree | Satisfaction with Project Manager | Manager impact on Performance |
| Association | 0.363* | 0.028 | 0.601* | 0.572* |
| Authority | 0.132 | -0.061 | 0.275* | 0.467* |
| Empower | 0.232* | 0.027 | 0.704* | 0.557* |
| Good Relationship | 0.445* | 0.225* | 0.681* | 0.480* |
| Logical Arguments | 0.288* | -0.036 | 0.631* | 0.614* |
| Passion Inspiration | 0.270* | 0.116 | 0.702* | 0.609* |
| Penalty Pressure | 0.193 | 0.023 | 0.166 | 0.251* |
| Performance Rating | 0.342* | 0.168 | 0.403* | 0.365* |
| Position Responsibilities | 0.421* | 0.109 | 0.591* | 0.486* |
| Professionally Challenging | 0.197 | 0.078 | 0.484* | 0.366* |
| Respect Knowledge | 0.377* | -0.144 | 0.701* | 0.682* |
| Shared Goals | 0.478* | 0.119 | 0.728* | 0.566* |
| Average Correlations | 0.312 | 0.054 | 0.556 | 0.501 |

The highest three correlations for the attitudinal variables are shown in **Table 31**. Only statistically significant correlations are listed. All correlations listed are positive.

Table 31: Project Personnel Perceptions of Project Manager Highest 3 Correlations

| Power and Influence | Effort | Willingness to Disagree | Satisfaction with Project Manager | Manager impact on Performance |
|---------------------|-----------------------------|-----------------------------|-----------------------------------|-------------------------------|
| 1 | Shared Goals | Good Relationship | Shared Goals | Respect knowledge |
| 2 | Good Relationship | No Significant Correlations | Empower | Logical arguments |
| 3 | Position & Responsibilities | | Passion inspiration | Passion inspiration |

5.2.4.2. Research Question Three: Hypothesis 7

H₀₇: There are no relationships between project personnel attitudinal outcomes and the methods functional managers use to influence them.

H_{07A}: There are relationships between project personnel attitudinal outcomes and the methods functional managers use to influence them.

Table 32: Work Attitude Outcomes, Functional Manager Effect on Project Personnel

| Functional Manager method of influence: | major decrease | slight decrease | no impact | slight increase | major increase |
|--|-------------------|-----------------|----------------------------|-----------------|----------------|
| Impact on Project Personnel Performance | 2% | 12% | 32% | 34% | 21% |
| | | | | | |
| Functional Manager use of influence effect on: | strongly disagree | disagree | neither agree nor disagree | agree | strongly agree |
| Effort | 2% | 7% | 15% | 64% | 12% |
| Willingness to Disagree | 7% | 24% | 29% | 32% | 9% |
| Satisfaction with Manager | 5% | 15% | 23% | 41% | 15% |

To test hypothesis seven, the Spearman coefficient of rank correlation test was calculated which measured the strength and direction of the relationship between the

12 constructs of power and influence, used by the functional manager on project personnel; and effort, willingness to disagree, satisfaction with manager and impact of manager on project personnel performance. The data used for the test are from **Table 20** and **Table 32**.

The correlation results are presented in **Table 33**. All constructs with significant statistical differences are denoted with an asterisk(*). The average correlation for each attitudinal variable is calculated and presented in **Table 33**. For effort 10 of the 12 correlated power and influence constructs used are significant, the exceptions being penalty pressure and logical arguments. For willingness to disagree there are no significant correlations for power and influence constructs used. For satisfaction with manager 11 of the 12 correlated power and influence constructs used are significant the only exception being penalty pressure. For the impact of the functional manager on performance 10 of the 12 correlated power and influence constructs used are significant the two exceptions being penalty pressure and performance rating.

Table 33: Correlation Table, Functional Manager Effects on Attitudinal Outcomes

| Project personnel views of functional manager | Attitudinal Variables Spearman's rho (ρ) | | | |
|---|---|-------------------------|--------------------------------------|-------------------------------|
| | Effort | Willingness to Disagree | Satisfaction with Functional Manager | Manager impact on Performance |
| Association | 0.304* | -0.009 | 0.643* | 0.559* |
| Authority | 0.326* | -0.159 | 0.443* | 0.372* |
| Empower | 0.252* | 0.101 | 0.678* | 0.503* |
| Good Relationship | 0.286* | 0.100 | 0.645* | 0.504* |
| Logical Arguments | 0.178 | 0.064 | 0.685* | 0.571* |
| Passion Inspiration | 0.245* | -0.061 | 0.674* | 0.609* |
| Penalty Pressure | 0.161 | -0.020 | -0.072 | -0.060 |
| Performance Rating | 0.216* | -0.060 | 0.295* | 0.171 |
| Position Responsibilities | 0.348* | -0.062 | 0.576* | 0.444* |
| Professionally Challenging | 0.212* | 0.166 | 0.556* | 0.482* |
| Respect Knowledge | 0.224* | -0.040 | 0.664* | 0.531* |
| Shared Goals | 0.393* | 0.060 | 0.651* | 0.540* |
| Average Correlations | 0.262 | 0.007 | 0.537 | 0.435 |

The top highest three correlations for each of the attitudinal variables are shown in **Table 34**. Only statistically significant correlations are listed. All correlations listed are positive.

Table 34: Project Personnel Perceptions of Functional Manager highest 3 Correlations

| Power and Influence | Effort | Willingness to Disagree | Satisfaction with Functional Manager | Manager impact on Performance |
|---------------------|-----------------------------|-----------------------------|--------------------------------------|-------------------------------|
| 1 | Good Relationship | No Significant Correlations | Logical Arguments | Passion Inspiration |
| 2 | Position & Responsibilities | | Empower | Logical Arguments |
| 3 | Authority | | Passion Inspiration | Association |

A graphical representation of the correlation between use of power and influence by project and functional managers and effort, willingness to disagree, satisfaction with manager and for the impact of manager on project personnel performance is shown in **Figure 18**, **Figure 19**, **Table 19** and **Figure 21** respectively.

Figure 18: Project Personnel Views of Project and Functional Manager Correlation with Effort

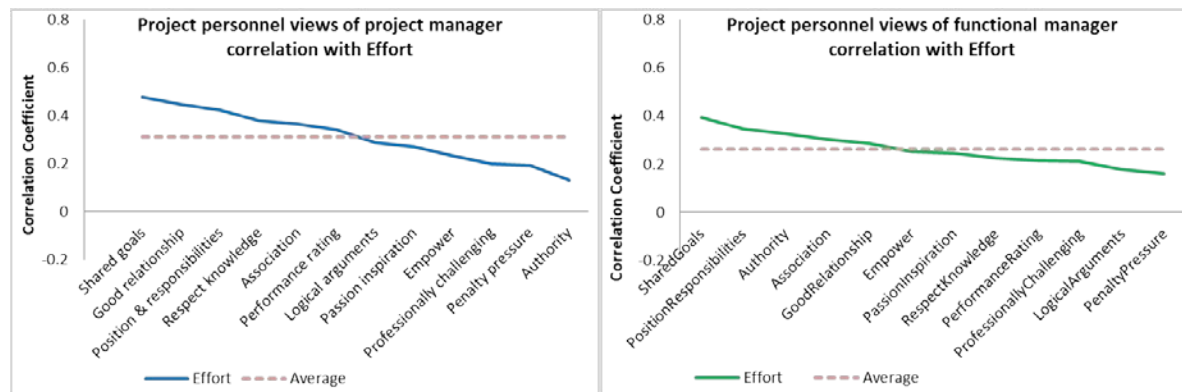


Figure 19: Project Personnel Views of Project and Functional Manager Correlation with Willingness to Disagree

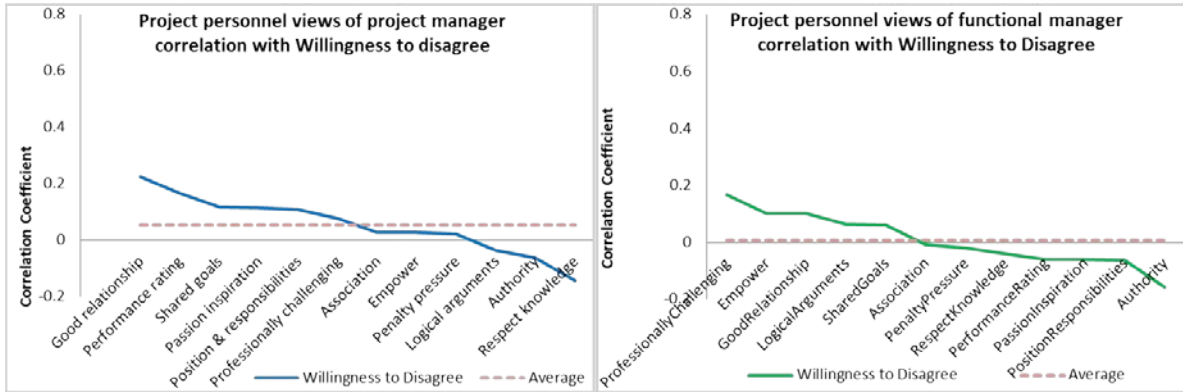


Figure 20: Project Personnel Views of Project and Functional Manager Correlation with Satisfaction

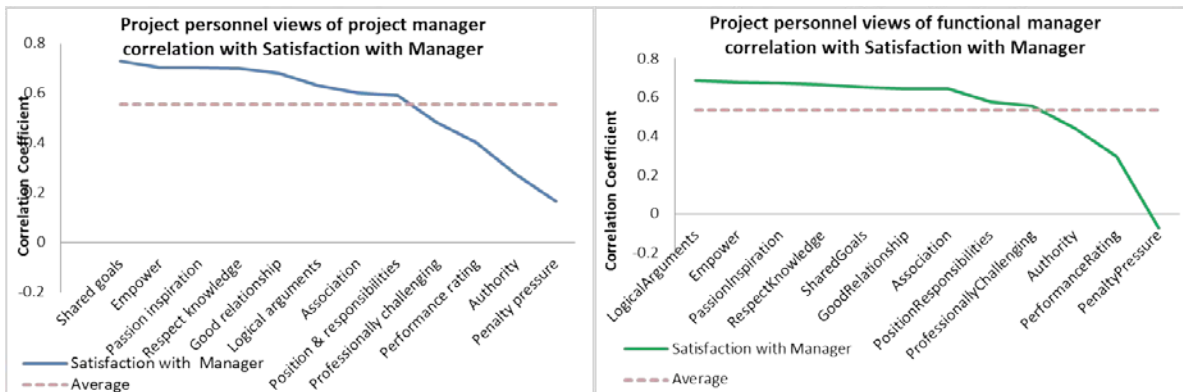
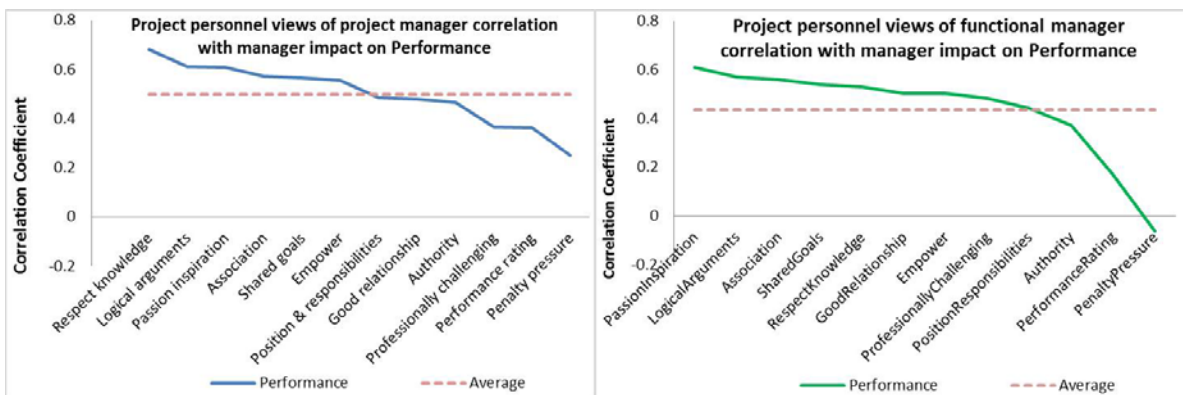


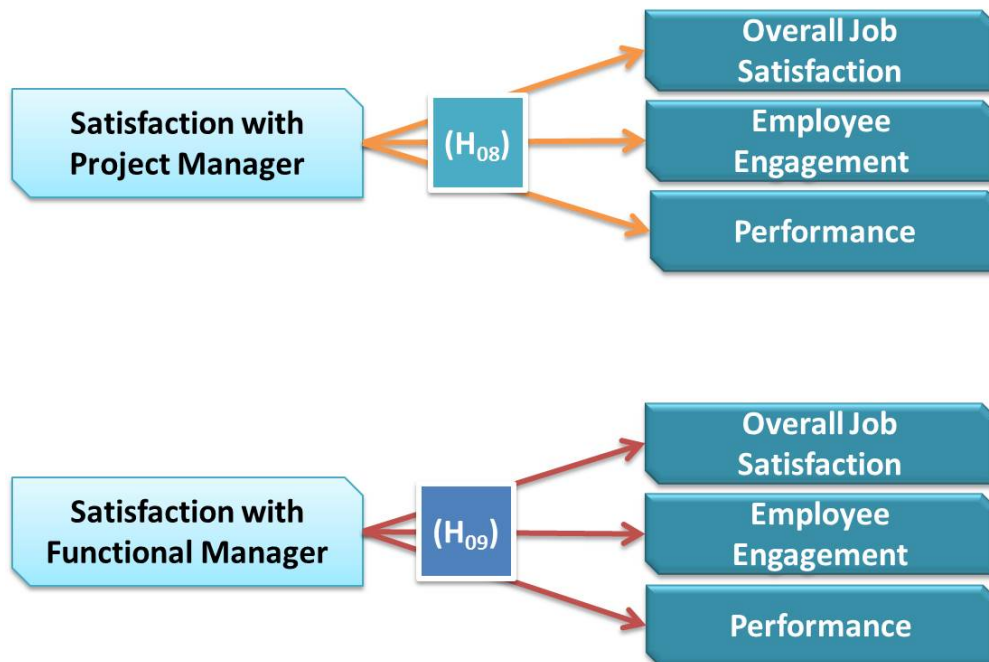
Figure 21: Project Personnel Views of Project and Functional Manager Correlation with Managers impact on Performance



5.2.5. Research Question Four:

Research question four examines the relationships between the project personnel satisfaction with managers and overall job satisfaction, employee engagement and impact of manager on project personnel performance. To achieve this Spearman coefficient of rank correlation test were conducted. **Figure 22** is a graphical representation of the relationships being tested for research question four.

Figure 22: Relationships for Research Question Four



5.2.5.1. Research Question Four: Hypothesis 8

H_{08} : There is no relationship between project personnel satisfaction with the project manager and their overall job satisfaction, engagement and impact of manager on performance at work.

H_{08A} : There is a relationship between project personnel satisfaction with the project manager and their overall job satisfaction, engagement and impact of manager on performance at work.

To test hypothesis eight, the Spearman coefficient of rank correlation test was calculated. The data used for the test is from **Table 35**

Table 35: Project Manager Impact: Frequencies of Attitudinal Variables

| | strongly disagree | disagree | neither agree nor disagree | Agree | strongly agree |
|---|--------------------------|------------------------|-----------------------------------|------------------------|-----------------------|
| Scale | 1 | 2 | 3 | 4 | 5 |
| n = 92 | | | | | |
| Satisfaction with Project Manager | 3% | 12% | 22% | 52% | 11% |
| Overall Job Satisfaction | 9% | 15% | 26% | 42% | 8% |
| Employee Engagement | 8% | 13% | 17% | 46% | 16% |
| | | | | | |
| | major decrease | slight decrease | no impact | slight increase | major increase |
| Influence of Project Manager on Performance | 0% | 8% | 35% | 38% | 20% |

The correlation results are presented in **Table 36**. All constructs with significant statistical differences are denoted with an asterisk (*).

Table 36: Correlation of Satisfaction with Project Manager and Attitudinal Variables

| Attitudinal Variables Spearman's rho (ρ) | Satisfaction with Project Manager |
|---|--|
| Overall Job Satisfaction | 0.178 |
| Employee Engagement | 0.238* |
| Effect on Performance by Project Manager | 0.590* |

5.2.5.2. Research Question Four: Hypothesis 9

H₀₉: There is no relationship between project personnel satisfaction with the functional manager and their overall job satisfaction, engagement and impact of manager on performance at work.

H_{09A}: There is a relationship between project personnel satisfaction with the functional manager and their overall job satisfaction, engagement and impact of manager on performance at work.

To test hypothesis nine, the Spearman coefficient of rank correlation test was calculated. The data used for the test is from **Table 37**.

Table 37: Functional Manager Impact: Frequencies of Attitudinal Variables

| | strongly disagree | disagree | neither agree nor disagree | agree | strongly agree |
|--|--------------------------|------------------------|-----------------------------------|------------------------|-----------------------|
| Scale | 1 | 2 | 3 | 4 | 5 |
| n = 92 | | | | | |
| Satisfaction with functional Manager | 5% | 15% | 23% | 41% | 15% |
| Overall Job Satisfaction | 9% | 15% | 26% | 42% | 8% |
| Employee Engagement | 8% | 13% | 17% | 46% | 16% |
| | | | | | |
| | major decrease | slight decrease | no impact | slight increase | major increase |
| Influence of Functional Manager on Performance | 2% | 12% | 32% | 34% | 21% |

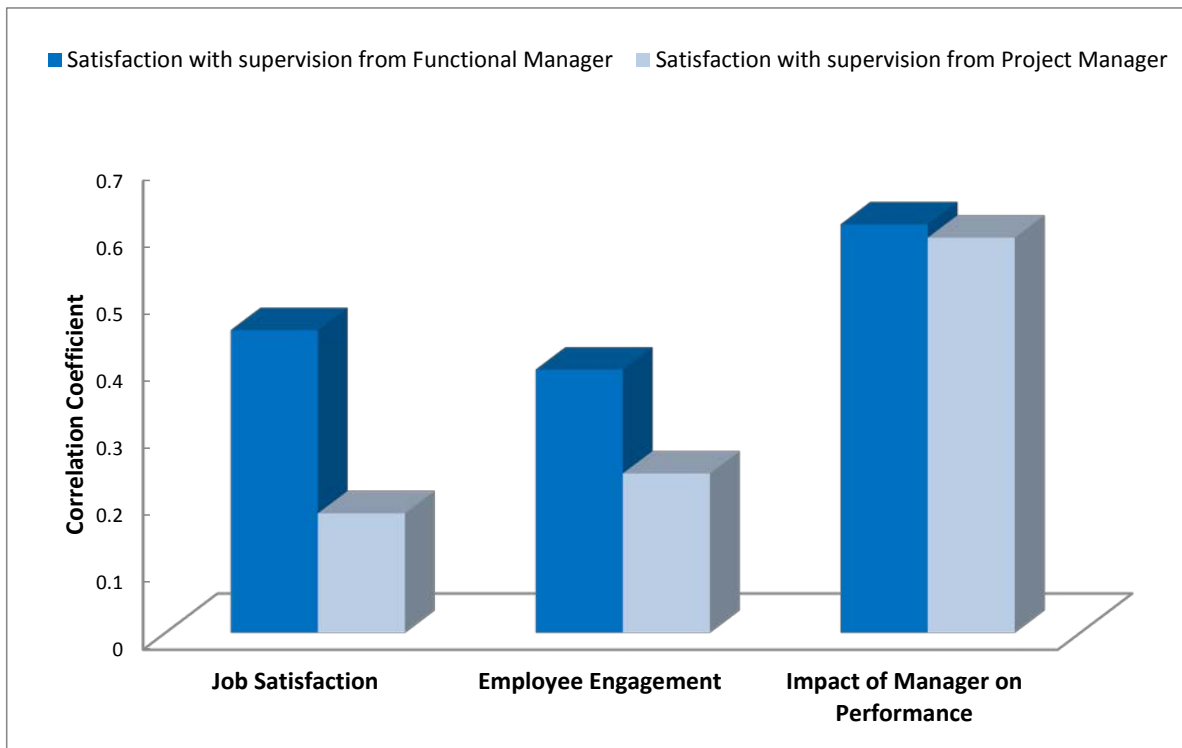
The correlation results are presented in **Table 38**. All constructs with significant statistical differences are denoted with an asterisk(*)

Table 38: Correlation of Satisfaction with Functional Manager and Attitudinal Variables

| Attitudinal Variables Spearman's rho (ρ) | Satisfaction with Functional Manager |
|---|---|
| Overall Job Satisfaction | 0.452* |
| Employee Engagement | 0.393* |
| Effect on Performance by Functional Manager | 0.610* |

Figure 23 is a graphical representation of project personnel satisfaction with the project and functional manager and their overall job satisfaction and engagement and impact of manager on performance at work. All correlations are significant except for the project personnel's satisfaction with the project manager and overall job satisfaction.

Figure 23: Satisfaction with Manager Effect on Job Satisfaction, Employee Engagement and impact of manager Performance

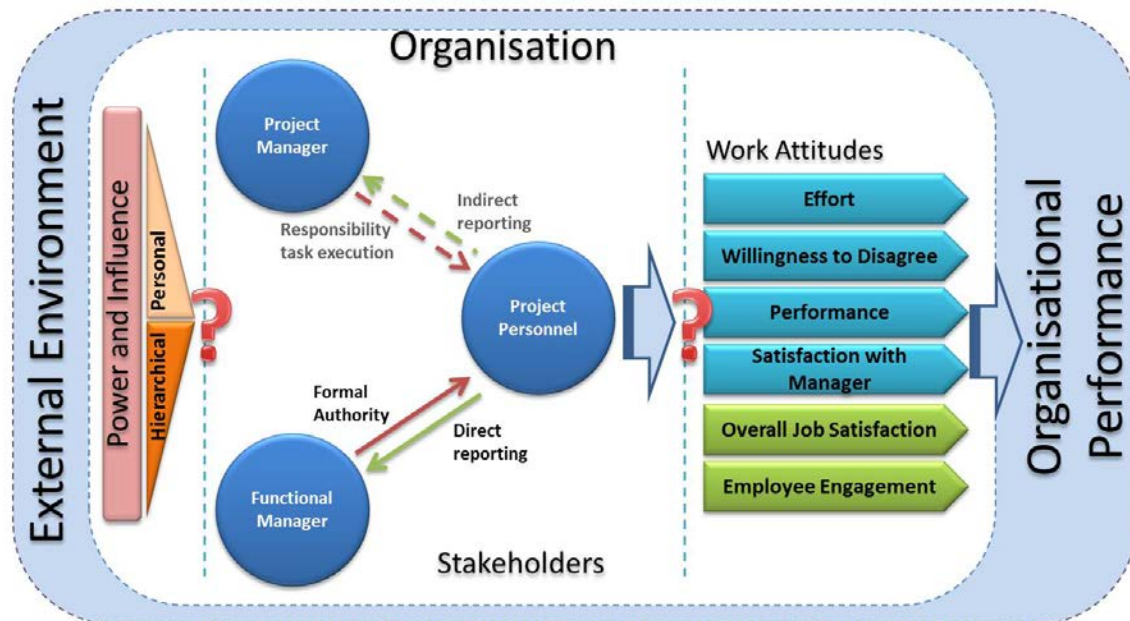


The results presented in Chapter 5 will be discussed in Chapter 6 to answer the research questions proposed.

CHAPTER 6: DISCUSSION OF RESULTS

Chapter 6 presents a discussion and interpretation of the results from Chapter 5 by answering the research questions proposed in Chapter 3. The results are interpreted in the light of the literature review in Chapter 2 as per **Figure 24**.

Figure 24: Overview of key relationships examined



6.1. Research Question One: Power and Influence Comparisons

Research question one compared the perceptions of the 12 constructs of power and influence used between each sub-group with a view to understand and interpret perceptual gaps. To answer research question one, the individual comparisons from hypothesis one to four are interpreted. **Table 39** is a summary of the results for research question one derived from **Table 22**, **Table 23**, **Table 24** and **Table 25**. Significant differences are shown and the highest three differences are highlighted in bold. Statistical tests conducted are indicated as columns (1) to (4).

Table 39: Summary of Results for Question One

| Power and influence constructs | Project vs Functional Manager FM - PM | Project personnel vs Functional Manager PP(FM) - FM | Project personnel vs Project Manager PP(PM) - PM | Project personnels view of Functional vs Project Manager PP(FM) – PP(PM) |
|--|---------------------------------------|---|--|--|
| | (1) | (2) | (3) | (4) |
| Association | | | | |
| Authority | | | PP(PM)>PM | |
| Empower | FM>PM | FM>PP(FM) | PM>PP(PM) | |
| Good Relationship | | | PM>PP(PM) | |
| Logical Arguments | | FM>PP(FM) | PM>PP(PM) | |
| Passion Inspiration | | FM>PP(FM) | PM>PP(PM) | PP(PM)>PP(FM) |
| Penalty Pressure | | PP(FM)>FM | PP(PM)>PM | PP(FM)>PP(PM) |
| Performance Rating | FM>PM | | PP(PM)>PM | |
| Position & Responsibilities | | | | |
| Professionally Challenging | | FM>PP(FM) | | |
| Respect Knowledge | | | PM>PP(PM) | |
| Shared Goals | | FM>PP(FM) | PM>PP(PM) | |
| | | | | |
| Significant difference for each paired sub- | 2/12 differences | 6/12 differences | 9/12 differences | 2/12 differences |

As a group manager's only have two differences in perceptions between themselves as indicated in column (1); this result is repeated in column (4) which shows that project personnel also only have two differences in their perceptions of each type of manager. There is generally homogeneity in the views of managers as a group and project personnel as a group. Columns (2) and (3) however show a material gap in perceptions between each type of manager and project personnel and this result is seen for functional and project managers with six and nine differences respectively.

6.1.1. Project Manager Compared to Functional Manager Perceptions

Hypothesis one is a comparison of the functional and project manager perceptions of their use of power and influence on project personnel as presented in column (1). For the 12 constructs tested there were 10 constructs with no statistically significant differences. This result suggests that in general both managers perceive the use of

similar mechanisms of power and influence to obtain results. The authority conflict due to the dual command structure is not evident from these results in contrast to the literature (Goold & Campbell, 2003; Sy & D'Annunzio, 2005b). This could be a perception or more likely the project manager in this environment is empowered.

Statistically significant differences are observed for two constructs: empowering project personnel and the use of performance rating. In both cases functional managers perceive that they use more of empowerment and performance rating as a mechanism to influence project personnel. In this project environment training and skills equipping (empowering) occurs in the functional workspace. Engineers are technical by virtue of their training and view functional managers as experts whilst they view project managers as generalists (Phase one results from **Table 15**; Galbraith, 1971). The second construct, the influence on performance ratings, also supports the literature findings that functional managers play a more prominent role compared to project managers. The challenge with this scenario is that the project manager is typically involved with the day to day activities of the project personnel and this will not incentivise the correct behaviours in terms of performance (Appelbaum *et al.*, 2009) especially in creating clear linkages between performance, measurable objectives and rewards.

6.1.2. Functional Manager Compared to Project Personnel Perceptions

Hypothesis two is a comparison of the functional manager and project personnel perceptions of the use of power and influence as presented in column (2). For the 12 constructs tested six constructs had no statistically significant differences, viz. association with manager, the use of authority, building good relationships, the use of performance rating, the use of position & responsibilities and having respect and confidence in expert knowledge. It is noted that the functional manager and project personnel have no differences in perceptions for direct influencing of performance rating, confirming literature observations (Appelbaum *et al.*, 2009). There are no differences in the perceived use of position and responsibility and structural authority which in itself is a confirmation of the literature review (Dunne *et al.*, 1978; Sy & Côté, 2004).

For empowering project personnel, using logical arguments, using passion and inspiration, providing professionally challenging work and having shared goals the functional managers perceive that they use more of this influence mechanism compared to project personnel's views. The influence mechanisms can all be linked to positive power and influence outcomes. These could be construed to be aspirational goals. The sixth difference is related to employing penalty and pressure where the project personnel believe that the manager is more likely to resort to coercive means to obtain results. The results obtained for this direct reporting relationship could possibly be explained by the operation of the fundamental attribution error, whereby the manager attributes his actions to internal factors and the personnel's actions to external factors (Robbins *et al.*, 2009).

6.1.3. Project Manager Compared to Project Personnel Perceptions

Hypothesis three is a comparison of the project manager's perceptions of the use of power and influence on project personnel and the corresponding perceptions of the project personnel as presented in column (3). Statistically significant differences are observed for nine constructs: the use of authority, empowering project personnel, building good relationships, using logical arguments, using passion and inspiration, employing penalty and pressure, the use of performance rating, having respect and confidence in expert knowledge and having shared goals. There is clearly a wide gap between how project managers think they influence project personnel and how project personnel perceive their influence techniques. As an overall finding, this chasm in perceptions represents a serious concern for the organisation since project managers are responsible for project performance in the key areas of meeting cost and schedule objectives (Kates & Galbraith, 2007).

In a similar trend to the functional manager, for six of the nine significant differences, the project manager perceptions of power and influence usages are greater than project personnel's views; the influence mechanisms are all linked to positive power and influence outcomes. These could be construed to be aspirational goals as opposed to reality and the manager possibly attributes this to internally controlled behaviour (Robbins *et al.*, 2009). Also in a similar trend to project personnel's views of functional managers, the differences of the use of authority, penalty and pressure and

performance rating indicate that project personnel possibly believe that the project manager uses these as coercive influence mechanisms. A noteworthy observation is that the project manager is viewed as having positional authority and being able to influence performance ratings. This is contrary to the literature findings (Kates & Galbraith, 2007) but confirms a similar assertion made by Dunne *et al.*, (1978) in the findings of the original study.

6.1.4. Project Personnel Perceptions of each Type of Manager Compared

Hypothesis four compared the perceptions of the use of power and influence by project personnel for the project manager and functional manager as presented in column (4). For the 12 constructs tested there were 10 constructs with no statistically significant differences, viz. association with manager, the use of authority, empowering project personnel, building good relationships, using logical arguments, the use of performance rating, the use of position & responsibilities, providing professionally challenging work, having respect and confidence in expert knowledge and having shared goals. Theoretically, differences should be observed for the use of authority and position & responsibilities (Davis & Lawrence, 1978; Galbraith, 1971; Joyce, 1986). The implication of this finding is that project personnel are likely to respond equally to requests from either the project or functional manager; the request itself would be viewed as legitimate based on structural authority and positional power. This result in itself is not sufficient to overcome the scenario in which both managers issue conflicting commands. The project personnel have a natural tendency to respond to the functional managers, with whom they share fewer differences in perceptions. The functional manager can be construed to be guiding them down a professional long-term career path.

Statistically significant differences are observed for two constructs: the use of passion and inspiration and the application of penalty and pressure. Project personnel perceive the project manager to use more of passion and Inspiration as an influence mechanism. Given that the project manager has a dotted line relationship, with no line management responsibility, it is expected the project manager would develop stronger interpersonal skills (Galbraith, 1971; Lawrence, Kolodny, & Davis, 1977; Sy & Côté, 2004). Project personnel perceive the functional manager to use more penalty and

pressure as an influence mechanism. The functional manager has a solid line relationship, which indicates that the functional manager has power by virtue of structural authority and oversight of the performance management process. This is a power base from which to execute pressure as an influence mechanism and penalty through organisational processes. The phase one results from **Table 15** confirms this finding by noting that when other influence avenues fail, the functional manager will default to using penalty and pressure as an influence mechanism.

Conclusion Research Question One

Perceptions Compared: Managers as a Group and Project Personnel as a Group

For functional versus project managers, the authority conflict theorised in the literature was not observed, at least not in the way managers view themselves. The matrix organisation design element of the functional manager having direct influence over performance ratings was confirmed. In general there are no differences between uses of power and influence between the two managers. There are only two differences in the way project personnel perceive the project and functional managers, both confirm the literature findings. It is largely observed that project personnel perceive the use of power and influence by each type of manager as the same.

Perceptions Compared: Managers Compared to Project Personnel

For the functional manager versus project personnel, the functional manager's perceptions are biased towards the use of positive influence techniques, but project personnel perceive a stronger use of punitive techniques. There are no differences in perceptions for the use of performance rating as an influence technique. There is a gap in perceptions for the types of power and influence used between the functional manager and project personnel; this may have consequences for performance and other attitudinal outcomes. For the project manager versus project personnel, given the nine differences, a reasonable conclusion is that there are strong differences between the project manager's perceptions of the use of power and influence compared to project personnel. There may be negative consequences for project performance and other attitudinal outcomes. There is a larger gap in perceptions between the project and functional manager.

Overall Finding

To answer research question one the null hypotheses one and four is accepted, managers largely have no differences in perceptions as a group and project personnel also generally have no differences in perceptions as a group viewing managers. However in terms of both manager-personnel relationships, null hypotheses two and three are rejected since there are several differences between each type of manager and the project personnel. This perceptual gap exacerbates the conflict created by the dual command structure prevalent in the matrix organisation. These differences can be summarised via two major themes, the use of aspirational mechanisms of power and influence on the part of the manager example passion & inspiration and the perceived use of coercive mechanisms by project personnel, predominantly the use of penalty and pressure. The perceptual gap is wider for the project manager than the functional manager, which will result in impeding personnel performance and will negatively impact overall company performance.

6.2. Research Question Two: Comparisons Across all Groups

Research question two compared perceptions of power and influence as used across all four sub-groups. To answer research question two both the ranking and statistical tests performed across all groups using the Kruskal-Wallis test will be discussed.

6.2.1. Ranking of Perceptions Across all Groups

The functional and project managers rated their own perceptions. Project personnel rated their perceptions of each type of manager's use of power and influence mechanisms in their interactions. All four sets of perceptions were ranked. **Table 40** shows the three highest and three lowest ranked constructs drawn from **Table 27**. Ranking is only a visual observation and represents relativity in perceived use of power and influence which highlights importance to a sub-group. Ranking is useful in this context in that logical generalizations can be made. The Kruskal-Wallis tests reveal that the ranking of perceptions of the use of power and influence is different across all groups. By understanding the perceptions of managers and employees, the

solid line functional manager relationship and dotted line project manager relationship (Davis & Lawrence, 1978) can be compared and contrasted for similarities and differences.

Table 40: Three Highest and Three Lowest Ranked Constructs

| Power and influence constructs Ranking | Project manager | Functional Manager | Project personnel views of Project manager | Project personnel views of Functional manager |
|--|---------------------|----------------------------|--|---|
| 1 | Passion Inspiration | Empower | Authority | Penalty Pressure |
| 2 | Logical Arguments | Logical Arguments | Association | Performance Rating |
| 3 | Shared Goals | Professionally Challenging | Passion Inspiration | Authority |
| 10 | Performance Rating | Association | Logical Arguments | Shared Goals |
| 11 | Authority | Authority | Respect Knowledge | Logical Arguments |
| 12 | Penalty Pressure | Penalty Pressure | Empower | Passion Inspiration |

Group findings

Overall an important visual observation is that views of the managers and project personnel appear to be diametrically opposed. Examining use of logical arguments and authority across the four sub-groups, for managers it appears in the highest three however for project personnel it is in the lowest three ranked. Matrix organisation, managers may think that they use rational persuasion to overcome the authority conflict (Kates & Galbraith, 2007) but default to use power by virtue of their authority in the organisation. Legitimate power is a default position for functional managers in the event that other influence tactics do not work (Phase one results from **Table 15**). The literature review indicates that an important issue in the matrix organisation is the concern of misaligned goals and objectives primarily related to managers having different objectives (Sy & D'Annunzio, 2005b). The absence of shared goals as a highly ranked common theme across all four sub-groups confirms the literature review assertion that this is an issue to be dealt with. As a general observation of the overall

ranking as per **Table 26** there is no agreement across the sub-groups for the ranking of the use of power and influence.

Managers as a Group and Project Personnel as a Group

The project and functional manager share similarities for the lowest ranked constructs the application of pressure & penalty and authority. However the ranking between the two managers are generally different. For project personnel perceptions of project and functional managers, authority appears in the three highest ranked and logical arguments appear in the lowest ranked constructs. Aside from these similarities, the rankings are different for the project personnel views of each type of manager.

Managers Compared to Project Personnel

There are no ranked similarities between the functional manager and project personnel perceptions for the use of power and influence mechanisms. Logical arguments and authority are inversely ranked relative to each other, which represents a gap in perceptions. The project manager and project personnel share a similar view of the use of passion and inspiration; beyond this there are no other similarities.

6.2.2. Comparisons of Perceptions Across all Groups

Hypothesis five is a comparison of perceptions of the use of power and influence across all groups. Across the groups there were no significant differences for association with manager, respect in manager's special knowledge, and the use of position & responsibilities. However, nine significant differences in group results were observed as shown in **Table 28**. This result in itself should not be interpreted without an understanding of individual paired comparisons as two extreme results can skew the overall result for a specific influence mechanism.

The application of penalty & pressure is the highest ranked difference and also has three significant differences across the individual group results. In a professional worker environment, it may well be counter-intuitive to root motivation in a coercive or positional power base; personal power should be used (Yukl & Falbe, 1991). Empowering project personnel is ranked second and also has three significant differences across the individual group results. This construct was identified in phase

one. In interpreting this, managers seem to think that they delegate authority, equip and create ownership much more so than employees perceive their actions. This speaks to the issue of micro-management and decision strangulation (Kates & Galbraith, 2007). This is a major issue to be dealt with in organisations, as employees change, requiring increasing degrees of autonomy this may stifle personal growth.

The use of logical arguments is ranked third and it is highlighted that the group results show differences between managers and project personnel. This is a two-fold issue, the first being that managers have a skew perception of their ability as experts or secondly they do not have strong persuasion skills suggesting that project personnel may be forced to listen but not necessarily agree. The issue of shared goals is reiterated, there are group differences and these are again primarily related to the differences between managers and employees. The issue of a lack of consultation and collaboration to form shared goals will result in misaligned objectives and impact attitudinal outcomes and project performance.

Conclusion Research Question Two

Null hypothesis five can be rejected by noting both the ranking and nine group differences. This indicates that in general there are perceptual differences in terms of the relative importance that each sub-group places on the use of power and influence. This implies that in any given situation the prioritisation of which influence mechanism to use may not deliver the intended results as it may be perceived to be of lower importance to the sub-group being influenced based on the gap that is noted. This will have negative implications for attitudinal outcomes in the workplace and harm established psychological contracts (May, Gilson, & Harter, 2004).

Most notably managers and employees tend to have diametrically opposed views. This supports the findings from research question one. Specifically, there are gaps in perceptions for the use of authority and logical arguments. Shared goals are conspicuously absent from the top rankings and confirms the challenges noted in the literature review that the ambiguity of authority results in misaligned goals (Goold & Campbell, 2003).

6.3. Research Question Three: Attitudinal Outcomes

Research question three examines if relationships exist for the usage of power and influence by each type of manager and the resultant attitudinal outcomes of project personnel. The attitudinal outcomes explored are: effort, willingness to disagree, satisfaction with supervision from manager and work performance. Amount of effort employed is related to the degree of support provided in complying with a request from a manager. This is in response to the question: how frequently do I meet the requests of my manager with maximum effort?

The willingness to disagree with a manager is related to openness of communication found in the matrix organisational structure. This is in response to two questions: do I feel free to disagree with my manager; and, how frequently do I disagree with my manager about work related matters? Satisfaction with supervision received from each type of manager is in response to the question: am I satisfied with the supervision I receive from manager? The types of influence mechanisms managers' use may impact on project personnel performance. The question posed on performance was, how does the way your manager influence you impact on your work performance?

Table 41: Summary of Research Question Three Results

| Project Manager | | | Functional Manager | | |
|--|---|--------------------------|---|---|--------------------------|
| 3 highest rank correlations | Total average correlation of attitudinal variable | Significant Correlations | 3 highest rank correlations | Total average correlation of attitudinal variable | Significant Correlations |
| Satisfaction with Project Manager | | | Satisfaction with Functional Manager | | |
| Shared Goals Empower Passion Inspiration | 0.556 | 11/12 | Logical Arguments Empower Passion Inspiration | 0.537 | 11/12 |
| Performance | | | Performance | | |
| Respect Knowledge Logical Arguments Passion Inspiration | 0.501 | 12/12 | Passion Inspiration Logical Arguments Association | 0.435 | 10/12 |
| Effort | | | Effort | | |
| Shared Goals Good Relationship Position & Responsibilities | 0.312 | 9/12 | Good Relationship Position & Responsibilities Authority | 0.262 | 10/12 |
| Willingness to Disagree | | | Willingness to Disagree | | |
| Good Relationship No other significant correlations | 0.054 | 1/12 | No Significant Correlations | 0.007 | 0/12 |

Table 41 presents a summary of the results for research question three drawn from **Table 30** and **Table 33**. The highest three correlations and the average of all correlations are shown for each attitudinal outcome. The number of significant relationships is also indicated per variable and per manager.

Hypothesis six and seven will be discussed together to answer research question three by comparing the outcomes due to each type of manager. **Table 41** shows that the ranked ordered results for each attitudinal outcome are consistent for both managers. Satisfaction with manager has the strongest relationship with power and influence closely followed by manager's impact on performance and effort to a lesser extent. Willingness to disagree has no relationship with the type of power and influence mechanism used. On average the project manager had higher correlations compared to the functional manager for all attitudinal outcomes.

Satisfaction with Manager

Satisfaction with the supervision from both managers resulted in 11 out of 12 significant correlations; thus, resulting in the strongest relationship with power and influence mechanisms used. The average correlation for the project and functional managers were 0.556 and 0.537 respectively. A theme emerges by observing the above average results for both managers. Shared goals, empowerment, the use of logical arguments, the use of passion and inspiration, building a good relationship and having confidence in the managers' knowledge all have high correlations with satisfaction. Generally all of these power and influence mechanisms are very similar to soft bases as described by Gupta & Sharma (2008). The findings by Gupta & Sharma (2008) suggests that there will be more compliance with soft bases of power in an environment where quality of interaction is low. The implications in this organisational context is that a positive work culture should be cultivated to enhance satisfaction with manager (Gupta & Sharma, 2008).

The highest result for the project manager is consulting and collaborating to achieve shared goals. The project manager is responsible for co-ordinating efforts amongst various project personnel each with a specialised set of skills. There is an expectation on the part of project personnel that the project manager will create alignment and

drive shared goals. One of the known challenges in the matrix is misaligned goals which creates internal competition; this possibly explains why creating shared goals is highly correlated to satisfaction with the project manager (Sy & Côté, 2004). This also highlights that goals need to be visible and clearly communicated.

The highest result for the functional manager is the use of logical arguments. This is related to the use of rational persuasion in the highly specialist functional context. In a project environment, the project personnel will look to the functional manager for guidance on technical matters for resolution on projects. In advising the project personnel as to how to accomplish these tasks, the functional manager will therefore employ logical arguments (Yukl & Falbe, 1991).

The second and third highest relationships for satisfaction with both managers are the use of passion and inspiration and empowering project personnel. With respect to empowerment, this was identified in phase one and relates to delegation of authority in the face of micro-management and creating ownership. Knowledge workers must be given the opportunity to be part of the task definition as an enabler of productivity (Drucker, 1999); this is an expression of confidence in project personnel and hence contributes positively towards satisfaction with both managers. Passion and inspiration by both managers are required as the leaders in their respective roles. For passion and inspirational appeals these could be motivating factors in the project personnel that appear to enhance satisfaction (Robbins *et al.*, 2009).

For both managers penalty pressure is not correlated. Coercive power bases and influence mechanisms generally have low correlations with satisfaction. The implication being that the use of what appears to be harsh bases of power is less effective in achieving employee satisfaction and should only be considered in a high quality of interaction environment (Gupta & Sharma, 2008).

Managers impact on Project Personnel Performance

Overall the impact on project personnel performance based on the way the manager influences, yielded the second highest correlations from the attitudinal outcomes. All power and influence mechanisms used were positively correlated with personnel

performance for the project manager and 10 out of 12 constructs were correlated for the functional manager. The average correlation for the project and functional managers were 0.501 and 0.435 respectively. As above the correlations were high for personnel performance in relation to the sources of power and influence used. The prominent theme that emerges is that positive influence mechanisms such as the use of passion and inspiration, logical arguments, shared goals empowerment and confidence in knowledge are more effective than punitive influence mechanisms in driving performance. This confirms the finding by Yukl & Falbe (1991) that personal power is more important than positional power as a source of influence on subordinate performance. It is highlighted that there is a dual role to be played by managers in a matrix organisation in driving team performance; essentially both the direct and indirect relationship are important in driving team and hence organisational performance.

The commonalities between the managers for the highest three constructs are the use of logical arguments and passion and inspiration as a positive driver of performance. Having respect for the project manager and placing confidence in his knowledge and advice yielded the highest correlation with performance. This speaks to the use of expert power in trusting the project manager in the role of integration & coordination, creating flow of information and alignment of teams goals and objectives (Kates & Galbraith, 2007; Sy & D'Annunzio, 2005a). The highest driver of personnel performance for the functional manager is the use of passion and inspiration, but is also highly correlated for the project manager as well. The use of logical arguments by both managers as a driver of performance is highly correlated. This comes as no surprise in the highly skilled knowledge worker environment. For functional managers, association is also highly correlated with performance. This is possibly related to the seniority of the functional manager, noted in the biographical data and the aspirational intentions for upward mobility of the project personnel.

Even though the project manager is involved with the day to day activities of the project personnel, the functional manager is typically responsible for the performance evaluations (Appelbaum *et al.*, 2009). However, for the functional manager, there is no correlation for the use of pressure or performance rating to drive project personnel performance. For the project manager however, the use of coercive power bases

specially the use of pressure and performance ratings have low correlations with performance. The implication of this result is that the performance rating in itself is not properly linked to a reward system as a mechanism to influence performance behaviour. There is no clear linkage between performance rating and personnel performance and this will have negative implications for overall business performance, as this may result in individuals acting in their own interest rather than in the interest of the broader organisation (Kates & Galbraith, 2007).

Effort

For frequently meeting the requests of the manager with maximum effort, there are associations for nine of the 12 constructs for the project manager and 10 of the 12 constructs for the functional manager. The average correlation for the project and functional managers were 0.312 and 0.262 respectively. Effort in general has low correlations with the types of power and influence used. Unlike performance and satisfaction there is no clear distinction between the soft and harsh bases of power for input of effort on the part of project personnel. The commonalities for high correlations for effort for both managers are building a good relationship and the use of power by virtue of position and responsibility. High correlations were observed for shared goals (related to the use of personal power) for the project manager and the use of authority (related to structural power) for the functional manager; both observations are logical and can be expected in the matrix organisation (Sy & D'Annunzio, 2005b). The use of pressure and penalty yielded no correlation for either manager.

The use of shared goals to achieve effort is the highest correlated construct for the project manager and indicates that if there is collaboration and consultation leading to alignment in objectives, the authority conflict prevalent in the matrix organisational design may be overcome. Building good relationships were strongly correlated for both managers. Managers as part of managing their key stakeholders need to build and maintain relationships (Assudani & Kloppenborg, 2010).

Position & responsibility was also strongly correlated with effort for both managers. This suggests that based on the role of the leader, project personnel will still respond with effort to carry out their tasks. A notable observation is the high correlation of

structural authority with effort for the functional manager and no correlation for the project manager. This confirms that dual reporting challenge observed in the matrix organisational design (Larson & Gobeli, 1987). The use of pressure and penalty has no correlations for both managers; this observation speaks to the notion of dealing with knowledge workers, who in order to be productive need to be part of the conversation in task definition. This will result in an attitudinal change (Drucker, 1999) and not pressure or penalty as observed.

Willingness to Disagree

There are no relationships between willingness to disagree and the mechanism the functional manager uses to influence project personnel. There is only one significant correlation of 0.225 for project personnel being willing to disagree with the project manager; this is when there is the existence of a good relationship. This positive association and resultant communication leads to project personnel being willing to disagree or confront an issue for the benefit of achieving the overall goals. This finding is an exception to the overall result. Overwhelmingly, the results indicate that willingness to disagree has no relationships with the mechanism of power and influence used for either manager. This presents a challenge in the matrix organisation, since there is an increase in the quantity and decrease in the quality of communications based on the matrix design (Sy & Côté, 2004); more importantly, confrontation is regarded as the primary mode of conflict management in the matrix (Joyce, 1986). Willingness to disagree may be related to personality and cultural factors, rather than influence mechanisms used.

Conclusion Research Question Three

To answer research question three, null hypotheses six and seven are rejected for satisfaction with manager, impact of manager on personnel performance and effort indicating that there are relationships between the type of power and influence mechanism used and these attitudinal outcomes. Null hypothesis six and seven are accepted for willingness to disagree implying that there is no relationship between the type of influence mechanism used by both managers and the willingness to disagree on the part of the project personnel. Satisfaction with manager and performance both have strongly correlated relationships, whilst effort is weakly correlated with power and

influence mechanism used by each type of manager. A general exception to these findings is that the use of coercive power, in particular authority and application of pressure and penalty, tends to have low, negative or no correlation. A noteworthy finding is that the project manager has stronger relationships than the functional manager for all attitudinal outcomes.

The implication for the organisation is that it is crucial for managers to embrace the correct influence mechanism types as it impacts satisfaction with manager and more importantly performance of project personnel. The use of personal power in lieu of positional power will achieve more meaningful results.

6.4. Research Question Four: Satisfaction Outcomes

Research question four examines the relationships between the project personnel's satisfaction with each type of manager and their overall job satisfaction, levels of employee engagement and performance. **Table 42** presents a summary of the results for research question four from **Table 36** and **Table 38**. Overall job satisfaction was aimed at understanding broadly how project personnel felt about their work situation and was in response to the question; overall, am I satisfied with my current job situation? To develop an understanding of employee engagement, the three main dimensions proposed by Kahn (1990) in his seminal work was used. These related to firstly finding meaning in job role, tasks and work interactions, secondly feeling safe to express oneself without fear of consequences to self-image or career prospects and thirdly the use of physical, emotional and intellectual energy to perform ones job. The same performance data related to the perception of how the manager's type of influence impacts on project performance was used.

Table 42: Summary of Research Question Four Results

| Attitudinal variables Spearman's rho (ρ) | Satisfaction with supervision from Project Manager | Satisfaction with supervision from Functional Manager |
|--|--|---|
| Overall Job Satisfaction | 0.178 | 0.452* |
| Employee Engagement | 0.238* | 0.393* |
| Performance | 0.590* | 0.610* |

Hypothesis eight and nine will be discussed together to answer research question four by comparing the outcomes due to each type of manager. For all three comparisons, the functional manager has stronger relationships for satisfaction compared to the project manager. Strong correlations exist for satisfaction with both managers and levels of personnel performance followed by slightly weaker relationships with employee engagement. Strong correlations exist for overall job satisfaction and satisfaction with the functional manager only; this is an important finding. For all outcomes tested satisfaction with the functional manager yielded stronger relationships.

Overall Job Satisfaction

There is no relationship between satisfaction with the project manager and overall job satisfaction. In direct contrast there is a strong relationship between satisfaction with the functional manager and overall job satisfaction. This suggests that project personnel first have an allegiance to their role in the functional than to the project team. This silo mentality is created by the structure of the matrix (Kates & Galbraith, 2007). This could be related to the temporary nature of the project team or the fact that they are shared resources and report to multiple project managers and only to one functional manager. This also highlights the crucial role of the line manager and the need for managing this relationship in a way that enhances overall job satisfaction of project personnel.

A further consideration for the observation that satisfaction with the functional manager has strong relationships with overall job satisfaction could be related to the type of psychological contract that project personnel has with each type of manager. Due to typically short-term project life cycles combine with being shared resources, working on multiple projects simultaneously; it is more likely that project personnel have a relational psychological contract with the functional manager and a transactional psychological contract with the project manager (Rousseau in Millward & Hopkins, 1998). Relational psychological contracts are not time bound and is nurtured through mentoring and socialisation; the responsibility lies with the functional manager in this case (Millward & Hopkins, 1998).

Employee Engagement

Satisfaction with both managers is positively correlated with employee engagement, however the functional manager has a higher correlation. It is important that employees are physically, cognitively and emotionally available. This expression of employees as a work attitude is critical to the performance of the company as research has shown a correlation between employee engagement and meaningful business outcomes (Harter *et al.*, 2002). From a stakeholder management perspective the functional manager in terms of the solid line relationship is much better equipped to satisfy the needs and manage expectations of project personnel (Assudani & Kloppenborg, 2010; Garvare & Johansson, 2010) which explains the stronger relationship with employee engagement.

This finding is important in that research by May *et al.* (2004) has confirmed the “positive effects of supportive managerial behaviour on creativity, task performance and psychological safety” (p. 30). Trustworthy behaviour by managers is expected to result in psychological safety and willingness by project personnel to invest themselves on projects. This can also be related to attribution theory whereby the project personnel relate their perceptions to factors in the work context, based on their own expectations and interests (Robbins *et al.*, 2009).

Performance

There is a very strong relationship with satisfaction with each type of manager and performance. The functional manager relationship is marginally stronger. For correlation with performance both managers have an equal responsibility to put measures in place to ensure that project personnel are satisfied with supervision. Proper employee performance management processes should be developed as an enabler of business performance. It is necessary to have rewards and consequent management systems that motivate employees and overcome the issues of decision strangulation, goal misalignment and unclear roles and responsibilities (Sy & D’Annunzio, 2005a).

In attempting to understand why satisfaction with the functional manager has a stronger relationship with performance, reasons from the results of phase one open-ended questions from **Table 15** are considered below:

- Career advancement is most often linked to performance of functional goals.
- The functional relationship is permanent and the project relationship is temporary; therefore, project personnel will respond differently to each type of manager and logically more weighted in terms of responding to functional requests.
- Functional managers have a more significant long-term impact on performance and behaviour compared to project managers who stimulate performance for a short period, i.e. the duration of the project.

Conclusion Research Question Four

To answer research question four, null hypotheses eight and nine are rejected which indicates that there are very strong relationships between satisfaction with each type of manager and performance. There are weaker relationships between satisfaction with each type of manager and employee engagement. Additionally, there is a strong relationship between the functional manager and overall job satisfaction and no relationship for the project manager. In all cases satisfaction with the functional manager yields higher correlations, highlighting the important role the functional manager plays in the work life of project personnel.

Harter *et al.* (2002), in researching employee engagement and job satisfaction, highlights the importance of the influence of the supervisor over both employee engagement and satisfaction with the company; additionally, the construct most highly related to performance was found to be satisfaction with supervisor. This has been observed in part in this study. This finding is important because it speaks about the crucial role that managers play in the organisation in driving employee engagement and performance. Ultimately, businesses require high performance from employees in order to be successful and remain successful and managers need to understand the dynamic role they play in making this possible. Therefore, to make knowledge workers more productive will require an attitudinal change not just on the part of the knowledge worker but for the entire organisation (Yukl & Falbe, 1991)

The responsibility of line manager comes to the fore in that it is only the functional manager that impacts project personnel overall job satisfaction. Line managers should be equipped with the correct levels of interpersonal skills to ensure job satisfaction levels are high in project personnel.

6.5. Research Question Five: Comparison with Original Study

Research question five examines similarities and differences between the original study by Dunne *et al.* (1978) and findings from this study. General observations are made and with a view to understand the reasons behind the findings. No functional managers were interviewed in the original study therefore only parts of the findings are comparable.

Power and Influence

The original study found no differences in the perceptions between project managers and project personnel perceptions. A further finding was that the authority issue theorised is not as much of a problem as suggested by the literature; project personnel respond to position and responsibility in the knowledge worker environment. This has been confirmed in results of this study. Project personnel perceive project managers to have greater authority than recognised by project managers themselves; and there are no differences for position and responsibilities. However, this study found an additional eight differences in the paired constructs analysed suggesting that there are differences between the findings of the two studies.

The original study found that the way project personnel perceive the influence mechanisms used by both managers are different. This study found two only constructs for which there are different which implies that in general managers use similar mechanisms to influence, in contrast to the original study. When comparing the ranking the following is noted: the project manager rated authority and performance rating as the lowest ranked constructs in both studies which is a confirmation of the literature review (Appelbaum *et al.*, 2009). Respect in special knowledge (expertise) and position & responsibilities were ranked in the top three consistently in the original

study in contrast to this study, which found the results varied. Visual observation of both studies indicates that in both cases there is no agreement between the groups.

Attitudinal Outcomes

The key finding of the study was that for both managers the use of position and responsibility, respect in special knowledge and providing professional challenging work are positively associated with work attitudes. In this study the commonalities for both managers for the three highest significant correlations with work attitudes are: building good relationships, using position & responsibility, empowerment, using passion and inspiration and using logical arguments. There were far fewer significant correlations for work attitudes in the original study. There are two general observations that can be made: firstly, the use of position & responsibility to influence yields similar attitudinal results; secondly, willingness to disagree has no relationships with power and influence mechanisms used in either study.

Conclusion

There are notable differences between the results from both studies. The reasons that can be attributed to this relates to contextual factors, business changes over time and employee and manager “redefinition” to keep up with other factors. The original study was conducted in a military environment, whilst this study was conducted in a project management and technology development company. More than 30 years later the business environment has become highly complex and the pace of change has resulted in managers harnessing a different set of skills which could explain the differences in influence mechanisms used. The changing business environment has produced changes in organisations and this has produced changes in the type of employees required. The move from manual to knowledge worker in an attempt to achieve higher productivity and performance requires a shift in mind set to treat personnel as an asset since people have become a key component of business success (Meisinger, 2006).

The explosion, rapid and prolific adoption of information technology that is perpetuated by the Internet has changed the way in which the world does business. Manufacturing has migrated to countries, which have lower labour costs. Engineering and other skills

professions have also moved to emerging markets. The business world has become smaller with sophisticated connections. These are part of the reasons for the observed differences between the original study and this research. As employees move to self-sufficiency and autonomy, managers need to give consideration to changes in the business world, to embrace influence mechanisms that will empower their employees.

CHAPTER 7: CONCLUSION

7.1. Introduction

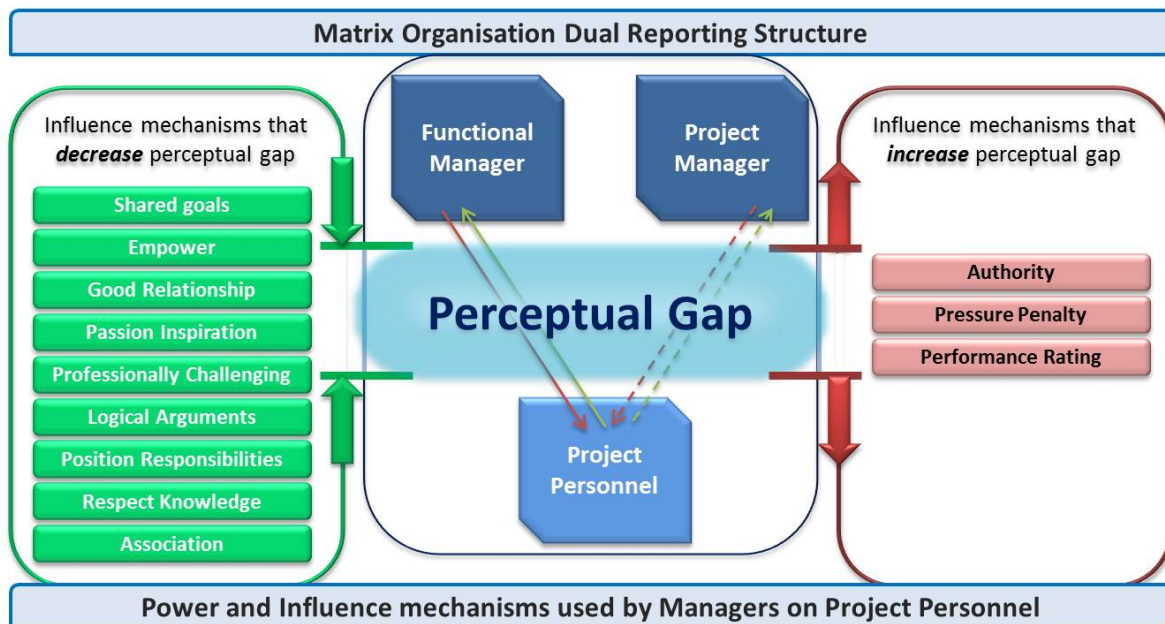
The prolific adoption of matrix organisations by diverse sectors of the economy is a testament to the value companies see in embracing this complex design to deliver performance. The matrix organisation is not without its challenges, most notably the issues related to authority ambiguity by the functional and project manager. Project personnel who form part of matrix project teams are subject to influence by both types of managers and this has implications for attitudinal outcomes. By understanding how perceptions impact on outcomes like performance, employee engagement and overall satisfaction managers could deliberately harness their personal skills to focus on achieving optimal project outcomes and improving business performance. This chapter provides a summary of important findings and makes recommendations to organisations, manager and project personnel.

7.2. Major Findings

Managers have similar views in terms of the types of influence mechanisms used. Project personnel also have similar views of the perceptions that each type of manager uses. As homogenous groups there are no differences in perceptions of power and influence used.

The challenge in matrix organisations is the large perceptual gap between managers and project personnel. This gap is larger for a project manager compared to a functional manager and will only serve to exacerbate the conflict created by a dual chain of command. Two recurring themes that emerge are the perceived use of aspirational and personal influence mechanisms by managers versus the perception of coercive punitive mechanisms by employees. A model for the perceptual gap for managers power and influence is also presented in **Figure 25**.

Figure 25: Matrix Organisation Power and Influence Model

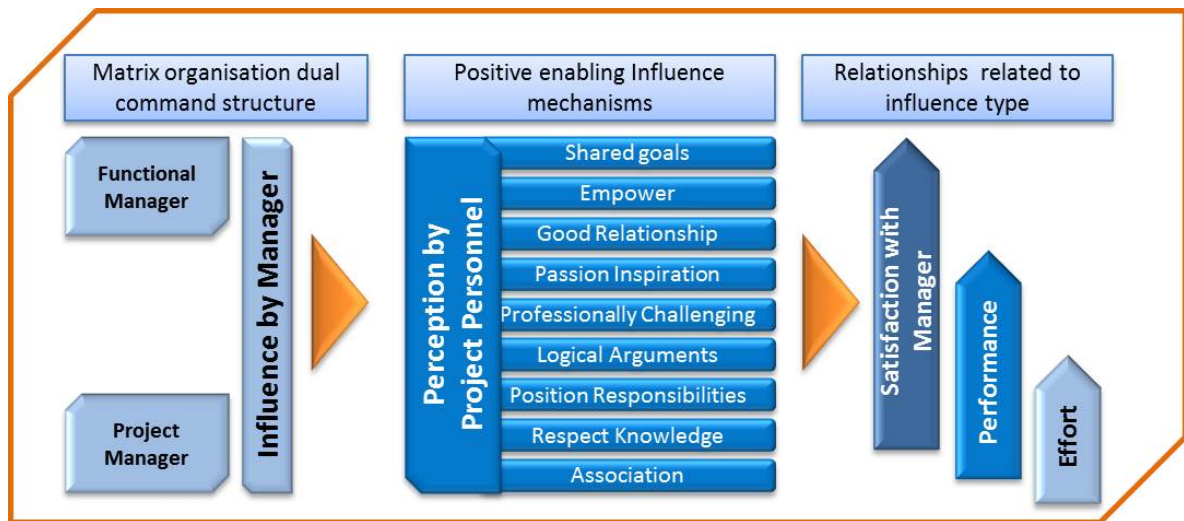


In general, there are differences of perceptions across the groups. Managers and employees tend to have diametrically opposed views highlighted by the inverse ranking of authority and logical arguments. Shared goals are conspicuously absent from the higher rankings and will result in misaligned goals.

Strong relationships were determined between type of influence mechanisms used and satisfaction with manager & performance; where weaker relationships existed employees used smaller amounts of effort to meet manager requests. This is an important finding for managers as they have the ability to overcome several matrix challenges by purposefully directing attitudinal outcomes.

A noteworthy finding is that the project manager has stronger relationships than the functional manager for all attitudinal outcomes. The exception being the use of coercive power, in particular authority and application of pressure and penalty, which tends to have low, negative or no correlations. Willingness to disagree has no relationships with type of influence used. This is likely related to personality or cultural factors. **Figure 26** presents a model that shows the relationship described between influence and attitudes.

Figure 26: Relationship between Influence Mechanism and Attitudinal Outcomes



It was established that there are very strong relationships between satisfaction with managers and performance; and weaker relationships with employee engagement. There is also a strong relationship between the functional manager only and overall job satisfaction, highlighting the vital role of the direct line management relationship.

An important dichotomy was observed; for relationships between influence mechanism used and attitudinal outcomes the project manager had stronger relationships highlighting the stronger use of personal power by the project manager. However for relationships between satisfaction with manager and employee engagement, impact on performance & overall job satisfaction the functional manager had stronger relationships confirming different psychological contracts between the managers.

Contextual factors, business changes over time and employee and manager “redefinition” are possible reasons for difference in results between the original and this study. The changing business environment has produced changes in organisations and this has produced changes in the type of employees required.

7.3. Recommendations for Organisations

Several of the issues theorised in the literature were observed in this study highlighting that these are real challenges that organisations face. The foremost recommendation

to organisations is the development and provision of interpersonal training focused on both project and functional managers. This is necessary to move away from coercive influence mechanisms that will alienate knowledge workers. Organisations should also give serious consideration to having a single manager over both project and functional managers that ensures that organisational goals are shared to avoid the silo mentality thinking that is prevalent. Finally having common performance systems that link these shared goals to project teams and managers rewards will benefit overall organisation performance.

7.4. Recommendations for Managers

The most crucial observation for managers is that the use of personal power in lieu of positional power will achieve more meaningful results, this is especially important in a knowledge worker environment. There is still this lingering notion to treat knowledge workers similar to manual workers, to achieve higher productivity and performance requires a paradigm shift in mind set to treat personnel as an asset and involve them in co-creating tasks. Managers need to take cognisance of the impact of the type of influence mechanism they use on employees especially with respect to attitudinal outcomes. Both managers have a crucial role to play in employee performance and hence overall organisational performance. The impact of the relational psychological contract based on the direct line relationship has a significant impact on overall job satisfaction and line managers should see this also as an opportunity to equip themselves with the correct levels of interpersonal skills to ensure job satisfaction levels are high in project personnel.

7.5. Recommendations for Project Personnel

Project personnel can often find themselves in the midst of a power struggle between managers and may not know how to prioritise organisational goals. The matrix is designed to use share resources optimally by executing many projects or product developments simultaneously. Ultimately, performance in the project or product space, which is the matrix team space is what drives overall company performance. To avoid

power struggle issues, project personnel should prioritise organisational goals over functional goals and link their own personal development plan to clear goals that support project outcomes.

7.6. Recommendations for Future Research

The authority conflict theorised in the literature for the difference in perceptions between functional and project manager's was not observed, on examination of the statistical results, it is seen that, the difference was very close to being statistically significant. This study was conducted in a single large organisation in a specific industry. Therefore a recommendation for future research would be to validate the literature findings of the authority conflict between the project and functional manager by conducting similar studies in other industries. It was observed in this study that knowledge workers respond positively to personal power not positional power. It would be interesting to conduct a comparative study between manual and knowledge workers to validate this assertion, the work performed by Peter Drucker would be a good basis to start the research. It would also be interesting to see to what extent knowledge workers are involve in co-creation in terms of what work needs to be conducted and how this impacts on their productivity and performance.

7.7. Conclusion

This past 30 years has seen information technology and the rise of the knowledge worker change the face of the business world. This will change again when organisations move beyond the information age to the next global breakthrough, what will this possibly be nano technology, embracing uses for the Higgs boson particle?, the possibilities are endless. With this, will come new more complex organisational forms and changes in the way manager's harness human potential through power and influence? The notion of moving from positional power to personnel power will become more evident as this is what personal respond to as demonstrated through this study.

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APPENDIX A: QUESTIONNAIRE FOR PHASE ONE

Cover Email

Good day

I am an MBA student conducting research on matrix organisations and am trying to establish how different stakeholders influence each other.

This phase of my research aims to establish the following: ***perceptions of the sources of influence used by managers on employees***

Your participation is voluntary and you can withdraw at any time without penalty.

This information is completely confidential. Neither the company name nor the individual's name will be recorded. Permission has been granted to conduct this survey.

If you have any concerns or queries, kindly contact:

| | | | |
|----------------------------|-------------------------|--------------|--|
| Researcher | Dylon Moodley | 083 838 6234 | dylon.moodley@gmail.com |
| Research Supervisor | Prof. Margie Sutherland | 011 771 4362 | sutherlandm@gibs.co.za |

I kindly request your valuable input in answering the questions below, it will take no more than 5 minutes of your time. Please respond by replying to this email. See questions below.

Please respond by no later than 26th June 2013.

Kind regards

Dylon Moodley

Questions for the functional manager:

This phase of the research study is aimed at understanding sources of power and influence in a matrix organisation.

What methods do you use to influence the performance of your **direct reports**, please describe how as part of your answer?

(Examples: Reward, Coercive, Legitimate, Referent, Expert, Informational)

Which in your opinion are the two most effective methods?

What differences have you noticed between the ways functional and project managers influence project personnel?

(Describe these in terms of direct and indirect reporting lines)

Questions for the project manager:

This phase of the research study is aimed at understanding sources of power and influence in a matrix organisation.

What methods do you use to influence the performance of your **indirect reports on the project**, please describe how as part of your answer?

*(Examples: Reward, Coercive, Legitimate, Referent, Expert, *Informational)*

Which in your opinion are the two most effective methods?

What differences have you noticed between the ways functional and project managers influence project personnel?

(Describe these in terms of direct and indirect reporting lines)

Questions for project team member:

This phase of the research study is aimed at understanding sources of power and influence in a matrix organisation.

What methods does your **direct functional manager** use to influence you?

(Examples: Reward, Coercive, Legitimate, Referent, Expert, Informational)

What methods does your **indirect project manager** use to influence you?

(Examples: Reward, Coercive, Legitimate, Referent, Expert, Informational)

Which in your opinion are the two most effective methods for the functional manager?

Which in your opinion are the two most effective methods for the project manager?

APPENDIX B: QUESTIONNAIRE FOR PHASE TWO

Cover Email

Good day

This is a survey for individuals who form part of project teams. Permission was obtained to issue this questionnaire.

I am a second year GIBS MBA student conducting research on sources of influence used by various managers. This is a short online questionnaire and will take you less than 5 minutes to complete. I would sincerely appreciate it, if you would take a few minutes out of your day to provide me with your valuable input. I would appreciate your feedback by Monday 15 July 13.

I am conducting research on matrix organisations and am trying to establish how different stakeholders influence each other and the resultant effect on employee performance. Managers will use different influence techniques based on whether the employee reports directly or indirectly to them. In a matrix organisation this refers to the functional and project managers. Knowing which techniques work can result in improved organisational performance.

All information gathered will be kept completely confidential. Neither the company name nor the individual's name will be recorded.

Your participation is voluntary and you can withdraw at any time without penalty.

Please click on the link below:

https://www.surveymonkey.com/s/DM_MBA_Research_Project_Team

If you have any concerns or queries, kindly contact:

| | | | |
|------------------------|----------------------------|-----------------|--|
| Researcher | Dylon Moodley | 083 838 6234 | dylon.moodley@gmail.com |
| Research Supervisor | Prof. Margie Sutherland | 011 771 4362 | sutherlandm@gibs.co.za |

Kind regards
Dylon Moodley

MBA Research Survey - Project Manager

Biographical Information

*1. What is your age?

- <25 25 to 30 30 to 40 40 to 50 50 to 60 >60

*2. How many years of experience do you have on projects?

- <2 2 to 5 6 to 9 10 to 14 15 to 19 20 to 25 >25

*3. What is your management level in the company?

- Junior Middle Senior

Methods used to influence your team members

The following questions are related to how you influence individuals who report to you. These individuals report directly to a function for example mechanical engineering but also form part of a project team.

*4. What methods do you use to influence your indirect reports, these are individuals who form part of your project team?

strongly disagree disagree neither agree nor disagree agree strongly agree

| | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I feel that I use formal authority to direct them. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that I can influence their performance rating. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that I can apply pressure or penalize them in some way. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They respect me and place confidence in my special knowledge and advice. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel the things I ask them to do are professionally challenging. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They recognize my position and responsibilities. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They want to be associated with me in the organisation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that I use logical arguments to influence them | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that I empower them to carry out their responsibilities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that we work together to achieve shared goals | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that I have established a good relationship with them. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that I am passionate and optimistic and inspire them. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

MBA Research Survey - Functional Manager

Biographical Information

*1. What is your age?

- <25 25 to 30 30 to 40 40 to 50 50 to 60 >60

*2. How many years of experience do you have on projects?

- <2 2 to 5 6 to 9 10 to 14 15 to 19 20 to 25 >25

*3. What is your management level in the company?

- Junior Middle Senior

Methods used to influence your team members

The following questions are related to how you influence individuals who report to you. These individuals report directly to a function example mechanical engineering but also form part of a project team.

*4. What methods do you use to influence your direct reports?

strongly disagree disagree neither agree nor disagree agree strongly agree

| | strongly disagree | disagree | neither agree nor disagree | agree | strongly agree |
|--|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| I feel that I use formal authority to direct them. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that I can influence their performance rating. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that I can apply pressure or penalize them in some way. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They respect me and place confidence in my special knowledge and advice. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel the things I ask them to do are professionally challenging. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They recognize my position and responsibilities. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They want to be associated with me in the organisation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that I use logical arguments to influence them | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that I empower them to carry out their responsibilities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that we work together to achieve shared goals | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that I have established a good relationship with them. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that I am passionate and optimistic and inspire them. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

MBA Research Survey - Project Team Members

*4. How does your FUNCTIONAL MANAGER influence you?

| | strongly disagree | disagree | neither agree nor disagree | agree | strongly agree |
|--|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| I feel that my functional manager has the formal authority in the organisational structure to direct me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that my functional manager can directly influence my performance rating. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that my functional manager can apply pressure or penalize me in some way. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I respect my functional manager and place confidence in his special knowledge and advice. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel the things my functional manager asks me to do are professionally challenging. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I recognize my functional manager's position and responsibilities. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I want to be associated with my functional manager in the organisation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that my functional manager uses logical arguments to influence me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that my functional manager empowers me to carry out my responsibilities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that my functional manager and I work together to achieve shared goals | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My functional manager has established a good relationship with me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel my functional manager is passionate and optimistic and inspires me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Questions related to the FUNCTIONAL MANAGER

*5. Your work performance

| | major decrease in performance | slight decrease in performance | no impact on performance | slight increase in performance | major increase in performance |
|---|-------------------------------|--------------------------------|--------------------------|--------------------------------|-------------------------------|
| How does the way your functional manager influences you, impact on your work performance? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

MBA Research Survey - Project Team Members

Biographical Information

*1. What is your age?

- <25 25 to 30 30 to 40 40 to 50 50 to 60 >60

*2. How many years of experience do you have on projects?

- <2 2 to 5 6 to 9 10 to 14 15 to 19 20 to 25 >25

*3. What is your management level in the company?

- Junior Middle Senior

Questions related to the FUNCTIONAL MANAGER

A functional manager can be simply defined as any manager that is responsible for a single specialist discipline eg. mechanical engineering, cost engineering, commercial etc. For the purposes of this survey, the functional manager includes not only the head of the specific function but all the intermediate managers as well, who have individuals reporting to them and are direct line managers.

MBA Research Survey - Project Team Members

***6. This question is related to your general interaction with the functional manager**

| | strongly disagree | disagree | neither agree nor disagree | agree | strongly agree |
|--|-----------------------|-----------------------|-------------------------------------|-----------------------|-----------------------|
| I frequently meet the requests of my functional manager with maximum effort | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel free to disagree with my functional manager | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I frequently disagree with the functional manager about work related matters | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In general, I am satisfied with the supervision I receive from my functional manager | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Questions related to the PROJECT MANAGER

The project manager is responsible for executing projects and has a diverse team of individuals from various functions reporting to them for the duration of the project. These individuals would report to a project manager for the duration of a specific project. An individual may report to several project managers for different projects, in this case, please make logical generalisations in answering the questions below.

These are the same questions as before but now related to the project manager.

MBA Research Survey - Project Team Members

*7. How does your PROJECT MANAGER influence you?

| | strongly disagree | disagree | neither agree nor disagree | agree | strongly Agree |
|---|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| I feel that my project manager has the formal authority in the organisational structure to direct me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that my project manager can directly influence my performance rating. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that my project manager can apply pressure or penalize me in some way. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I respect my project manager and place confidence in his special knowledge and advice. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel the things my project manager asks me to do are professionally challenging. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I recognize my project manager's position and responsibilities. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I want to be associated with my project manager in the organisation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that my project manager uses logical arguments to persuade me | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that my project manager empowers me to carry out my responsibilities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that project manager and I work together to achieve shared goals | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My project manager has established a good relationship with me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel my project manager is passionate and optimistic and inspires me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Questions related to the PROJECT MANAGER

*8. Your work performance

| | major decrease in performance | slight decrease in performance | no impact in performance | slight increase in performance | major increase in performance |
|--|-------------------------------|--------------------------------|--------------------------|--------------------------------|-------------------------------|
| How does the way your project manager influences you, impact on your work performance? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

MBA Research Survey - Project Team Members

*9. This question is related to your general interaction with the project manager

| | strongly disagree | disagree | neither disagree nor agree | agree | strongly agree |
|---|-----------------------|-----------------------|-------------------------------------|-----------------------|-----------------------|
| I frequently meet the requests of my project manager with maximum effort | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel free to disagree with my project manager | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I frequently disagree with the project manager about work related matters | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In general, I am satisfied with the supervision I receive from my project manager | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

This section is related to your work observations

Kindly respond to the observations you have made about yourself at work.

*10. My personal work observations

| | strongly disagree | disagree | neither agree nor disagree | agree | strongly agree |
|---|-----------------------|-----------------------|-------------------------------------|-----------------------|-----------------------|
| Overall, I am satisfied with my current job situation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I find meaning in my job role, tasks and work interactions | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel safe to express myself without fear of consequences to my self image or career prospects | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I use my physical, emotional and intellectual energy to perform my job. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |