
**AN INVESTIGATION INTO DEVELOPING
A PROJECT LEADERSHIP MODEL TO ENHANCE
PROJECT LEADERSHIP SKILLS OF NEWLY APPOINTED
PROJECT MANAGERS**



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23 November 2010

Declaration

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This dissertation serves as evidence that I have honed my ability and know-how in the area of engineering management and project management.

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Abstract

Project management introduces new challenges for project managers tasked with the responsibility of delivering successful projects in the 21st century. One such challenge is the development and maintenance of project leadership skills within the project management environment as organisations seek competent individuals to ensure successful execution of projects.

This dissertation explores the importance of project leadership skills development in the project management environment. A model of project leadership development to enhance project leadership skills in newly appointed project managers is proposed and tested using data collected from a survey of members of the Project Management department in Eskom Northern Region. The model proposes that four critical competencies that need to be possessed by newly appointed project managers, namely; technical competency, conflict management, leadership skills and coaching and mentoring skills. Analysis of the data showed that all the four critical competencies predicted project leadership skills development success; however more emphasis was made on coaching and mentoring of newly appointed project managers. Based on the results of the study, the paper explores and recommends strategies to develop and maintain project leadership skills to a level that promotes the success of enhancing these critical skills in newly appointed project managers.

Keywords: project leadership, project management, technical competency, conflict management skills, leadership skills, coaching and mentoring skills.

Biographical notes: Agreepa Mangalani Neduvhuledza is a Masters student in the Faculty of Engineering and the Built Environment (Department of Engineering Management) at the University of Johannesburg in South Africa. His research interests include project leadership skills development in newly appointed project managers.

List of Acronyms/Definitions/Abbreviation

C&M	–	Coaching and Mentoring
CM	–	Conflict Management
E	–	Expected Value
H1	–	First Hypothesis
H2	–	Second Hypothesis
H3	–	Third Hypothesis
H4	–	Fourth Hypothesis
H5	–	Fifth Hypothesis
LS	–	Leadership Skills
NAPM	–	Newly Appointed Project Manager
NO.	–	Number
P	–	Probability
PEs	–	Project Engineers
PLS	–	Project Leadership Skills
PMs	–	Project Managers
O	–	Observed Value
TC	–	Technical Competency
TT	–	Technical Training
N	–	Number of Respondents
X²	–	Chi-Square Value



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CHAPTER 1

1. INTRODUCTION

Chapter one presents an introduction to the study, focusing on the background of leadership, project leadership and project management. The problem statement is identified and discussed. Five hypotheses are identified in this chapter; these hypotheses are tested and discussed in more detail in chapters 3, 4 and 5 in order to unravel the problem statement and achieve the main objective of the study.

The use of project management continues to mature in our society and its organizations. As a result, businesses and organizations regularly use project management principles to systematically accomplish unique outcomes within their environment. Project managers' responsibilities are broad and fall primarily into three separate areas: responsibility to the parent organisation, responsibility to the project and the client and responsibility to the members of the project team. These responsibilities bring new challenges to project managers who are tasked with the job of executing projects successfully. One such challenge is the development and maintenance of project leadership skills within the project management environment [1].

This study looks at fundamental issues of project leadership skills development in the project management environment from project managers' and project engineers' perspective and introduces and tests a project leadership model to improve the project leadership skills of Eskom Northern Region's newly appointed project managers. In this study, project leadership is defined and some of the principal studies of project leadership are presented. The nature of a leadership style that is appropriate for leading a project team is described. Project leadership is discussed from the perspective of fundamental project management skills and inevitable leadership skills. Project leadership is differentiated from other forms of leadership, and the competencies that project managers should have to improve their project leadership skills are described [2].

1.1 BACKGROUND TO THE STUDY

The concept of leadership and project leadership is surely as old as the concept of organized activity. *“Organizations have been led with varying degrees of effectiveness by people called ‘leaders’ since the development of organized societies.”* Leadership competencies are critical to the success of any organization and at all levels within the organization. However, project management is a subset of the organization’s need for leadership at an operative level, whereas the project is defined by senior managers exhibiting leadership traits and characteristics [3].

It has been said that leaders must learn from example. Learning from example requires that existing leaders act as role models for future leaders. Future leaders can then develop while following others. Leadership also requires that individuals set and adhere to the highest levels of honesty and integrity. Without these two critical characteristics or traits, one can never achieve the full measure of leadership. Project team members will not follow a person who is dishonest in his actions or conducts himself without integrity [2].

The nature of complex projects, both the technical aspects and the organizational aspects, place significant demands on the project manager who is a leader. Project managers who are leaders are also faced with vague or ill-defined situations, which must not be transmitted to the team [2].

Organizations need project managers who understand the dimensions of a project within its organizational environment, provide purpose, direction, and motivation to their teams, show initiative to take advantage of opportunities, are technically competent organizers of teams, are willing to take calculated risks to advance the project while taking advantage of opportunities, have the will to win and not let small obstacles delay projects, build a cohesive team, communicate effectively both orally and in writing and are committed to the project and its completion [2].

Leadership in project management involves focusing the efforts of a group of experienced project managers, together with newly appointed project managers, toward a common goal and enabling them to work as a team. In general terms, leadership is the ability to get things done through motivating others. Respect and

trust, rather than fear and submission, are the key elements of effective leadership. Throughout the project, project managers who have taken the necessary steps in becoming leaders in the project management environment are responsible for establishing and maintaining the vision, strategy, and communications; fostering trust and team building; influencing, mentoring, and monitoring; and evaluating the performance of newly appointed project managers and the project [14]

1.2 RATIONALE OF THE RESEARCH

Eskom Northern Region project management department does not have any substantial project leadership model on developing project leadership skills in newly appointed project managers to become outstanding leaders in the project management profession. After interviewing a few experienced project managers in the Region, the researcher came to a conclusion that a project leadership model should be developed to enhance project leadership skills in newly appointed project managers in the Region.

1.3 RESEARCH PROBLEM STATEMENT

The department of project management in Eskom Northern Region have no tangible methods on developing dominant future project managers. After a discussion with top management in the department, it was concluded that there is a need for developing tangible methods in the form of a project leadership model to enhance project leadership skills in newly appointed project managers. The key points to be looked at in developing this project leadership model were; purpose, direction, motivation, technical training, technical competency, managing conflict, leadership skills and personal characteristics and coaching and mentoring of newly appointed project managers and project team members.

The associated research questions are as follows:

- Are there any project leadership models used by Eskom Northern Region for improving project leadership skills in newly appointed project managers?

- How can the existing project leadership skills development tools and methods (if any) be improved from a project management perspective to ensure enhanced project leadership performance?
- Is the proposed project leadership model an improvement over existing approaches to the problem from the perspective of project managers?
- What will be the short term and long term solutions on testing and implementing the proposed project leadership model before it can be fully implemented in the Region?

1.4 RESEARCH OBJECTIVES

By answering the above research questions, the primary objective of this study is to improve project leadership performance by developing a project leadership model to enhance project leadership skills in newly appointed project managers in Eskom Northern Region. The model will be developed by conducting a survey in the form of a questionnaire to be distributed to all the project managers and project engineers in the Region investigating tangible method(s) to develop exceptional project leadership skills in newly appointed project managers.

In order to address the research problem statement effectively and to achieve the main object of the study, it is proposed/hypothesised that:

- Technical training to newly appointed project managers will improve the newly appointed project manager's technical competency.
- Project managers who are technically competent will provide good technical assistance to newly appointed project managers to develop good project leadership skill(s) such as technical competency.
- Project managers with good conflict management skills will provide good assistance to newly appointed project managers to develop project leadership skill(s) such as conflict management skills.
- Project managers with good leadership skills and personal characteristics will present good persuasion and influence to newly appointed project managers

to develop listening and communication skills, stressing the basics of project management, honesty and integrity, treating the project team with respect and dignity, and enforcing project management standards of conduct.

- Project managers with good coaching and mentoring skills will provide good assistance to newly appointed project managers to develop project leadership skill(s) such as coaching and mentoring skills.

1.5 ANTICIPATED LIMITATIONS TO THE STUDY

There are several limitations of the research that need to be considered. One of the limitations of the study is that the respondents and views to be expressed will be based on the project managers' perspectives. Obtaining the perspectives of other departmental managers (not just project managers and or project engineers) may yield different results. The relatively small sample size could also be a limitation because participation in the survey is voluntary. While the target population is very large, the distributed questionnaire survey may not reach a large sample, due to limitations in making potential participants aware of the survey. Survey results from the different project managers and project engineers will be taken to be final and there will be no alterations to suit the proposed hypotheses.

Different studies by other researchers are discussed and compared in detail in the literature survey in chapter 2.

CHAPTER 2

2. LITERATURE SURVEY

2.1 INTRODUCTION

Chapter 2 introduces the reader to a literature review on leadership and project management, and existing leadership models. The definition of project leadership for this study is discussed in this chapter.

Project leadership has been studied and written about extensively in the twentieth century. Several books have also appeared that examine the function of leadership in many different forms of organizations—governmental, industrial, and political, to mention a few [3].

Today, most organizations use project management and project managers to achieve organizational goals and objectives. Achieving organizational success is not a chance occurrence. It is determined by leadership decisions [4].

However, projects come in many guises. Eskom Northern Region has traditional major projects from heavy engineering, for example, such as design, construction, telecommunications and maintenance. These are all significant endeavours involving large, dedicated teams and often requiring the collaboration of several sponsoring organizations. The Region is also involved in construction projects to build new facilities; maintenance of existing facilities; implementation of new technologies or computer systems and management development. Therefore, the most essential element of project management is competent and confident leadership [5].

2.2 LITERATURE REVIEW

Project leadership requires a greater combination of skills, knowledge, and abilities than the more common management tasks. Project leadership includes the demonstration of characteristics and traits that instil confidence in the organization's project team members [2].

Today more than ever, there is a great need for project managers to show that they possess the skills and competencies to lead during times of crisis. Organizations are looking for project managers that can provide stability, reassurance, confidence, and a sense of control during and after crises. When there is a crisis, project management will seek guidance from company project managers as to how business operations will continue and ways to cope with the situation [4].

Project managers are responsible for acquiring the human and material resources needed in any project. Project managers are also responsible for exercising leadership and dealing with obstacles that impede the project's progress. To be successful at meeting these responsibilities, the project manager must be skilled at negotiation, conflict resolution, and persuasion [13].

However, while researchers agree on the importance of developing project leadership skills in project managers, agreeing on the definition of project leadership has proved to be vague. Cleland (2006) defined a project leader as an individual who leads a project team during the project life cycle and accomplishes the project objectives on time and within budget. Moreover, he defined project *leadership* as "a presence and a process carried out within an organisational role that assumes responsibility for the needs and rights of those people who choose to follow the leader in accomplishing project results" [3].

In Cleland's (2006) book titled "Project Management Strategic Design and Implementation", a leader was defined as "the individual in the group given the task of directing and coordinating tasks in relevant group activities or who, in the absence of a designated leader, carries the primary responsibility for performing these functions in the group." Therefore, effective leadership is based primarily on being consistent. Leadership is also defined as both a process and a property. Cleland states that leadership is the use of non-coercive influence to direct the activities of the members of an organized group toward the accomplishment of group objectives. He considers leadership in the context of a set of qualities or characteristics attributed to those who are perceived to successfully employ such influence [3].

Moreover, Cleland (2006) also noted that leadership is not only an attribute but also what the person does. Under this definition, then, anyone on a project team may take on a leadership role. In his research, Cleland has identified that project management requires skills in three primary areas of leadership abilities: interpersonal, technical and administrative [3].

Lussier and Achua (2004:5-7) defined leadership as the influencing process of leaders and followers to achieve organizational objectives through change where influencing is the process of a leader communicating ideas, gaining acceptance of them, and motivating followers to support and implement the ideas through change [4].

Karlof (1996:88-92) defined leadership as the ability to arouse enthusiasm and persuade people to follow, he also presented leadership as a universe of disparate elements comprising traits, attitudes, types of behaviour, knowledge and situations [6].

Stern (2007:108-109) in the *Business Week* ("Leadership power plays") showed that experienced leaders tailor aspects of their style to fit the circumstances [7].

Pardey (2007:10-19) defined leadership as good art, where leaders are people who inspire others to follow; set a direction, develop a vision of where the organization should be going and the strategy for change to achieve that vision; aligning people to the direction being set, communicating it to people and building commitment to it, and motivating and inspiring people so that they work to achieve the vision, drawing on their needs, values and emotions [8].

In this study, project leadership can be defined as the art of influencing, persuading and assisting newly appointed project managers and others to develop skills such as and not limited to technical competency, conflict management skills, coaching & mentoring skills, listening and communication skills, stressing basics of project management, setting an example of honesty and integrity, treating team members with respect and dignity, and setting and enforcing project management standards of conduct [3].

In this context, newly appointed project managers are influenced and persuaded by experienced and technically competent project managers to seek excellent technical training to improve their technical competency. Since newly appointed project managers will be working with different team members and other project managers, conflict may arise at any time. This will require newly appointed project managers to be able to handle conflicts; therefore the experienced project managers assist newly appointed project managers to develop superior conflict management skills [3].

Moreover, newly appointed project managers require good leadership skills or good personal characteristics. This means that experienced project managers persuade newly appointed project managers to develop leadership skills such as, and not limited to: listening and communication, understanding the basics of project management, setting an example to the project team and other project managers by being honest and showing integrity, treating the project team with respect and dignity, and enforcing project management standards of conduct [2].

Coaching and mentoring skills are keys to the development of tomorrow's leaders in the project management environment [17]. This means that for newly appointed project managers to be successful in project management and to improve on their project leadership skills, continuous coaching and mentoring is vital. It is important that newly appointed project managers are allocated a coach and or a mentor to help them in the project management profession [9].

Unremitting mentoring and coaching will enable newly appointed project managers to develop the vision for the project, assemble the resources, and provide inspiration and motivation in working with the project team and project stakeholders to accomplish the project's objectives; and in completing the project so that its technical performance, cost, and schedule objectives are attained and the project results have a place in the future of the organization [3].

2.3 CURRENT PROJECT LEADERSHIP THEORIES

According to Cleland (2006), there are at least four major variables now known to be involved in project leadership: (1) the characteristics of the leader; (2) the attitudes,

needs, and other personal characteristics of the follower; (3) characteristics of the organization, such as its purpose, its structure, the nature of the tasks to be performed; and (4) the social, economic, and political locale [3].

The project manager's success as a leader is dependent on a set of personal characteristics. The project manager should understand the technology involved in the project. The word technology in this perspective is used in the sense of a method followed to achieve a practical purpose. A study by Cleland (2004) showed that leadership also requires that individuals set and adhere to the highest levels of honesty and integrity. Without these two critical characteristics one can never achieve the full measure of leadership [2].

In the changing, complex world of project management, researchers and theorists believe that tomorrow's project managers cannot successfully emerge without having learned the skills and developed the attitudes of followership. Cleland (2006) also showed in his research that successful leaders must be adaptive and flexible, always aware of the needs and motivations of those whom they try to lead. "Leaders must be aware of how they perform as leaders and how their behaviour affects the performance of those on whom they depend [3]."

2.4 EXISTING LEADERSHIP MODELS

According to the Eskom Northern Region project management team, the project management department does not have any model for developing the project leadership skills of newly appointed project managers to become outstanding leaders in the project management environment. However, they are working on developing such a model and this study will be tested in the department after the final survey results have been concluded and accepted [10].

Cleland (2004) showed that the most essential element of project management is competent and confident leadership. Leadership provides purpose, direction, motivation, and coaching to the project team for successful project completion. According to Cleland, project team members have fundamental expectations from their leaders. These include as a minimum the following, depicted in his model of leadership in Figure 2.1.

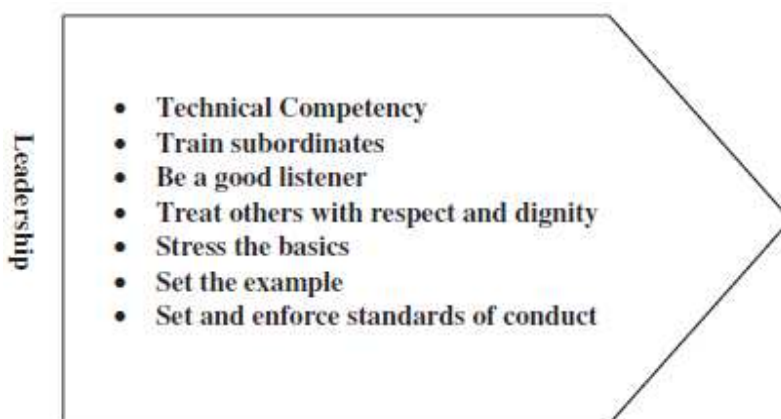


Figure 2.1 Cleland’s (2004) model of leadership [2]

The mandate for competent project leadership is simple and compelling. Failed projects are not as much technically challenged as they are leadership challenged. Project leadership is also both within the project and senior management decision making. “Leaders possess and demonstrate traits that are of significant value in gaining the willing obedience, confidence, respect and loyal cooperation of the project team members.” Figure 2.2 identifies the skills and traits of a good leader.



Figure 2.2 Cleland’s leadership skills and traits [2]

According to Cleland (2004:5.9-5.10), leadership may be characterized by three factors: those being led, those leading and the situation.

The project team are typically **those being led**. However, others can be influenced by project managers who show leadership, and should also be considered in this

category. How the individuals are led depends upon the level of training and skill levels that they possess [2].

The project manager must differentiate between those who have the abilities to do the job and those who don't. Individuals with lower skill levels will need more coaching and often more detailed instructions on their work than those who have mature skill levels. The leader must encourage and reward those individuals with the lower skill levels as they demonstrate increased capability [2].

Project managers are **those who are leading** and they must not only lead, but they must be seen to lead. Project managers who are leaders must be visible to those being led and there must be demonstrated acts that make clear who is leading. The term "leader" implies that one is in front of the project team and that person is responsible for the project. Leaders must have an honest understanding of who they are, what they can do, and what they know. Own strengths, weaknesses, characteristics, and limitations must be recognized by the leader so that self-control and discipline can be exercised [2].

Therefore, project managers must capitalize on strengths and capabilities while avoiding the weaknesses and limitations. Being a leader means continually improving one's self and growing in all aspects of interpersonal skills. This means that a project manager who is a leader must demonstrate character and trustworthiness to those being led to ensure there is confidence in his ability to lead [2].

Leaders find **the situation** differs in encounters with individuals. The first act is to assess the situation prior to taking actions. A leader may want to compliment an individual on some accomplishment in front of peers. On the other hand, a leader may wait until there is privacy before counselling an individual for poor behaviour. Therefore project managers who are leaders look for desired outcomes in all situations. It is seldom proper behaviour for a leader to shout or raise the volume of his /her voice [2].

Leaders must stay calm and clearly communicate the desired outcome. Shouting is only appropriate in emergency situations where this sudden shift of behaviour will result in immediate response for safety of human life. This means that a project manager must select the proper timing for corrective counselling. Some behaviour requires immediate response by the leader while other behaviour can wait [2].

According to Cleland, there are eleven principles of leadership identified for project managers and project leaders practicing leadership and they are shown in Figure 2.3.

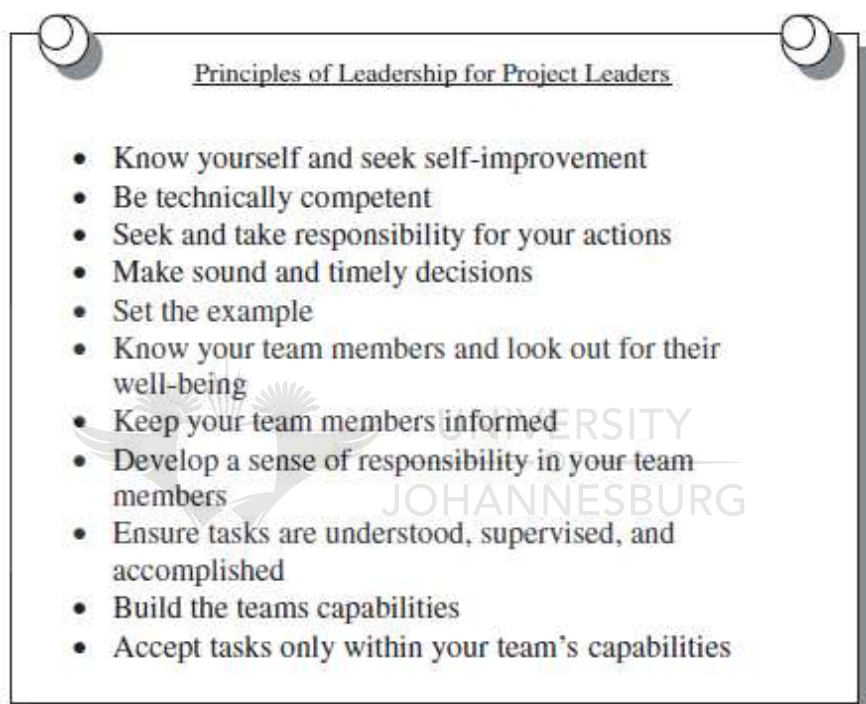


Figure 2.3 Cleland's principles of leadership for project leaders [2]

According to Palmer (2008:9) in his leadership book, "Ultimate Leadership", regardless of the kind of organization, a leader must master and apply the following principles [11]:

- A leader at all times must embody a personal integrity, which is the foundation of leadership.
- A leader applies basically the same principles of leadership regardless of context, but the style of execution is very different in different contexts.

- In times of crisis, a leader must step out ahead of the followers and make the difficult decisions without consensus and at times even without adequate explanation in order to resolve the threat to the organization.
- In today's global marketplace, leaders need to foster innovation at all levels of the organization, and that means listening to team members.
- A leader's most important and essential attribute is good judgment.
- A leader must build confidence among the followers.
- A leader must communicate the leader's goals to the entire organization.

This means that for a newly appointed project manager to become a leader in the project management environment, all of the above leadership principles according to Russell must be met.

In their book titled "Leadership theory, application and skill development", Lussier and Achua (2004:33) showed that there are nine traits of effective leadership identified for project leaders, as shown in Figure 2.4 [4].

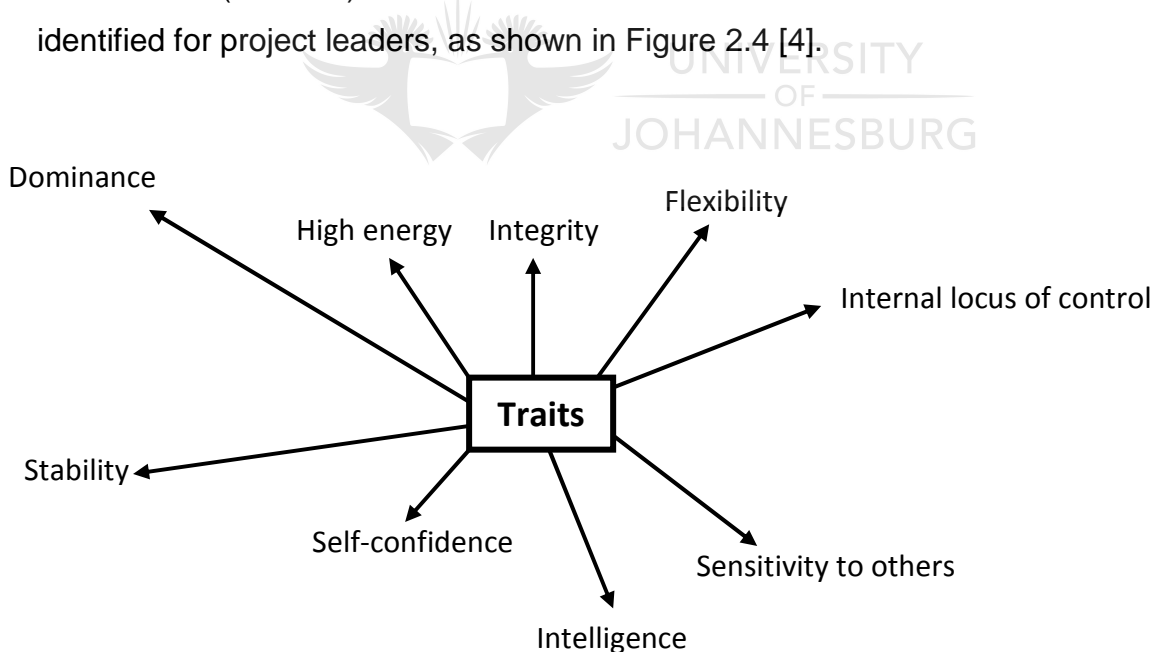


Figure 2.4 Lussier and Achua's traits of effective leaders [4]

2.5 CONCLUSION

Cleland's (2004) leadership model and Lussier and Achua (2004:33) traits of effective leaders are used in this study as a starting point to develop a project leadership model that will be utilised to enhance the project leadership skills in newly appointed project managers in the Eskom Northern Region. Chapter 3 describes the research methodology and shows step by step how the project leadership model was developed.

The project leadership model is designed based on the definition of the project leadership that was given in this chapter. Project leadership in this study is defined as *“the art of assisting, persuading and influencing others to develop skills such as and not limited to; technical competency, conflict management, coaching & mentoring, listening & communication, stressing project management basics, setting example by being honest and showing integrity, treating team members with respect & dignity, and setting & enforcing project management standards of conduct”* [2].



CHAPTER 3

3. RESEARCH METHODOLOGY & MODEL DESIGN

3.1 INTRODUCTION

This chapter details the project leadership model design and the research methodology to be employed in this research. As discussed in chapter 2, the literature on project leadership describes some of the background on the evolution of leadership and presents some of the fundamental concepts of leadership that have been developed by theorists and practitioners to explain the nature and process of leadership in project management. As a starting point, the literature review of these different researchers and theorists was applied in the project management view point in order to address and develop a project leadership model that will be tested in the Eskom Northern Region. The data to test the model was collected by means of a survey of members of the project management department in Eskom Northern Region.

3.2 RESEARCH APPROACH



For data collection purposes, a questionnaire has been developed to ensure that quantifiable data is collected. The research methodology provides a step by step guide to the research activities.

3.2.1 Methodology and Rationale

This section discusses the details of the research methodology and justification that was followed in this research study.

Step 1: The starting point of this research was to review the literature of different researchers and theorists on leadership and project management (in the project management view point) in order to develop a project leadership model. This literature was used as a benchmark for tracking an improvement on project leadership skills in newly appointed project managers.

Step 2: Five hypotheses were proposed to be tested and used in the development of the project leadership model in the Region in order to enhance the project leadership skills in newly appointed project managers.

Step 3: A questionnaire was compiled for two individual departments (Project Engineering and Project Management). The same questionnaire was distributed to project managers and project engineers.

Step 4: A sample area was selected to be used in the research. The Eskom Northern Region project management and project engineering departments were used as a sample as far as the research records are concerned. However, the questionnaire was issued to all the project managers and engineers in the Region and also to all the project managers who consult to the Region.

Step 5: A project leadership model was developed and tested by issuing the questionnaire to all the project managers and engineers in the Region and also to all the project managers who are consulting to the Region.

Step 6: The project managers and project engineers in the Region were issued with the questionnaire. The questionnaire took approximately 10 min to complete and completion of the questionnaire was voluntary and all respondents anonymous. The respondents from the participants were consolidated and correlated with the proposed hypotheses.

Step 7: The data from Steps 3, 4, 5 and 6 was correlated to finalise the development of the project leadership model and the model was presented to the project management top managers for their support and approval. Figure 3.1 summarises the above steps in a block diagram.

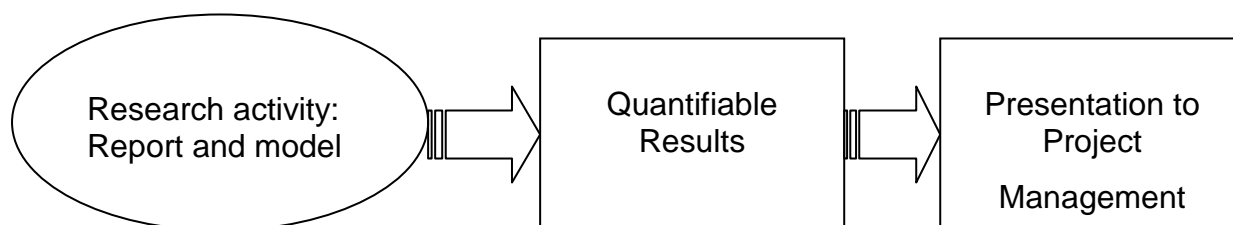


Figure 3.1 Research methodology block diagram

3.2.2 Development of the Questionnaire

Prior to the development of the questionnaire, the researcher and the Capital Portfolio manager (Eskom Northern Region) identified critical competencies that newly appointed project managers will require to enhance their project leadership skills in the project management environment. Four critical competencies namely technical competency, conflict management skills, leadership skills and coaching and mentoring skills were identified. Thereafter, questions were created to test if experienced project managers and project engineers will offer the assistance, influence and persuasion on newly appointed project managers to develop and improve the four competencies. Based on these questions, a questionnaire was developed to test the project leadership model shown on Figure 3.3.

3.3 RESEARCH DESIGN

The type of research applied in this study is applied research. This is because it entails the evaluation of existing methods of enhancing the project leadership skills in newly appointed project managers and those proposed by other researchers. The research is focused on developing and testing a project leadership model that will benefit the Region by improving project leadership skills in the project management environment.

Figure 3.2 shows a block diagram of the strategy for this research. Each block is discussed in the subsections from 3.3.1 to 3.3.5 below.

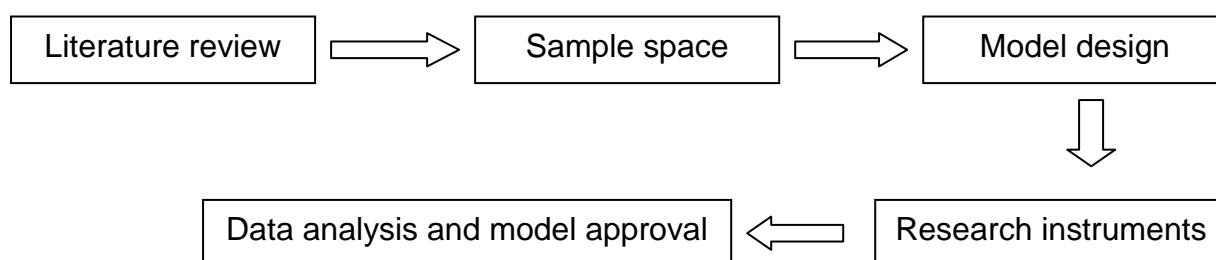


Figure 3.2 Research strategy block diagram

3.3.1 Literature review

The details of the review are discussed in chapter 2.

3.3.2 Sample space

The sample space was the Eskom Northern Region project management and project engineering departments.

3.3.3 Research instruments

A questionnaire that obtains relevant data was developed. This questionnaire was issued to the relevant project managers and project engineers. The objective of the questionnaire for both departments was to:

- Establish a need for project leadership skills development in newly appointed project managers and
- Obtain improvement in efficiency, performance and productivity of projects.

An excel data processing tool was also developed to analyse the data collected from the questionnaire. Table 3.1 shows a table of the research instruments utilised in this study.

Table 3-1 Research instruments

Research instrument	Purpose
Questionnaire	Collection of data from project managers
	Collection of data from project engineers
Excel tool	To process collected data

3.3.4 Model design

The details of the project leadership model design are discussed in chapter 3, section 3.4.

3.3.5 Data analysis and model approval

In this phase, the collected data was analysed and put into perspective. An important aspect of this phase was that if the survey showed no need to develop a project leadership model then the model will not be implemented, but should the need exist, then the model will be implemented and the improvements in the Northern Region project management department will be analysed.

3.4 PROJECT LEADERSHIP MODEL DESIGN

The model was developed using the leadership model of Cleland (2004) and Lussier and Achua's traits of effective leaders as starting points. The study proposes relationships between project leadership roles based on; technical training (TT), technical competency (TC), conflict management (CM), leadership skills (LS) and personal characteristics (listening and communication skills, stressing project management basics, honesty and integrity, treating team members with respect & dignity, setting & enforcing project management standards of conduct), and coaching & mentoring (C&M) of newly appointed project managers (NAPMs). The five hypotheses proposed in section 1.4 in chapter 1 have been discussed fully in this chapter. Figure 3.3 shows the proposed project leadership model to be tested.

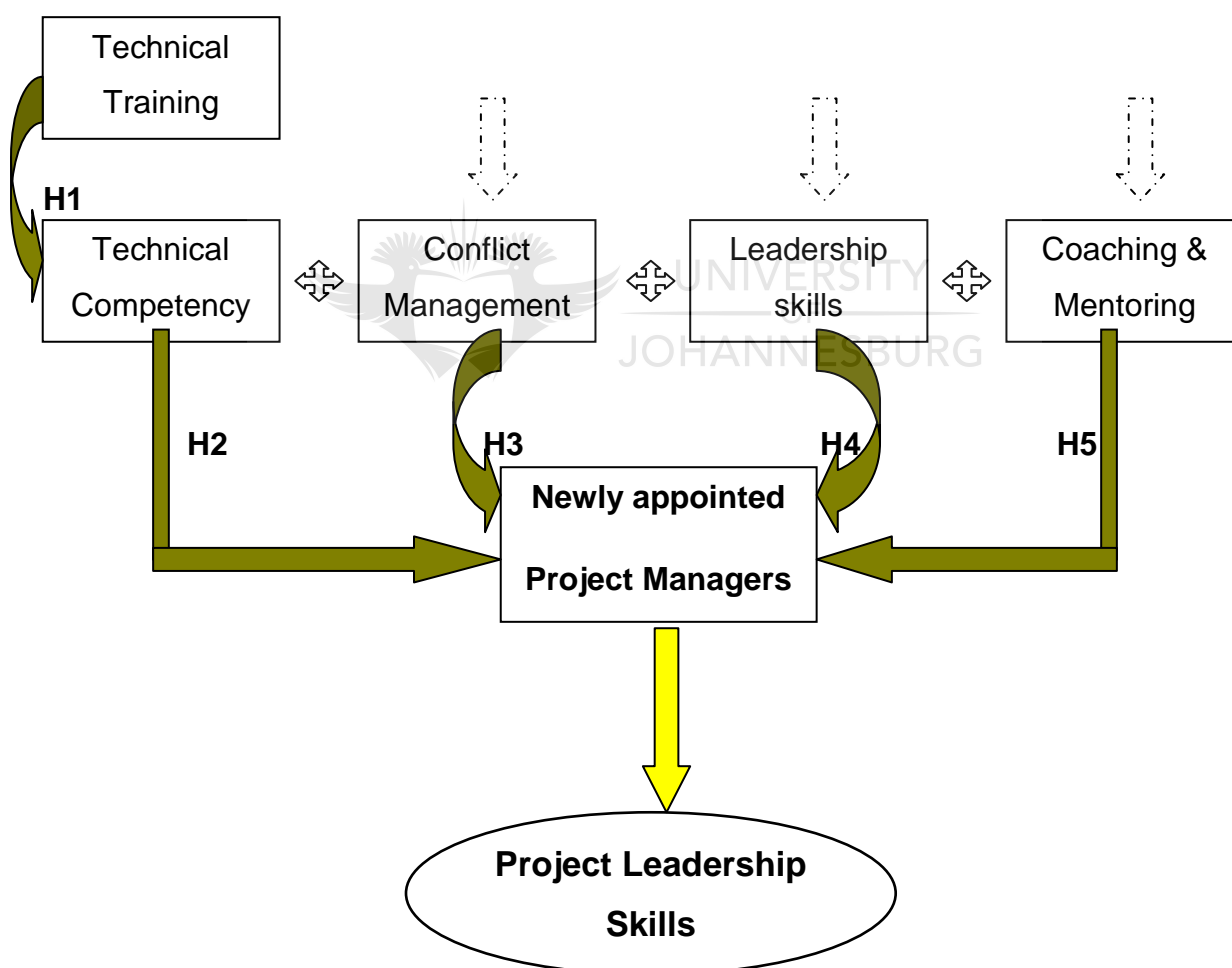


Figure 3.3 Project leadership model to be tested

Purpose, direction and motivation have been identified as playing a role in building leadership skills in the project management environment. Purpose assists newly appointed project managers and team members with universal scope of the project and tasks to be performed. Using purpose as the channel, team members and newly appointed project managers can then be a part of the leadership development process. Direction provides newly appointed project managers information and describes the tasks and priorities to be accomplished. With proper direction, newly appointed project managers are guided to perform the work to the mandatory levels of workmanship. Motivation provides newly appointed project managers with information on the significance of the project work and instils in them the spirit to complete the project. This is where the focus on accomplishing the project's work under adverse conditions is provided [3].

It was therefore proposed that purpose, direction and motivation may promote provision of technical training to newly appointed project managers through technical engineers and experienced technical competent project managers. Figure 3.4 shows the assistance and the persuasion from experienced project managers to newly appointed project managers (NAPMs) to achieve enhanced project leadership skills.

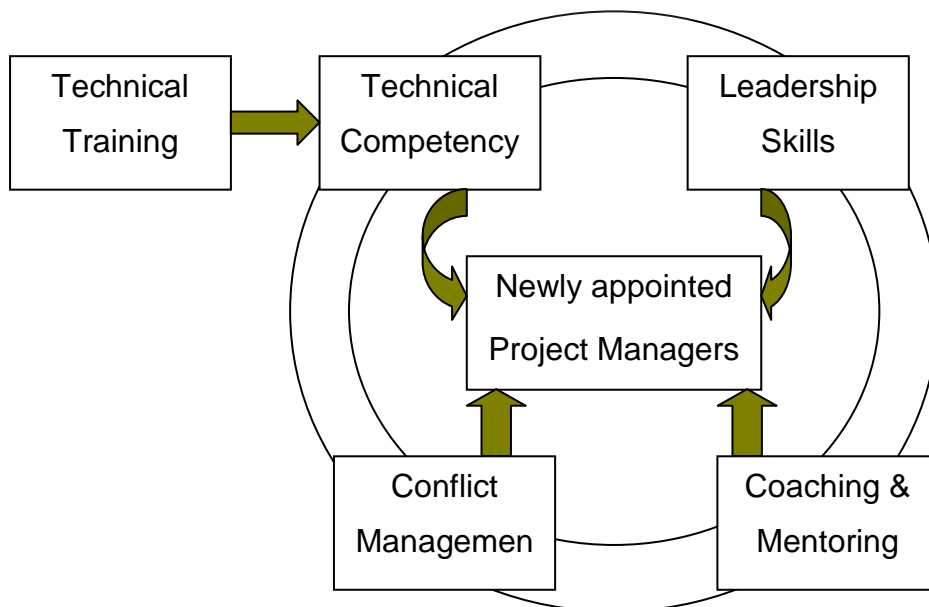


Figure 3.4 Project leadership skills to be enhanced in NAPMs

3.4.1 Technical Training and Technical Competency

A project manager who has developed a project plan has taken an important step in becoming a good leader in the project management environment. A study by Cleland (2004) showed that leaders must move beyond formal training programmes to reinforce the principles and practices of their profession. Leaders must take time to share experiences and the benefits of their knowledge with individuals [2]. In another study by Cleland (2006), he found that a project manager with the purpose of developing into a good leader triggers the power of motivation in newly appointed project managers and guides them towards the right direction. Leaders must demonstrate (technical) competency in the project management profession through knowledge and practices of the profession [3].

A motivated project manager enhances project leadership skills by having purpose and direction to achieve organizational goals. The nature of complex projects, both the technical and the organizational aspects, places significant demands on project managers. Cleland's (2006) study showed that individuals expect and demand that leaders be confident of their ability to plan and execute projects [3].

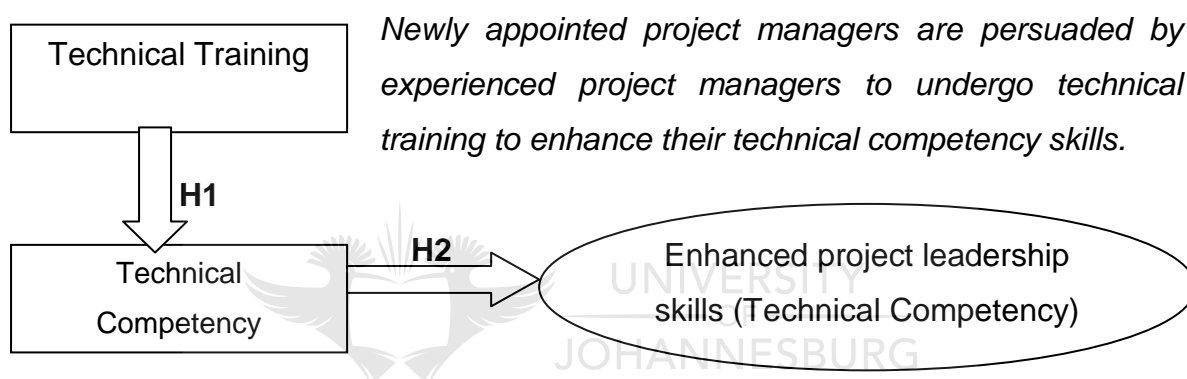
Project managers who are committed to the project and its completion are more likely to be technically competent organizers of the team [3]. Cleland's (2004) study showed that project managers who are technically competent understand the dimensions of a project within its organizational environment. Cleland (2004) other study showed that the role of a project manager who is technically competent is not simply to state the project objective, goals, and strategies, but to create a meaning for the project that team members and newly appointed project managers can rally around [2]. This means that such project managers will persuade newly appointed project managers to seek further technical training to improve their technical competency in project management.

Two hypotheses were therefore proposed:

H1 Technical training to newly appointed project managers will improve the newly appointed project manager's technical competency, and

H2 Project managers who are technically competent will provide good technical assistance to newly appointed project managers to develop project leadership skills such as technical competency.

Figure 3.5 shows a break-down of the project leadership model design (the first part being technical training and technical competency). Refer to Figure 3.3 for the “project leadership model design”. This Figure indicates the assistance to newly appointed project managers from technically competent experienced project managers to improve their project leadership skill(s) such as technical competency through technical training technical experience gained from working on projects.



Results: Newly appointed project managers who are technically competent in project management.

Figure 3.5 Technical training and technical competency

3.4.2 Conflict Management Skills

Conflict exists where people are in disagreement and opposition. In a work place such as the project management environment, conflict is inevitable because people don't see things exactly the same way. Organizational success is based on how well business conflicts are dealt with. Many leaders and project managers are constantly exposed to conflict. Thus, handling conflict constructively is an important leadership

skill. The project managers' ability to resolve conflicts will have a direct effect on his/her leadership success [4].

Conflicts can occur anywhere in the project and with anyone. Some conflicts are severe while others are easily solvable. In the past, conflicts were avoided when possible. Nowadays, it is believed that conflicts can produce beneficial results if the conflicts are managed correctly. There are numerous methods available to project managers for the resolution of conflicts. The methods vary, depending on the severity of the conflict, the person with whom the conflict exists and his/her level of authority, the life-cycle phase of the project, the priority of the project, and the relative importance of the project as seen by senior management [12].

Moreover, conflict will constantly arise in projects because of the momentary nature of a project team and the number of external interfaces the project manager must manage. Cleland's (2004) study also showed that preventing conflicts is the most effective method of managing situations that can generate conflict. The project manager must therefore ensure that all team members understand what is expected of them and that they are familiar with the project plan [2].

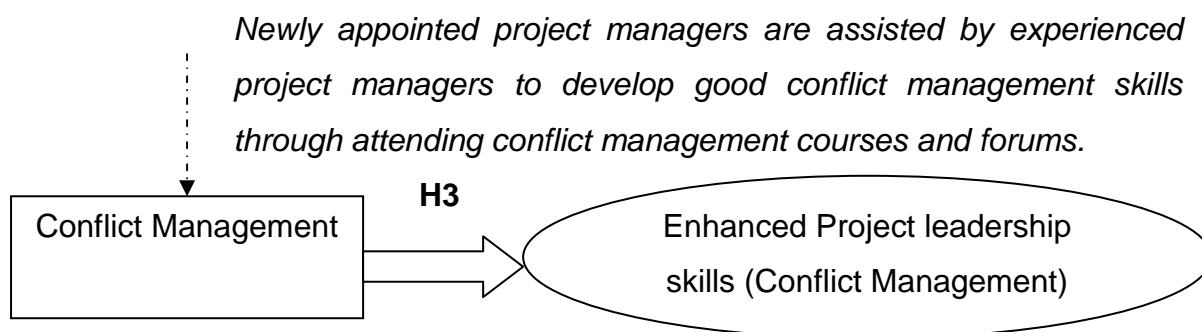
The project manager is responsible for acquiring the human and material resources needed by the project. He is also responsible for exercising leadership and dealing with obstacles that impede the project's progress. Finally, the project manager is responsible for making the trade-offs between budget, schedule, and specifications that are needed to ensure project success. To be successful at meeting these responsibilities, the project manager must be skilled at negotiation, conflict resolution, and persuasion [13].

The following hypothesis was therefore proposed:

H3 Project managers with good conflict management skills will provide good assistance to newly appointed project managers to develop project leadership skills such as conflict management skills.

Figure 3.6 shows the second part (Conflict management skills) of the project leadership model design. This Figure indicates the assistance from experienced

project managers with good conflict management skills to newly appointed project managers to improve their conflict management skills through attending conflict management courses and forums.



Results: newly appointed project managers with good conflict management skills.

Figure 3.6 Conflict management skills

3.4.3 Leadership Skills and Personal Characteristics

The nature of complex projects, both the technical aspects and the organizational aspects, place significant demands on the project managers who are working toward becoming the best leaders in the project management environment. However, one can never become a leader without good personal characteristics. It is believed that leadership comes from within; this means that for newly appointed project managers to develop good leadership skills, they must have good personal characteristics [2].

There are at least six fundamental leadership skills and personal characteristics that a newly appointed project manager must develop in order to improve his project leadership skills in the project management environment. These are and not limited to; listening and communication skills, setting example (honesty & integrity), understanding basics of project management, treating team members with respect and dignity, and enforcing project management standards of conduct.

Listening and communication skills

Listening is the process of giving team members and other project managers your individual attention. As the team member or other project manager sends the message, project managers should listen by paying attention, avoiding distractions, staying tuned in, not assuming and interrupting, asking questions, conveying meaning, analyzing, thinking, waiting to evaluate until after listening, checking understanding, and paraphrasing. On the other hand, communication has been acknowledged as one of the single biggest reasons for project success or failure. According to Lussier and Achua, communication is a major competency for leaders, because effective communication is part of leadership strategy [4].

Effectual communication within the project team and between the project manager, team members, and all external stakeholders is indispensable. Openness in communication is an entryway to teamwork and high performance. It improves relationships among project team members and creates reciprocal trust and respect. To communicate effectively, the project manager should be aware of the communication styles of other parties, cultural issues, relationships, personalities, and overall context of the situation. Alertness of these factors leads to mutual understanding and thus to effectual communication [14].

According to Lorin Woolfe (2002:87-96), the best ideas in project management are useless if not communicated in a compelling way and without frequent and appropriate communication of overarching ideas, mission, and vision, leadership in the project management environment would not exist today. Woolfe also showed that another key to effective communication is aiming the communication directly at the needs and wants of the audience (in this study the audience would be the team members and other project managers), speaking a language that they understand and with which they “resonate” on an emotional as well as cognitive level [17].

According to Lorin Woolfe (2002:103), it is relatively easy for project managers to listen when things are going fairly well. However, it takes a real leader to listen carefully and politely when team members are angrily pointing out serious management errors or taking issue with the basic strategy of the company. Woolfe

also showed that, project managers should be quick to listen, slow to speak and slow to become angry with the team members [17].

Leaders must take time to listen to team members with equal attention as one would give a senior manager. Listening identifies the important issues of the team members and permits resolution through problem solving. Leaders know their team members through listening [2].

Setting an example (honesty and integrity)

A good project manager leads by example. If newly appointed project managers and team members see the experienced project manager doing things in an effective and ethical manner, they will tend to copy the manager. Failing to show highest level of honesty and integrity in project management is failing to lead and to influence newly appointed project managers to develop good project leadership skills [4].

Project managers who are leaders in the department must set consistently high values and abide by these standards. By example, leaders encourage a commitment to these same values and individuals will emulate the leaders. It was shown by Cleland that leadership in project management requires that project managers set an example by adhering to highest levels of honesty and integrity because without these two critical characteristics one can never achieve the full measure of leadership. Cleland also showed that an organization with ethical code and system of safeguards can create more consistently honest leaders [2].

On his book titled "The Bible on leadership", Lorin Woolfe (2002:17-23) showed that honesty is the most frequently cited trait of a good leader in project management. Woolfe also showed that *"it doesn't matter how noble or worthwhile a project manager is esteemed; if he haven't earned the project team trust by constantly keeping his word and being true to his values, team members won't follow him to far."* Woolfe also showed that trusted project managers are believed by their team members even when their visions seemed unrealistic because of their integrity and honesty [17].

Understanding basics of project management

Leaders must demonstrate mastery of the fundamental skills of project management such as organizing, planning, assigning work, tracking work, and decision making. These and other skills must be taught to newly appointed project managers and team members through actions and by repetitively demonstrating them. By repetitively demonstrating the fundamental basics of project management to team members and newly appointed project managers, their project leadership skills will be improved and they will eventually become good leaders in their project management profession [2].

Treating team members with respect and dignity

Experienced project managers must always show concern and compassion for newly appointed project managers and team members. Each individual must be treated better than the leader himself would expect to be treated. The leader is in a better position to demonstrate respect and dignity to team members than the team members are to the leader [2].

Lorin Woolfe (2002:193-194) illustrated that although project management in a firm is not a democratic situation, project managers who do not lead with a basic sense of justice and fairness soon find that they lose the trust and loyalty of their team members. Moreover, they will gain a reputation with customers, suppliers and society at large that, in a crunch, they will use their personal power to make and enforce capricious decisions. If team members and newly appointed project managers perceive that they are being treated unfairly, they will stop performing or they will act like those who are perceived as favoured [17].

The most credible project managers are leaders who believe in fairness to all individuals and groups and act in consonance with these beliefs even when this is uncomfortable or difficult. Project managers who operate on principles of fairness inspire better performance, loyalty, retention, and good project leadership skills among team members [17].

Enforcing project management standards of conduct

Experienced project managers must know and enforce the project management standards of conduct established by the organization. Fundamental rules for safety, conduct toward newly appointed project managers and team members, and work standards must be reinforced and any deviations promptly corrected [2]. Lorin Woolfe (2002:154-174) showed that it is one thing for a leader to pursue just policies and actions from the outset. But often, for a newly appointed project manager to enforce project management standards of conduct, he must have the courage to confront and reverse injustices, some of which may have been promulgated by his organization [17].

Newly appointed project managers should be influenced by the experienced project managers not to compromise on the fundamental concepts of project leadership and not to settle for second-best performance. Through example and values, newly appointed project managers who are developing project leadership skills in the project management profession will succeed with project teams and will successfully complete projects on time and within allocated budget. Leaders should accept nothing less than the best from their team members [2].

The following hypothesis was therefore proposed:

H4 Project managers with good leadership skills will present good persuasion to newly appointed project managers to develop leadership skills such as listening & communication skills, stressing the basics of project management, honesty and integrity, treating project team with respect and dignity, and enforcing project management standards of conduct.

Figure 3.7 shows the third part (Personal characteristics) of the project leadership model design (*refer to Figure 3.3 for the project leadership model*). This Figure indicates the persuasion of newly appointed project managers by experienced project managers to develop good personal characteristics or good leadership skills.

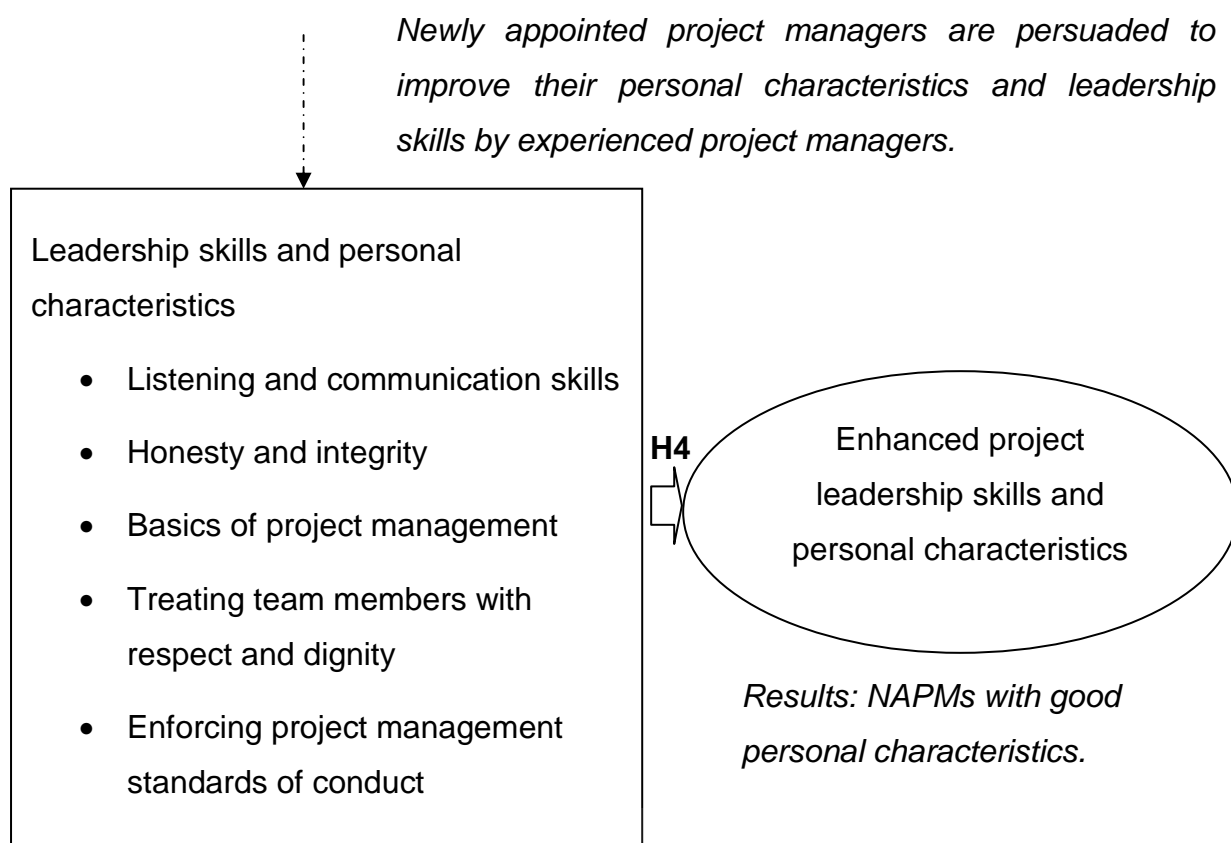


Figure 3.7 Leadership skills and personal characteristics

3.4.4 Coaching and Mentoring Skills

Coaching and mentoring skills are all about self-development, and that includes the coaches and the mentors too. Coaches and mentors in project management fully appreciate that dissatisfaction in newly appointed project managers' personal lives directly impacts their professional performance. Moreover, coaches and mentors must finely hone their skills, because newly appointed project managers should be listened to and heard on a regular basis. Coaches in project management should inspire newly appointed project managers to motivate themselves. This is best accomplished by allowing newly appointed project managers to see clearly where they stand in the organization versus where they want to be in their career [9].

Coaching is the process of giving motivational feedback to maintain and improve performance. Coaching in the project management environment is designed to maximize project managers' (especially the newly appointed ones) strengths and

minimize their weaknesses. Coaching helps leaders concentrate on goals, develop resiliency, and build interpersonal confidence. As a means of improving performance, organizations are training their newly appointed project managers to be coaches, and this trend is expected to continue because coaching boosts performance. As a project manager, developing coaching skills is an important part of leadership development in the project management environment [4].

Coaching is an important aspect for leadership and team building as it provides the development of team members to continuously improve their knowledge, skills, and abilities in the profession. According to the study by Cleland (2004), coaching is a fundamental leadership competency and this competency gives the project manager an enhanced opportunity to effectively complete the project as well as build stronger individuals and teams [2].

However, mentoring is a form of coaching in which a more experienced project manager helps a less experience project manager. Mentoring includes more than coaching, and it is more involved and personal than coaching. The primary responsibility of mentoring is to coach the less-experienced project managers by providing good, sound career advice and helping to develop the leadership skills necessary for a successful project management career [4].

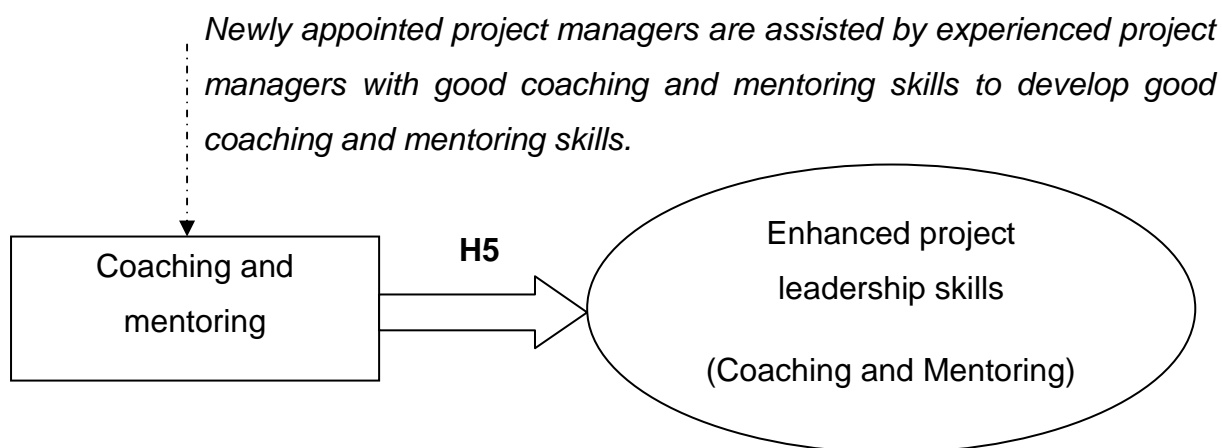
A lot is expected of coaches and mentors. They are expected to raise newly appointed project managers' self-awareness, self-confidence, and self-development. And when these three come together synergistically, the results are stronger project managers' performances with better coaching and mentoring skills, and a healthier working environment.

The following hypothesis was therefore proposed:

H5 Project managers with good coaching and mentoring skills will provide good assistance to newly appointed project managers to develop project leadership skill(s) such as coaching and mentoring skills.

Figure 3.8 shows the last part (Coaching and mentoring skills) of the project leadership model design. This Figure indicates the assistance from experienced

project managers (who preserve good coaching and mentoring skills) to newly appointed project managers to improve their project leadership skill(s) such as coaching and mentoring skills.



Results: NAPMs with good coaching and mentoring skills

Figure 3.8 Coaching and mentoring skills

3.5 CONCLUSIONS

In this chapter, the reader was introduced to the overall research strategy utilised in this study. The research methodology steps provided a clear road map of the research activities that were conducted. The project leadership model design was detailed and the five hypotheses proposed in chapter 1 section 1.4 were described in detail. The next chapter (chapter 4) provides a presentation of the results.

CHAPTER 4

4. PRESENTATION OF RESULTS

4.1 INTRODUCTION

This chapter provides a detailed presentation of the results obtained from the survey. The chapter outlines the results from the project managers and project engineers (both project management view point) feedback. Thereafter, the results were averaged in order to provide Regional quantitative data. The results from both project managers and project engineers are not for comparison; the combined results from both will be presented and not compared. The structure of the chapter is as follows: The sample space statistics are provided and then a summary of the respondents' feedback is presented.

4.2 PROJECT MANAGERS AND PROJECT ENGINEERS: FEEDBACK

Figure 4.1 shows a typical high level structure of project management department considered for the study. For the purpose of this chapter, project engineers in the Region are more technical and fully manage the definition and planning stages of the project life cycle while only giving inputs on the other stages of the project life cycle. On the other hand, project managers are an assortment of technical and non-technical personnel who manage projects throughout the whole project life cycle (definition, planning, execution, delivery and close-out).

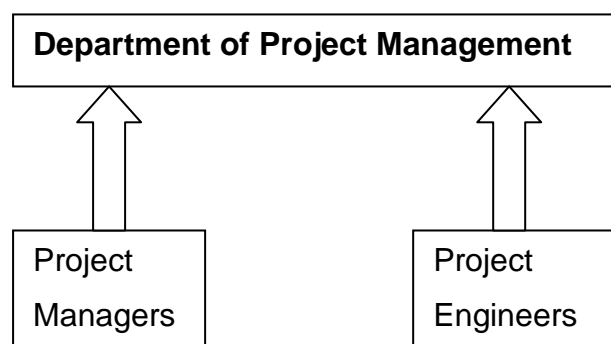


Figure 4.1 Project Management structure (for the study)

4.2.1 Sample statistics

Table 4.1 shows the sample statistics for both project managers and project engineers. The total number of respondents from the survey results was 61 out of a total of 186 questionnaires distributed to project managers and engineers. The response percentage for project managers was 29.2% and for project engineers was 41.8% with a combined percentage of respondents of 32.79%. Figure 4.2 shows the total number of respondents in bar-charts format.

Table 4-1 Sample statistics

Variable	Quantity
Number of project managers	130
Number of project engineers	55
Number of questionnaires issued (to project managers)	130
Number of respondents (from project managers)	38
Percentage response (project managers)	29.2%
Number of questionnaires issued (to project engineers)	55
Number of respondents (from project engineers)	23
Percentage response (project engineers)	41.8%
Total issued questionnaires	186
Total respondents	61
Total Percentage respondents	32.79%

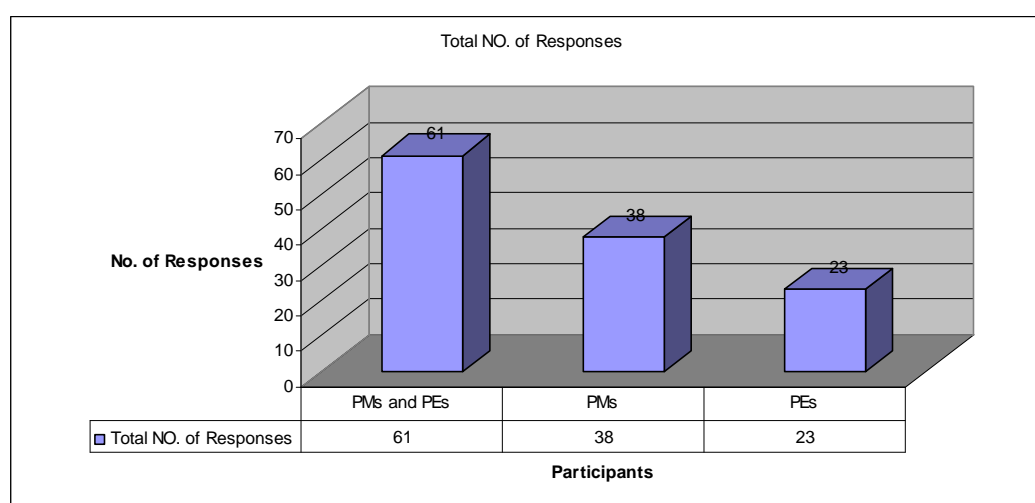


Figure 4.2 Total number of respondents in bar-charts format

4.2.2 Summary of findings

Appendix A shows the summary of findings from the survey results. Appendix B provides the questionnaire for the survey used to test the hypotheses proposed in chapter one from both project managers and project engineers' view point. Section A of the questionnaire shows the demographics of the participants, and section B presents the questions for testing the proposed five hypotheses and section C provides brief propositions on how to enhance project leadership skills. The same questionnaire was used for both project managers and project engineers.

4.3 INTERPRETATION OF THE RESULTS

4.3.1 Demographics

Figures 4.3 to 4.10 present the demographics covered on the questionnaire for both project managers and project engineers. Figure 4.3 and Figure 4.4 show the age distribution of the respondents. From Figure 4.3, the majority of responses from project managers, about 27% of respondents, fell in the 35-40 year old age group. This was followed by 24% who were in the 30-35 year old age group and 16% who represented the 25-30 year old age group.

Fourteen percent represented the 45-50 year old age group, followed by 8% and 5% who were in the 40-45 and 55-60 year old age group respectively. Three percent was represented by both the age groups of 21-25 and 50-55 and older project managers above the age of 60 are an uncommon group with 0%.

Figure 4.4 shows the age distribution of the project engineers with a majority of 40% of respondents in the 25-30 year old age group. This is followed by a 30% of respondents who were in the 30-35 year old age group. Thirteen percent and 9% fell in the 35-40 and 21-25 year old age groups. Four percent was presented by both the age groups of 45-50 and 50-55. Also for project engineers, older age groups of 55-60 and above the age of 60 are an uncommon group with 0%.

This is an expected distribution in that it shows that for one to be considered ready to take on project management duties a requisite number of years in the industry in project management is required after graduating from university or college.

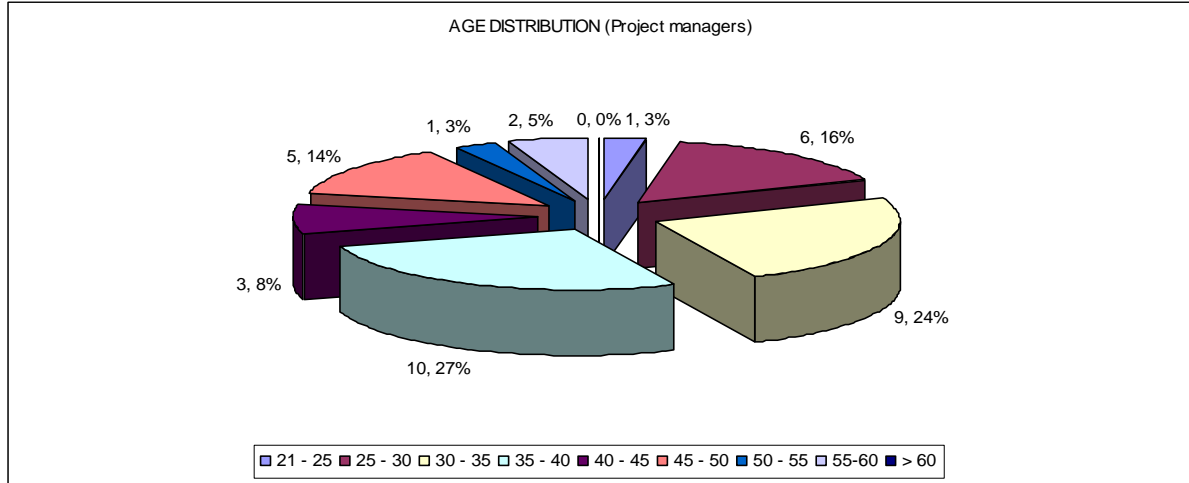


Figure 4.3 Age distribution (project managers)

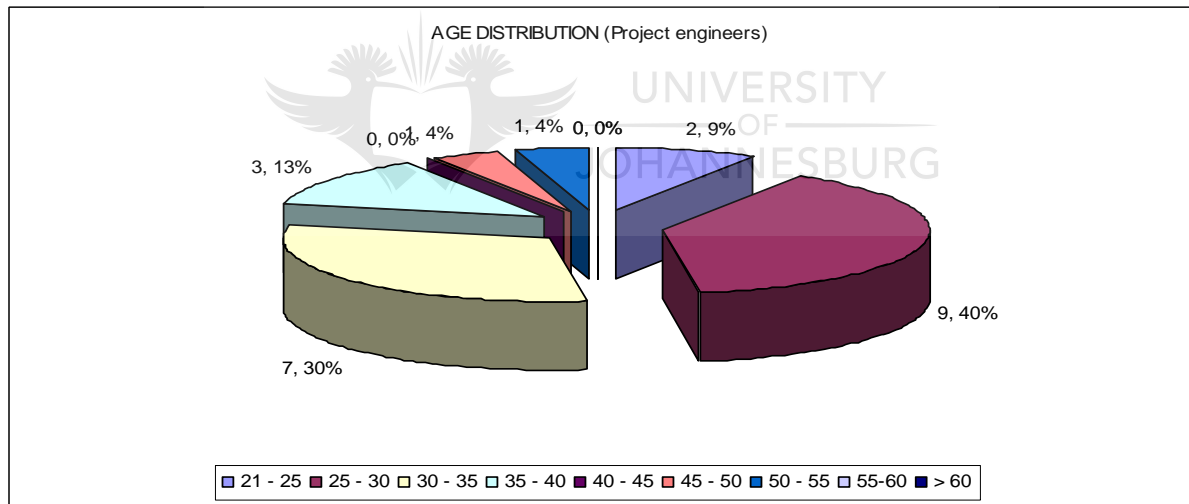


Figure 4.4 Age distribution (project engineers)

The majority of the sample (70% project managers and 79% project engineers) held Bachelors degree and Diplomas in electrical engineering as shown in Figures 4.5 and 4.6 respectively. This was followed by 8% of the project managers who held Bachelors degree and diplomas in Civil and Industrial engineering, and 13% of project engineers holding Bachelors degree and diplomas in Electronic engineering. Qualifications shown as other includes three project managers with degrees in

Financial Accounting, BCom Accounting and Internal Auditing, and one other qualification in Town and Regional Plan for a project engineer. In total 74.5% of all respondents were of a degree and diploma level in electrical engineering. This is because the sample space (Eskom distribution) is an electricity distribution industry. It is therefore not surprising that over 50% of the sample had electrical engineering qualifications.

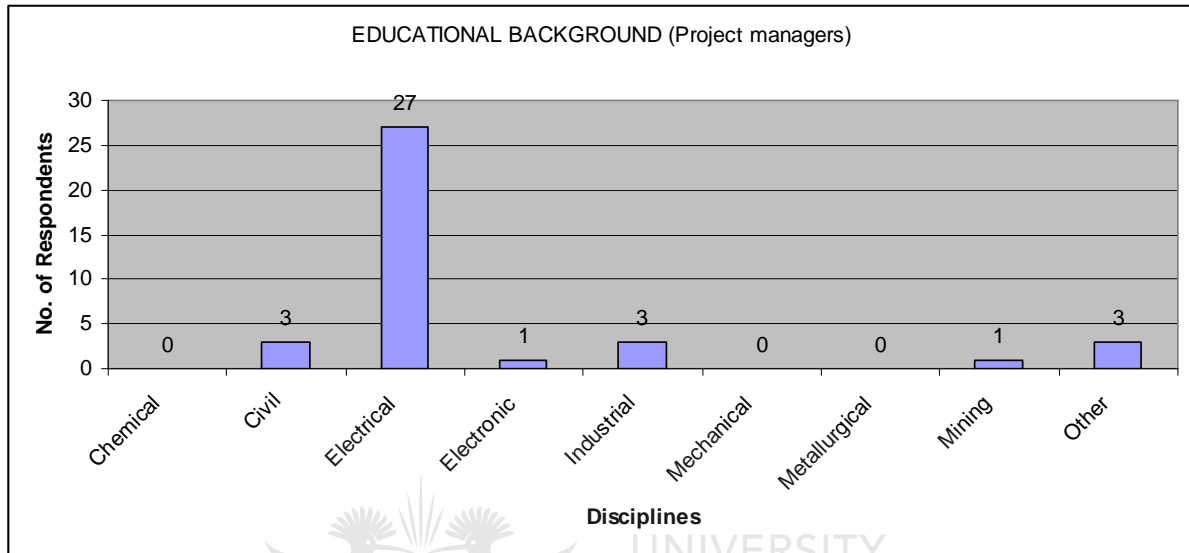


Figure 4.5 Educational background (project managers)

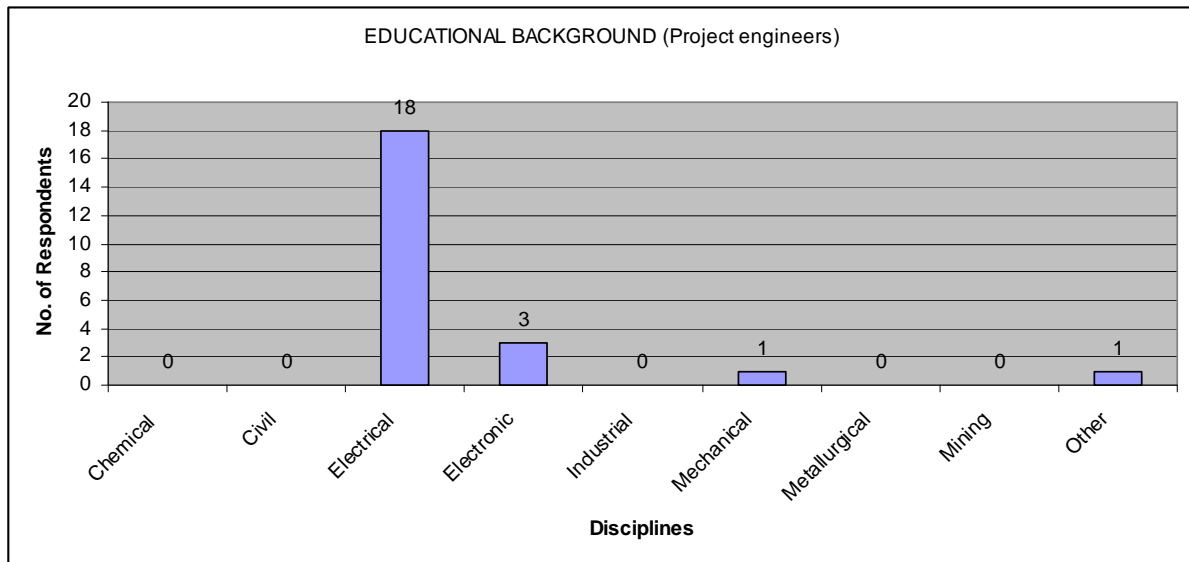


Figure 4.6 Educational background (project engineers)

Figure 4.7 and Figure 4.8 show the nature of contract with employer and the amount of experience in project management for both project managers and project engineers respectively. Out of the 61 total respondents, 59 of them have permanent contracts with the employer, with one temporary. One respondent did not disclose his/her contract status.

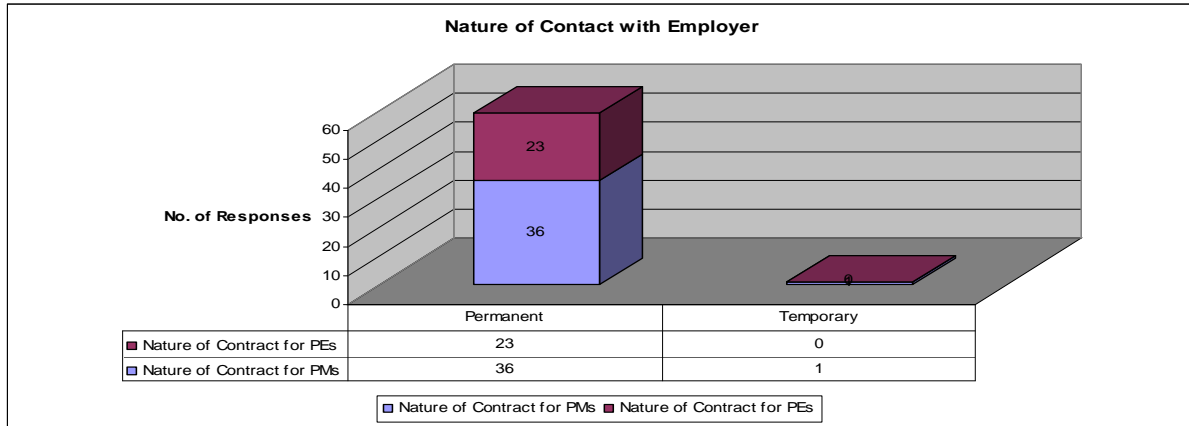


Figure 4.7 Nature of contract with employer

From Figure 4.8, the majority experience in project management for both project managers and project engineers is between 2–5 years (about 41%) with just 1.6% of experience of more than 20 years. This is an expected result in that the majority age distribution for both project managers and project engineers is between the age groups of 25-40 years old.

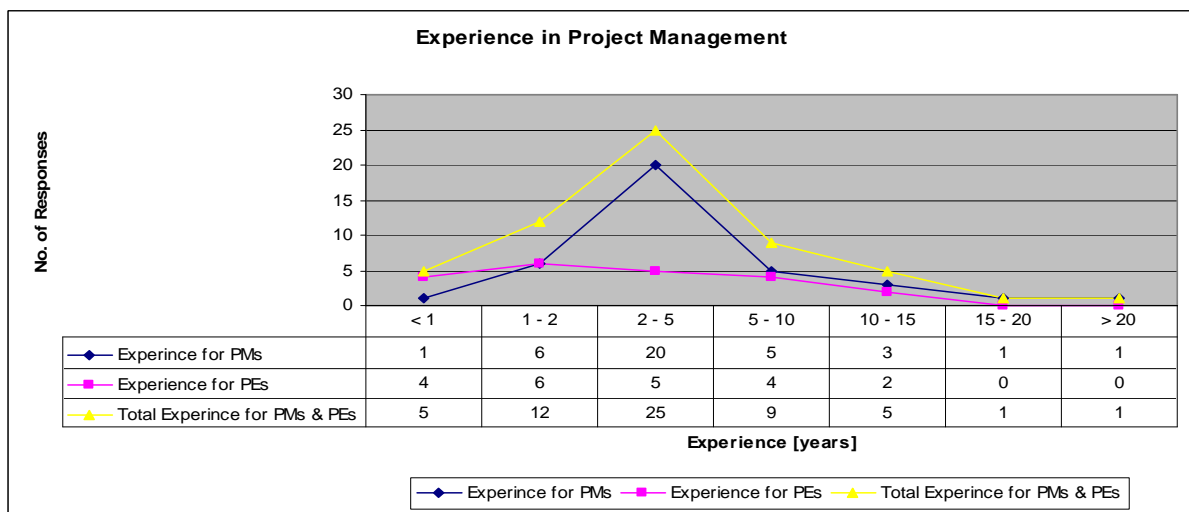


Figure 4.8 Experience in project management

Figure 4.9 shows the number of respondents for projects (>R 100 million) executed to date by project managers and project engineers who participated on the survey, and Figure 4.10 shows the total number of project managers who have been trained by experienced project managers and engineers to date.

From Figure 4.9, about 32.75% (19 out of 58 respondents) have not handled projects with capital of more than R 100 million, 27.58% (16 out of 58) have handled less than 10 projects with capital of more than R 100 million and about 13.78% (8 respondents) have handled projects between 10 – 20 followed by 12.06% of project managers and project engineers who have handled more than 50 projects with capital of more than R 100 million. About 6.89% of the respondents have handled about 20-30 projects and 5.17% respondents have handled projects between 30-40 with a minimum of 1.72% respondents who have handled between 40-50 of projects with a capital of more than R 100 million. This is expected because the majority respondents have less experience in project management (2-5 years experience).

From Figure 4.10, about 67.4% (35 out of 57) of respondents have not trained or coached any project managers, with the highest numbers of 14% of respondents (8 out of 57) who have trained or coached 2 project managers. Seven percent (4 out of 57) of the respondents have trained or coached more than 5 project managers to date. This result shows that for one to train new appointees, more years of experience in project management and good coaching skills are required.

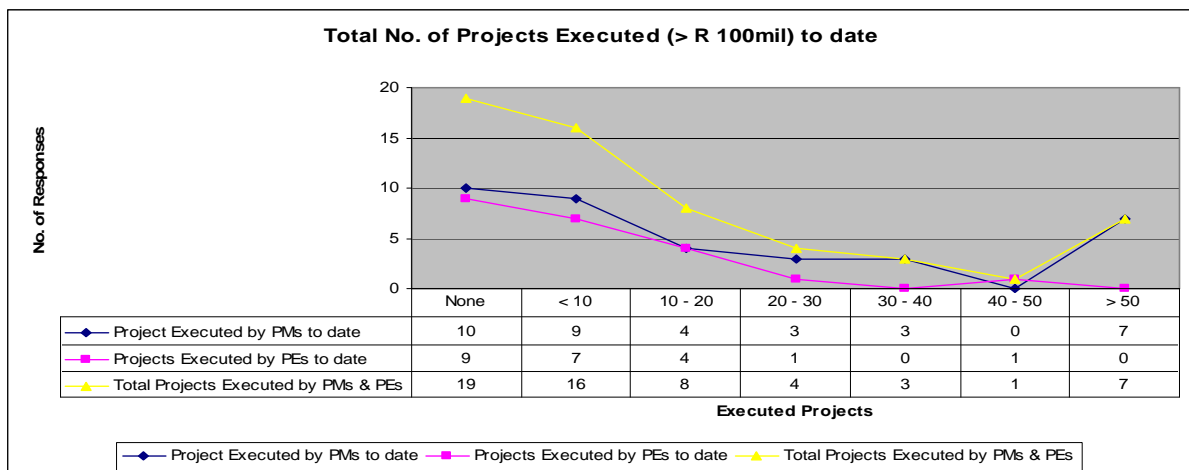


Figure 4.9 Projects (>R 100 million) executed to date

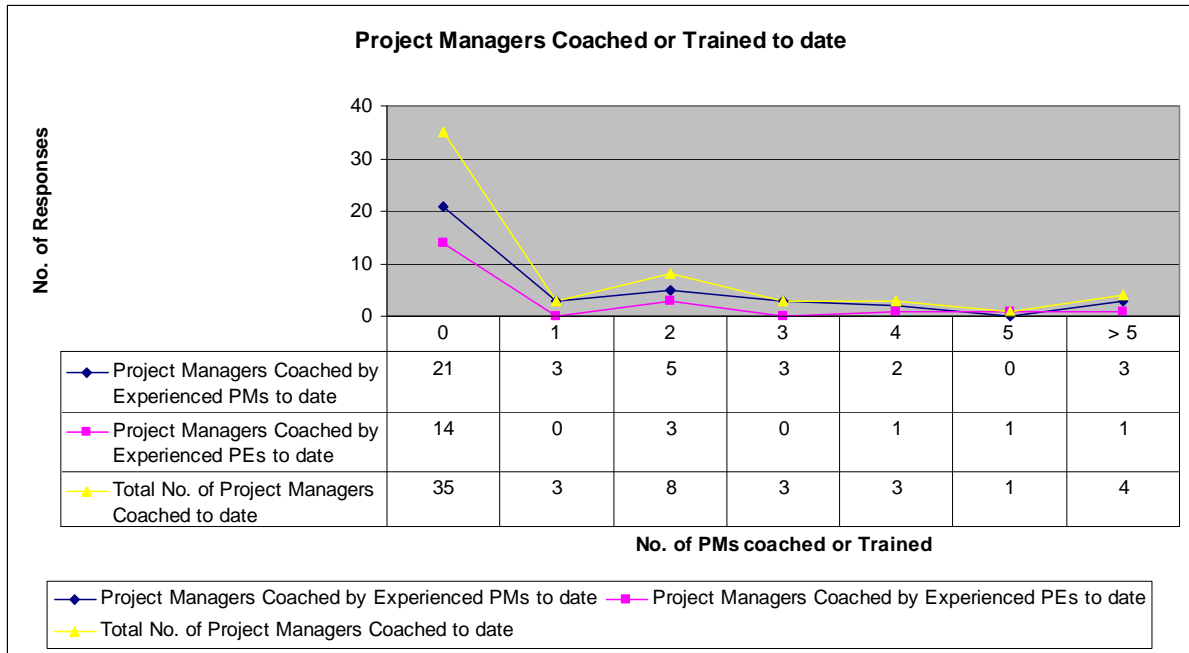


Figure 4.10 Project managers coached/trained to date

4.3.2 Technical training and technical competency

The first two hypotheses proposed in chapter 1 hypothesised that technical training to newly appointed project managers will improve the newly appointed project managers’ technical competency and project managers who are technically competent will offer good technical assistance to newly appointed project managers to develop project leadership skill(s) such as technical competency.

The survey results testing the two hypotheses are depicted on Figure 4.11 to Figure 4.16. Figure 4.11 depicts the total number of project managers and project engineers from the respondents with technical background. Figure 4.12 shows the total number of project managers and project engineers who attended technical training courses just after joining project management environment and Figure 4.13 shows the total number of respondents from the survey that agree or disagree that technical training will improve the technical competency of newly appointed project managers.

A total number of 77.05% (47 out of 61) of the respondents come from a technical background and 22.95% (14 out of 61) of the respondents have no technical



background. About 50.81% (31 out of 61) of the respondents attended technical training courses after joining project management department and about 95.08% of the respondents validate that good technical training will improve the technical competency of newly appointed project managers.

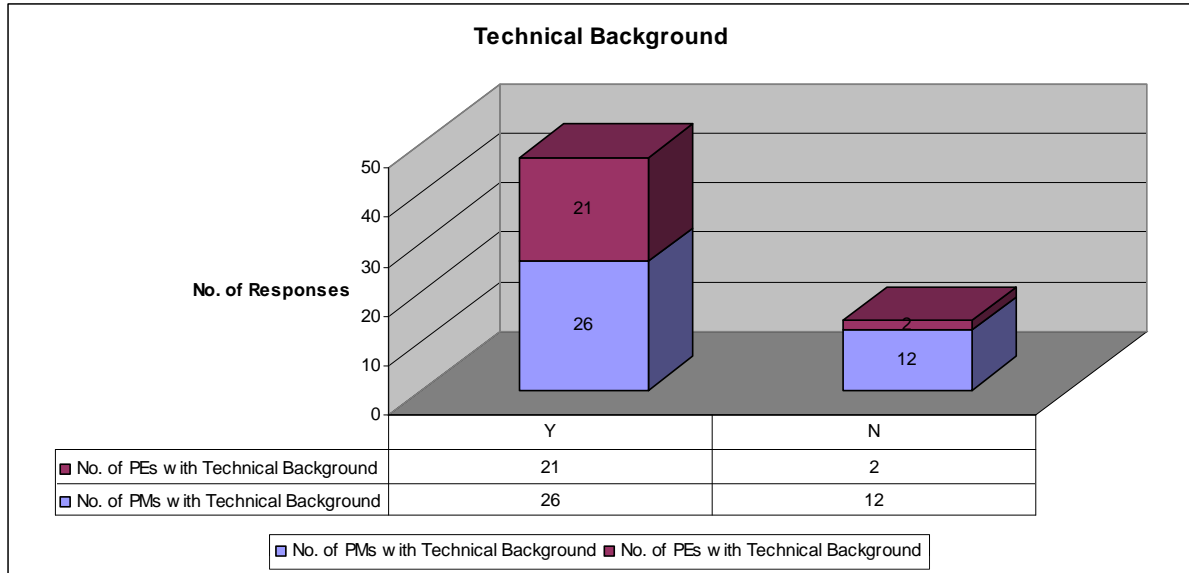


Figure 4.11 Project managers and engineers with technical background

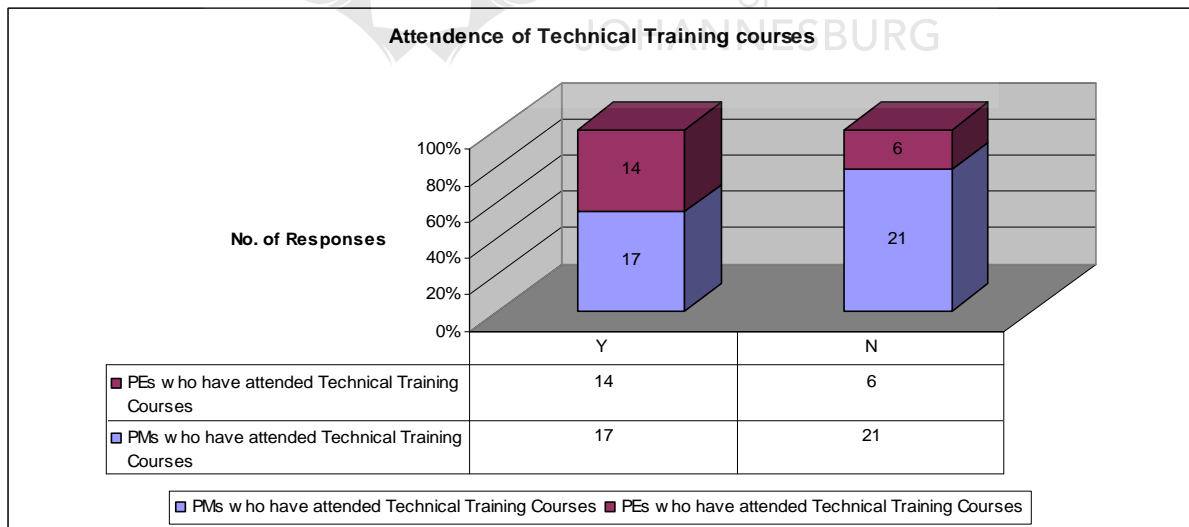


Figure 4.12 Attendance of technical training courses (Project managers and project engineers)

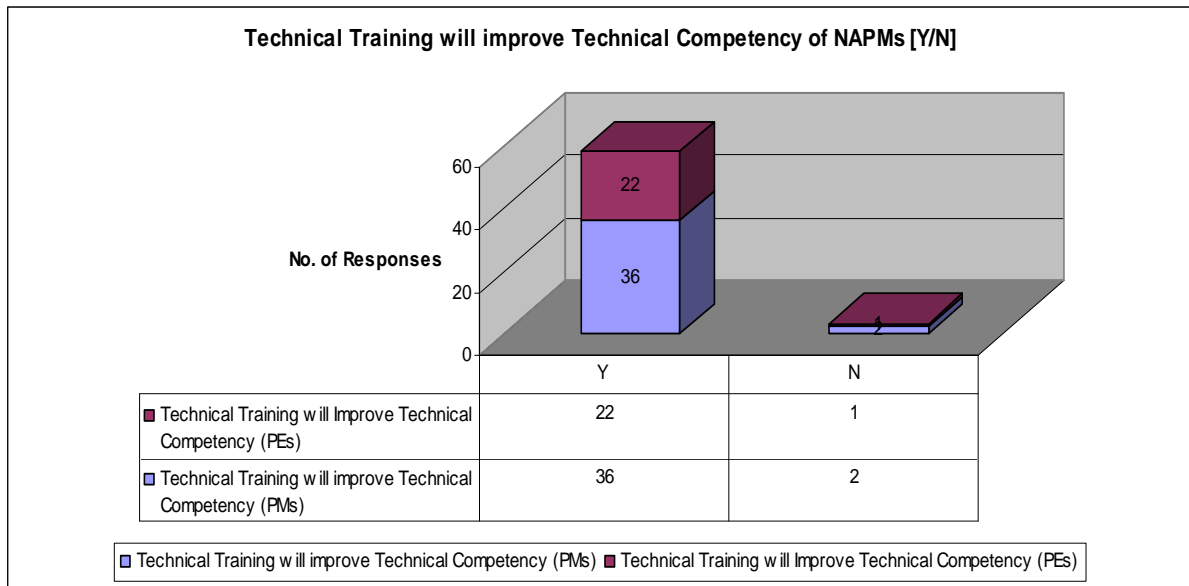


Figure 4.13 H1: Technical training will improve technical competency [Y/N]

Figure 4.14 depicts the improvement on the technical competency of the respondents after attending technical training courses. Figure 4.15 tests the significance of having technical competent project managers in the project management department. Figure 4.16 shows the intensity of technical assistance provided by technical competent project managers to newly appointed project managers and to team members in the organization to develop project managers with good technical skills. From Figure 4.14, about 31.67% of the respondents authenticated that attending technical training courses and experience gained from working on technical projects will improve the project managers' technical competency by far 5 out of 5 (where 1 is equivalent to poor and 5 is equivalent to excellent). About 33.33% (20 out of 60) and 16.67% (10 out of 60) of the respondents verified that 4 out of 5 and 3 out of 5 respectively, technical training courses will improve technical competency of newly appointed project managers.

From Figure 4.15, about 47.54% of the respondents validated that it is very important to have technical competent project managers in the project management department. Just below 20% (about 19.67%) authenticated that 4 out of 5 it's important to have technical competent project managers in the project management department. About 29.51% authenticated that 3 out of 5 it's also important to have technical project managers in the project management department.

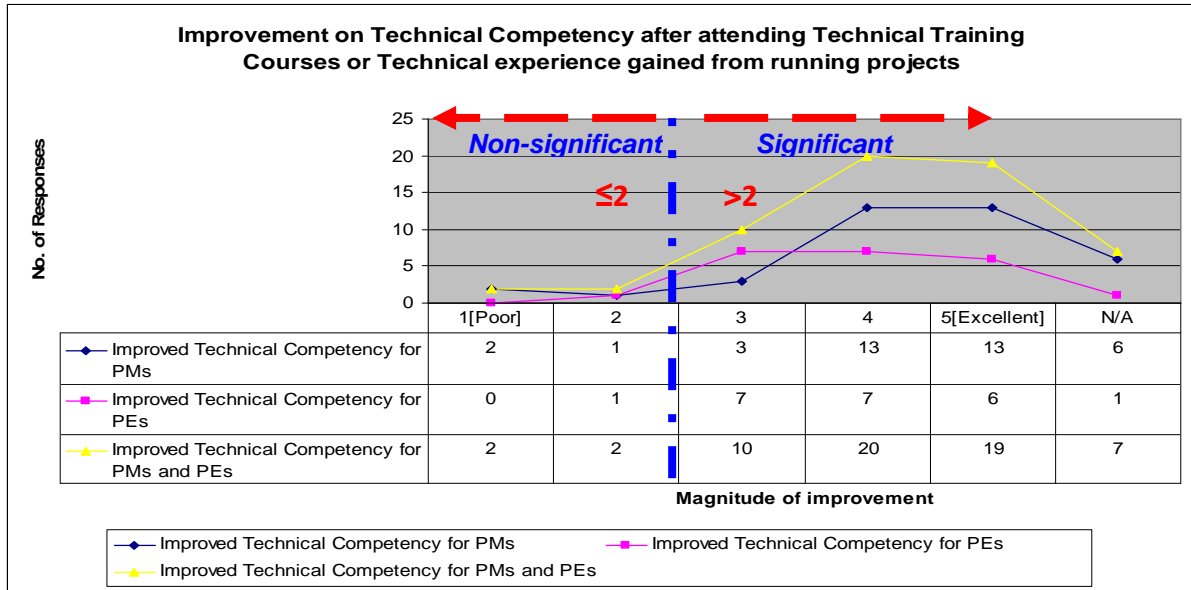


Figure 4.14 Level of improvement on technical competency

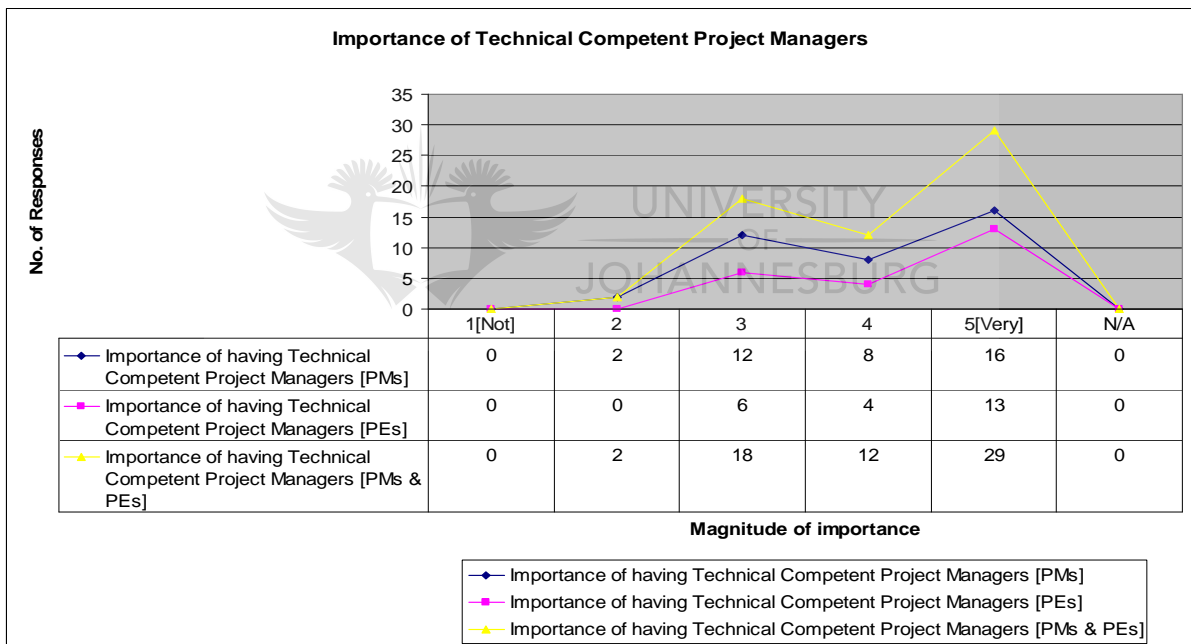


Figure 4.15 Magnitude of the importance of having technical competent project managers in the project management environment

About 49.18% (30 out of 61) of the respondents validated that experienced technical competent project managers will offer excellent (5 out of 5) technical assistance to newly appointed project managers to develop technical competency skills. About 24.6% and 22.95% of the respondents substantiated that 4 out of 5 and 3 out of 5

respectively, technical competent project managers will offer excellent technical assistance to newly appointed project managers. Only 1.64% of the respondents showed that technical competent project managers will provide poor technical assistance to newly appointed project managers to develop good technical skills.

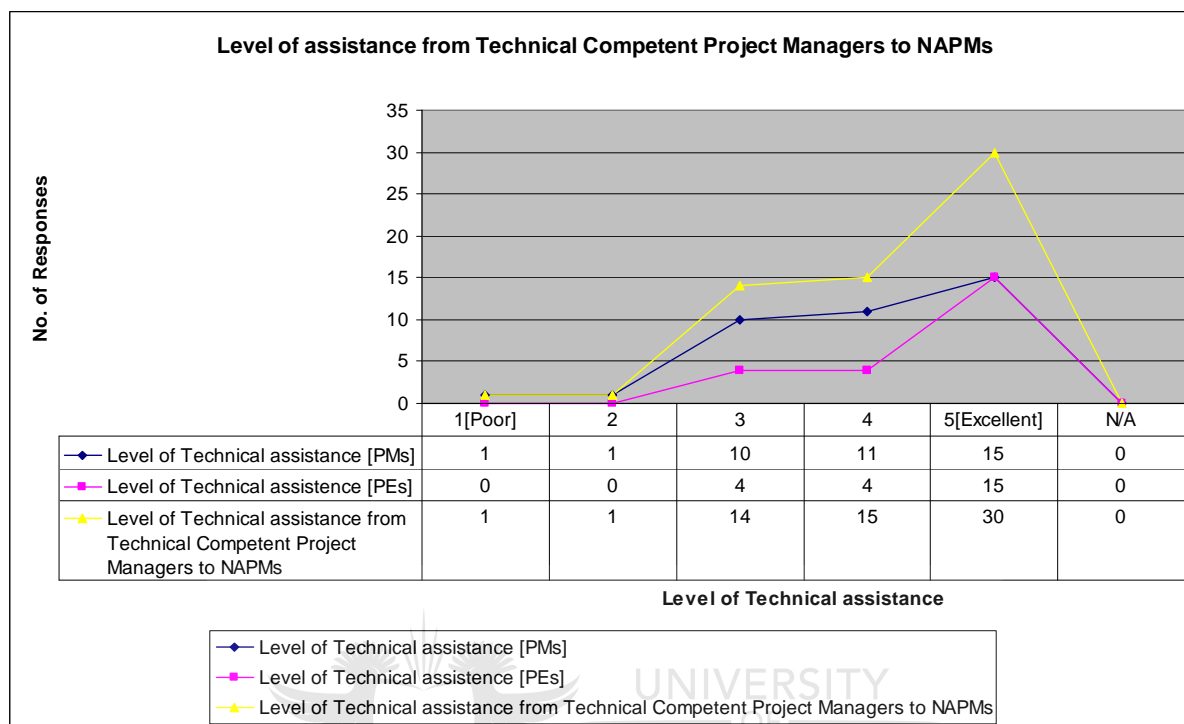


Figure 4.16 H2: Level of technical assistance to newly appointed project managers to develop superior technical skills (Technical competency)

4.3.3 Conflict management skills

The third hypothesis proposed that project managers with good conflict management skills will provide good assistance to newly appointed project managers to develop project leadership skill(s) such as good conflict management skills. The survey results testing the hypothesis are depicted on Figure 4.17 to Figure 4.20.

Figure 4.17 depicts the survey results confirming that attending conflict management courses will improve the conflict management skills of the newly appointed project managers. Figure 4.18 shows the total number of respondents from the survey corroborating the unavailability of having project managers with good conflict management skills in the project management environment. A total of 98.33% (59

out of 60) of the respondents validated that attending conflict management courses will improve the conflict management skills of newly appointed project managers. And again about 98.33% of the respondents substantiated the obligation of having project managers with good conflict management skills in the project management environment.

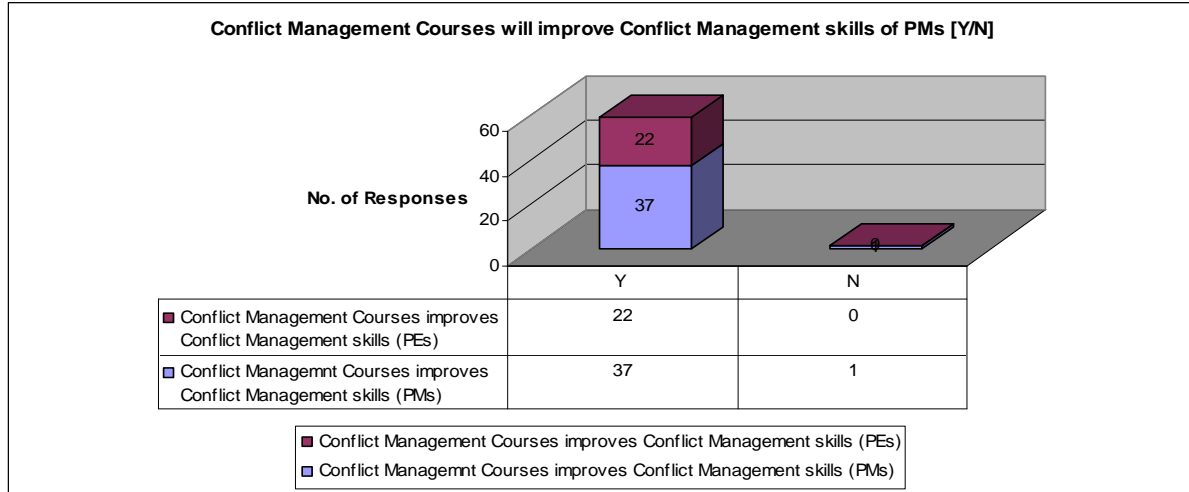


Figure 4.17 Conflict management courses will improve conflict management skills of the newly appointed project managers [Y/N]

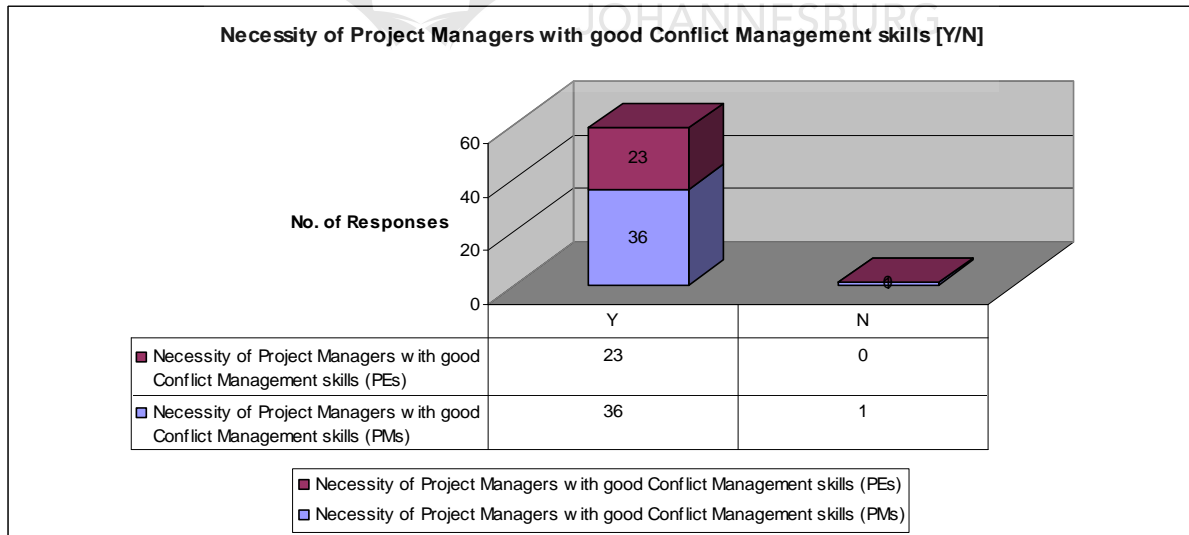


Figure 4.18 Necessity of having project managers with good conflict management skills

Figure 4.19 shows the dexterity at which project managers with good conflict management skills will handle conflicts throughout the whole project life and Figure 4.20 depicts the survey results on the intensity of the assistance that experienced project managers with exceptional conflict management skills will offer to newly appointed project managers to develop good conflict management skills. About 41.67% (25 out of 60) of the respondents showed that 5 out of 5 project managers with good conflict management skills will handle conflicts exceptionally well during the course of running projects. From Figure 4.20, 44.26% of the respondents consented that project managers with exceptional conflict management skills will offer excellent assistance to newly appointed project managers to develop good conflict management skills.

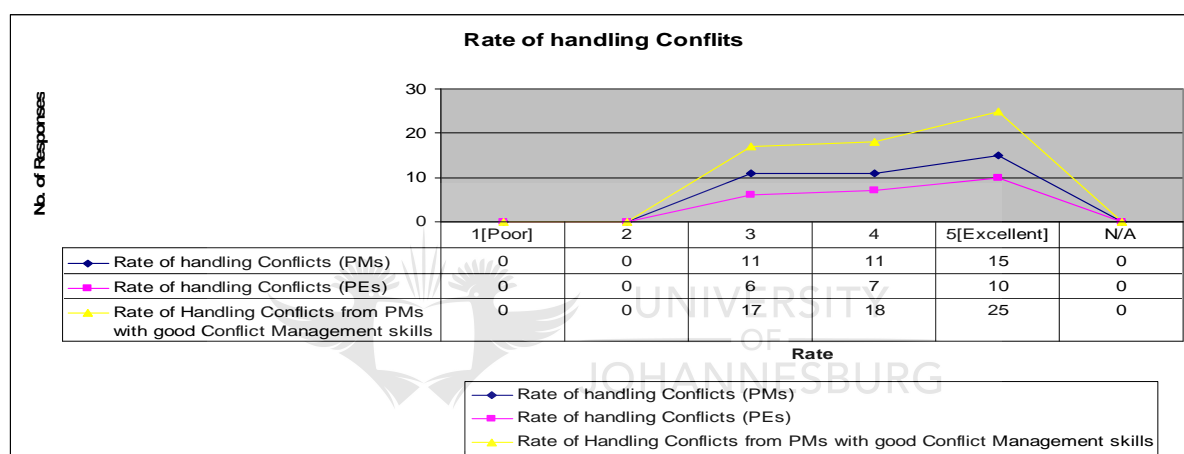


Figure 4.19 Dexterity of handling conflicts

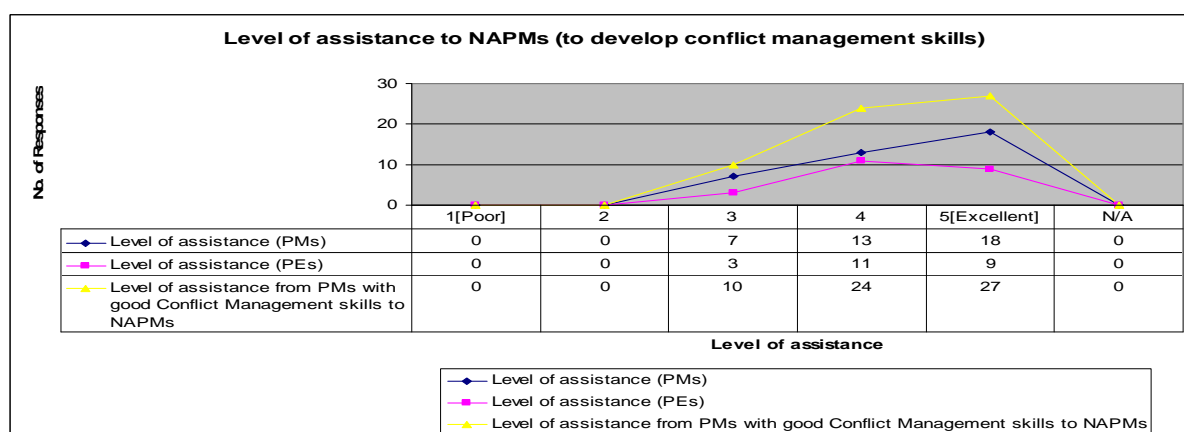


Figure 4.20 H3: Magnitude of assistance to newly appointed project managers to develop tremendous conflict management skills

4.3.4 Personal characteristics or leadership skills

The fourth hypothesis proposed that project managers with good leadership skills (these are the personal characteristics) will persuade newly appointed project managers to develop leadership skills such as listening and communication skills, stressing the basics of project management, honesty and integrity, treating project team members with respect and dignity, and enforcing project management standards of conduct. The survey results testing the hypothesis are depicted on Figure 4.21 to Figure 4.32.

Figure 4.21 shows the total number of respondents from the survey confirming the necessity of project managers to have good listening and communication skills, and Figure 4.22 depicts the survey results validating the intensity of persuasion from experienced project managers to newly appointed project managers to develop good listening and communication skills. A total of 98.3% (58 out of 59) of the respondents verified that project managers must have good listening and communication skills. Figure 4.22 shows that 45% (27 respondents) of the respondents validated that project managers with excellent listening and communication skills will present exceptional persuasion to newly appointed project managers to develop good listening and communication skills.

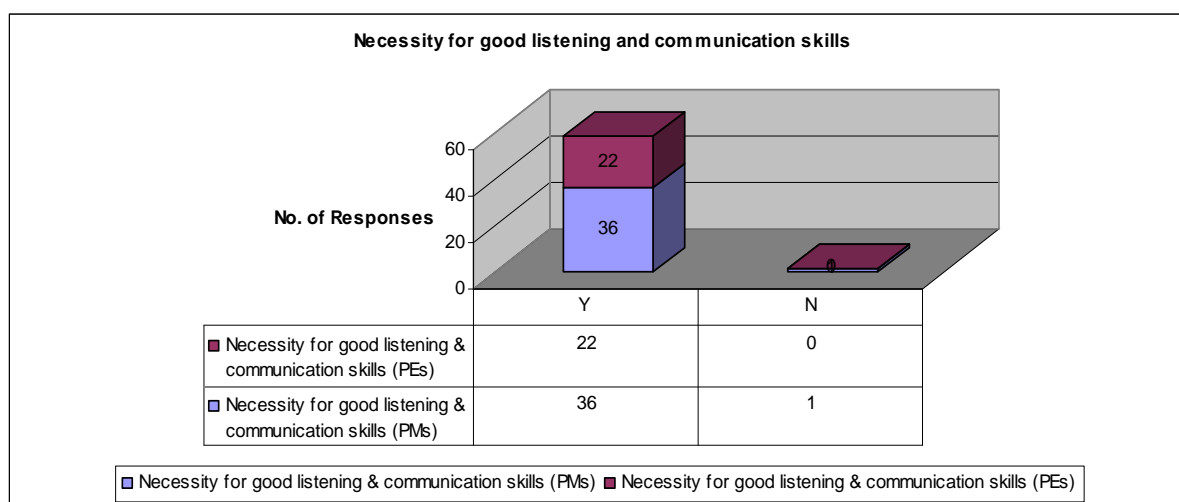


Figure 4.21 Necessity of project managers to have good listening and communication skills

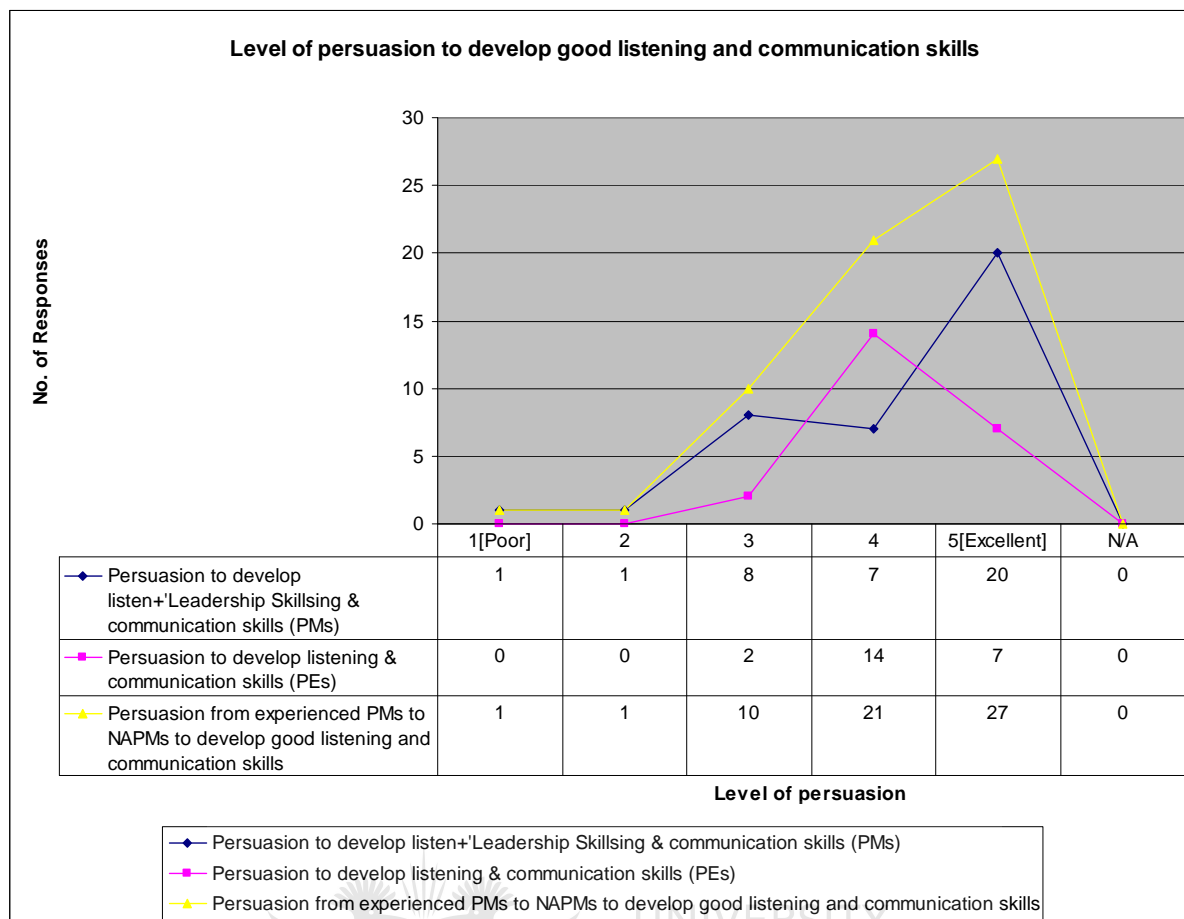


Figure 4.22 Intensity of persuasion on NAPMs to develop good listening and communication

Figure 4.23 shows the survey results confirming the necessity of stressing basics of project management to team members and other project managers by newly appointed project managers. Figure 4.24 depicts the survey results substantiating the level of persuasion from experienced project managers to newly appointed project managers in order to understand and stress the basics of project management to team members.

From the survey results, 96.67% of the respondents substantiated the inevitability of experienced project managers to stress the basics of project management to newly appointed project managers and team members. A total of 40.98% (25 out of 61 respondents) of the respondents validated that project managers who stress the basics of project management to team members will present exceptional persuasion

to newly appointed project managers to stress the basics of project management to team members.

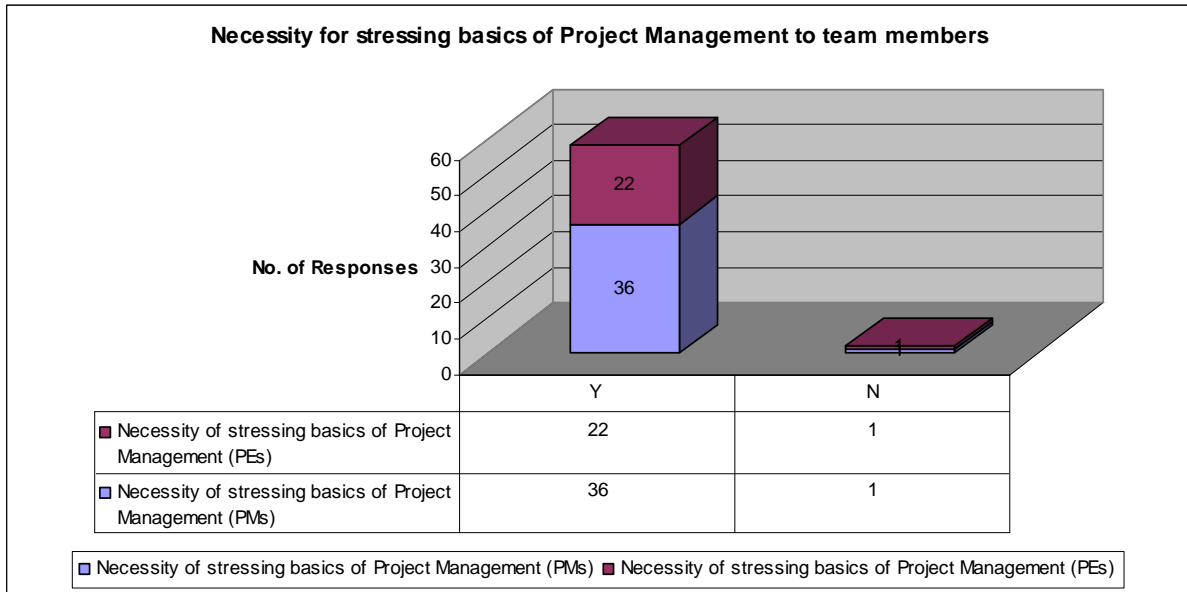


Figure 4.23 Necessity of stressing the basics of project management

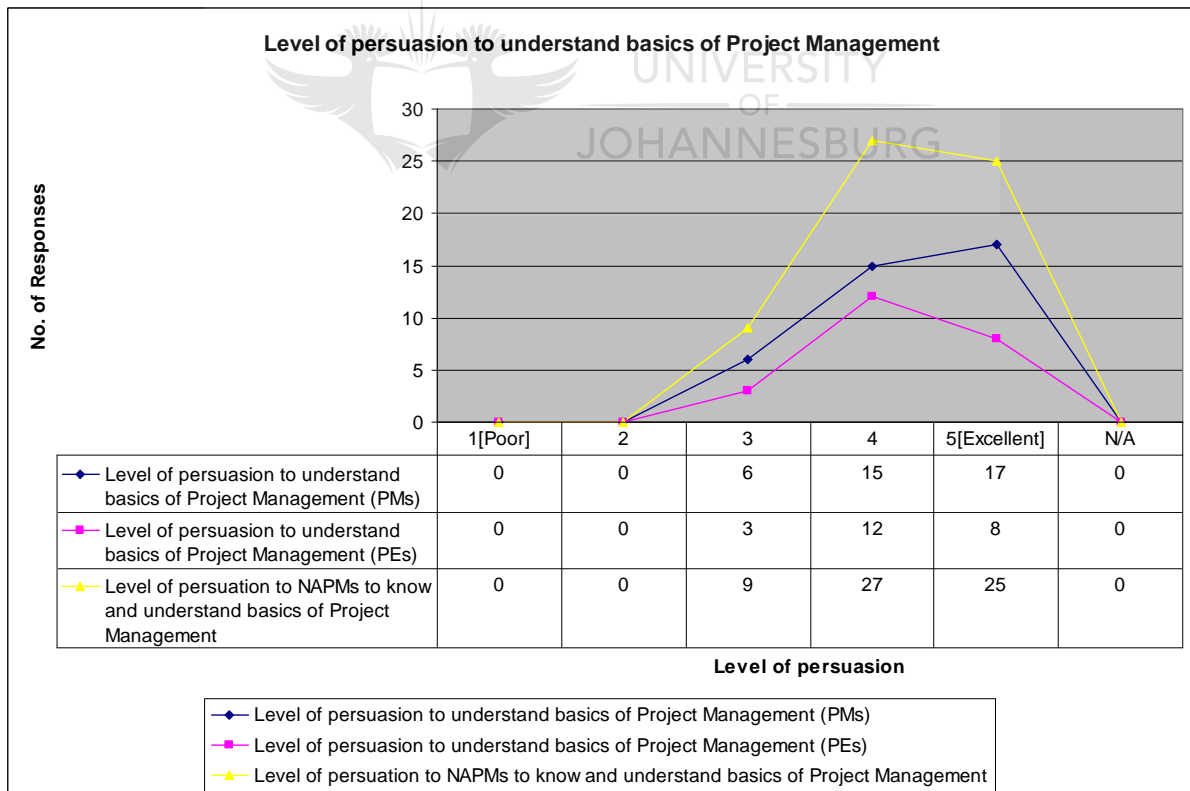


Figure 4.24 Intensity of persuasion to stress the basics of project management

Figure 4.25 shows the survey results confirming if project managers must be honest and show integrity in project management, and Figure 4.26 verifies the level of influence on newly appointed project managers to be honest at all times and to show integrity when running projects. More than 50% (about 57.38%) of the respondents substantiated that honest project managers will exceptionally influence newly appointed project managers to be honest and to show integrity.

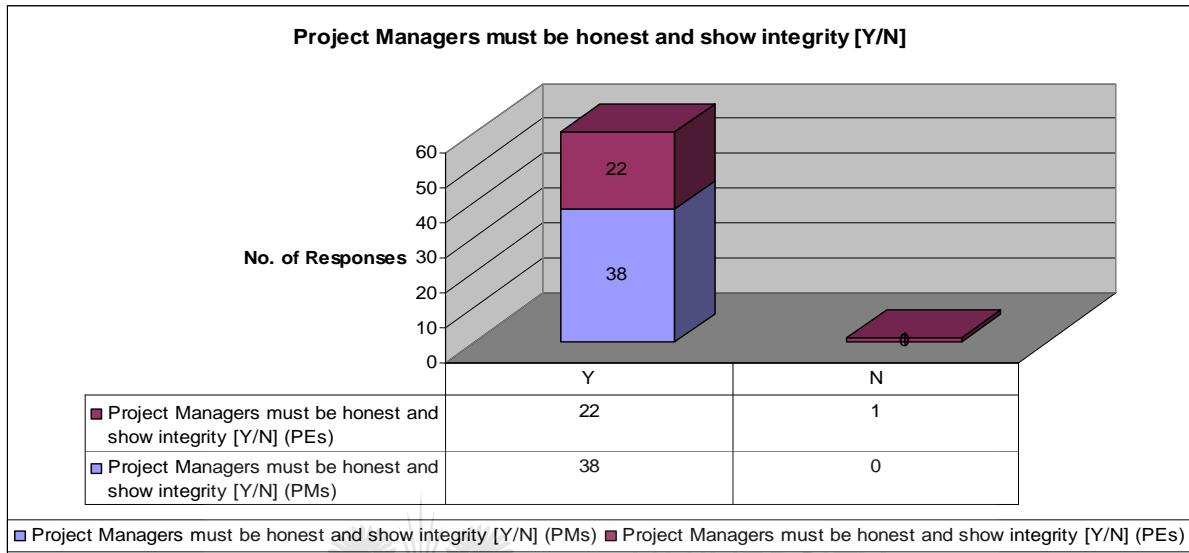


Figure 4.25 Project managers must be honest and show integrity [Y/N]

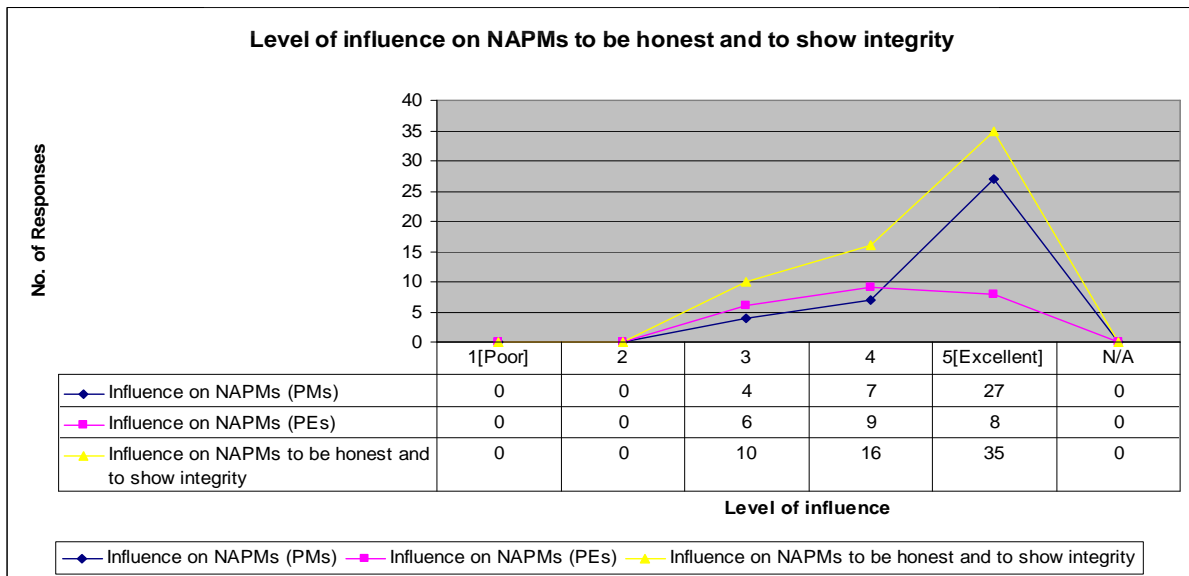


Figure 4.26 Level of influence on NAPMs to be honest and show integrity when running projects

Figure 4.27 shows the survey results confirming if project managers must treat team members and other project managers with respect and dignity in order to be successful in project management, and Figure 4.28 shows the magnitude of influence on newly appointed project managers to treat team members and other project managers with respect and dignity. About 53.33% of the respondents show that experienced project managers who treat team members with respect and dignity will exceptionally influence newly appointed project managers to treat team members and other project managers with respect and dignity.

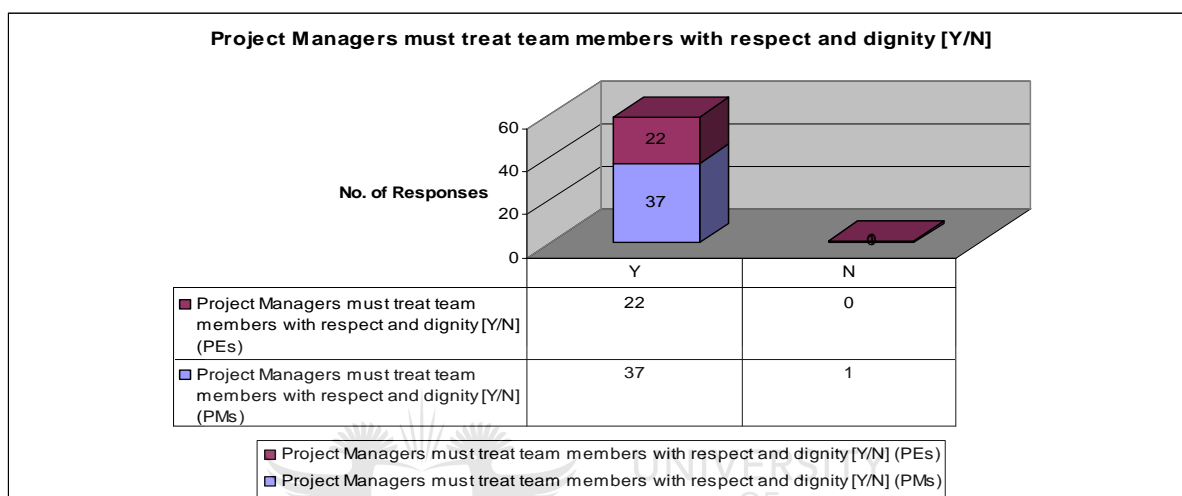


Figure 4.27 Project managers must treat team members with respect and dignity [Y/N]

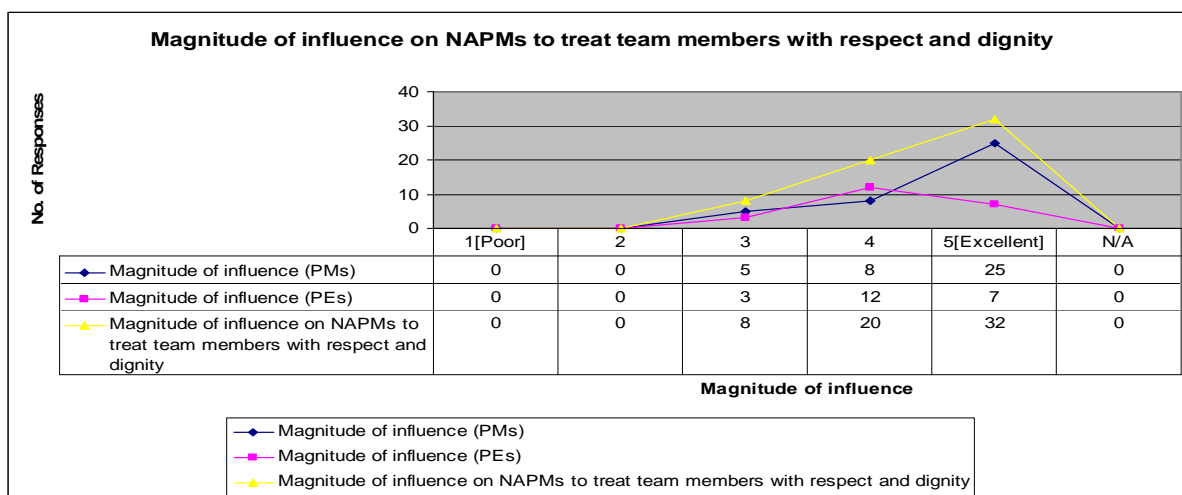


Figure 4.28 Magnitude of influence on NAPMs to treat team members and other project managers with respect and dignity

Figure 4.29 shows the survey results confirming the necessity of project managers to enforce the standards of conduct in project management. Figure 4.30 shows the intensity of persuasion to newly appointed project managers (by experienced project managers) to enforce the standards of conduct in project management. About 39.34% (24 out of 60 respondents) of the respondents showed that project managers who enforce standards of conduct in project management will exceptionally persuade newly appointed project managers to enforce the standards of conduct in project management.

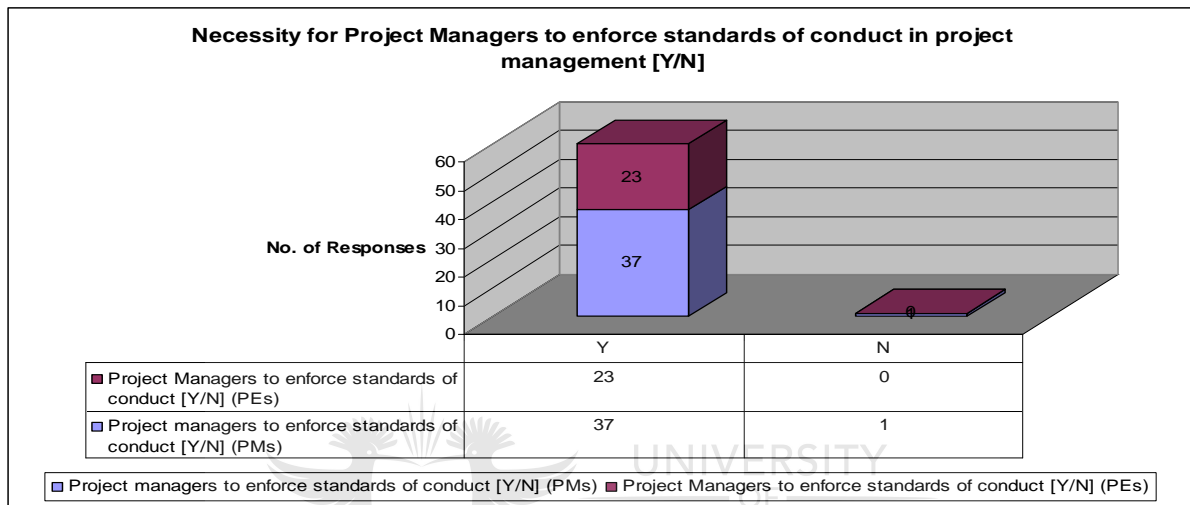


Figure 4.29 Project managers must enforce the standards of conduct [Y/N]

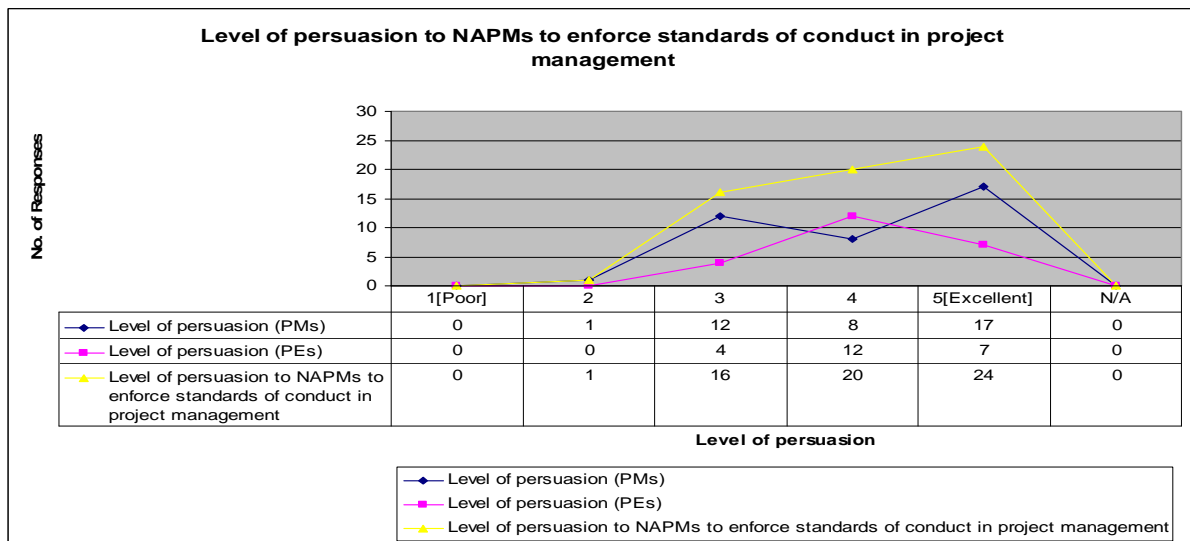


Figure 4.30 Magnitude of Influence on NAPMs to enforce the standards of conduct in project management

4.3.5 Coaching and mentoring skills

The final hypothesis proposed that project managers with good coaching and mentoring skills will provide good assistance to newly appointed project managers to develop good project leadership skill(s) such as coaching and mentoring skills. The survey results testing the hypothesis are depicted on Figure 4.31 to Figure 4.34.

Figure 4.31 shows the total number of respondents from the survey validating the allocation of a mentor and or a coach to newly appointed project managers in project management, and Figure 4.32 depicts the survey results on how good coaching and mentoring to newly appointed project managers will develop good future project managers. A total of 98.36% (60 out of 61 respondents) of the respondents showed that newly appointed project managers must be allocated a coach and or a mentor in project management, and good coaching and mentoring to newly appointed project managers will develop exceptional future project managers.

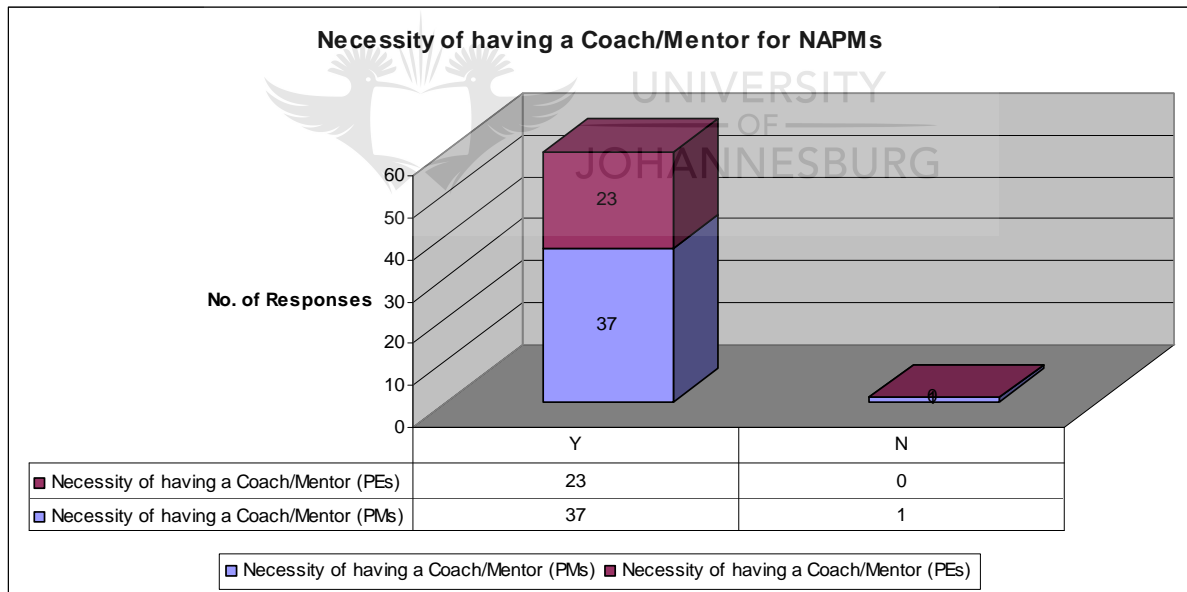


Figure 4.31 Necessity of newly appointed project managers to be allocated a mentor or a coach in project management

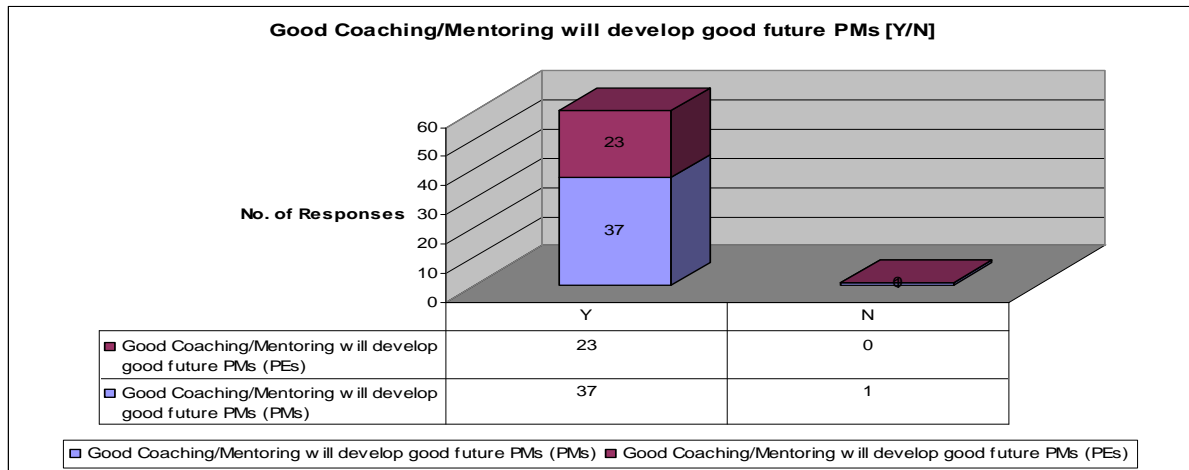


Figure 4.32 Good coaching and or mentoring to newly appointed project managers will develop excellent future project managers [Y/N]

Figure 4.33 shows the necessity of incessant coaching and or mentoring to project managers. Figure 4.34 shows the level of assistance that experienced project managers with tremendous coaching and mentoring skills will provide to newly appointed project managers to develop superior coaching and mentoring skills. About 47.54% of the respondents showed that it's very important for project managers to receive continuous coaching and mentoring in project management. Only 3 out of 61 respondents showed that it's not important for project managers to receive continuous coaching and mentoring in project management.

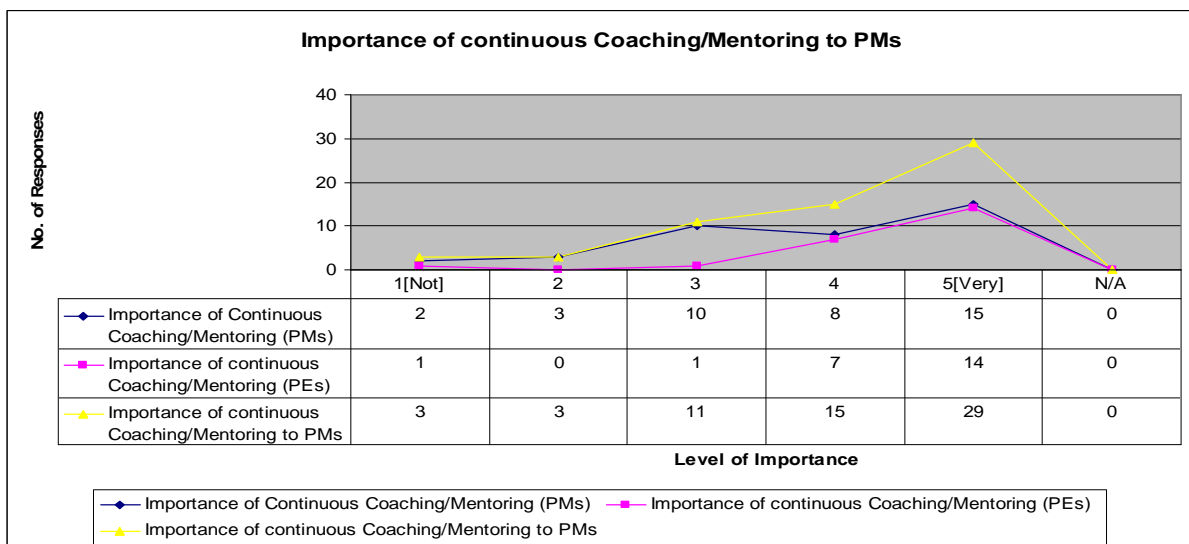


Figure 4.33 Importance of incessant coaching and or mentoring to newly appointed project managers

It is depicted in Figure 4.34 that 30 out of 61 (about 49.18%) respondents validated the provision of excellent assistance from experienced project managers with good coaching and mentoring skills to newly appointed project managers to develop good coaching and mentoring skills.

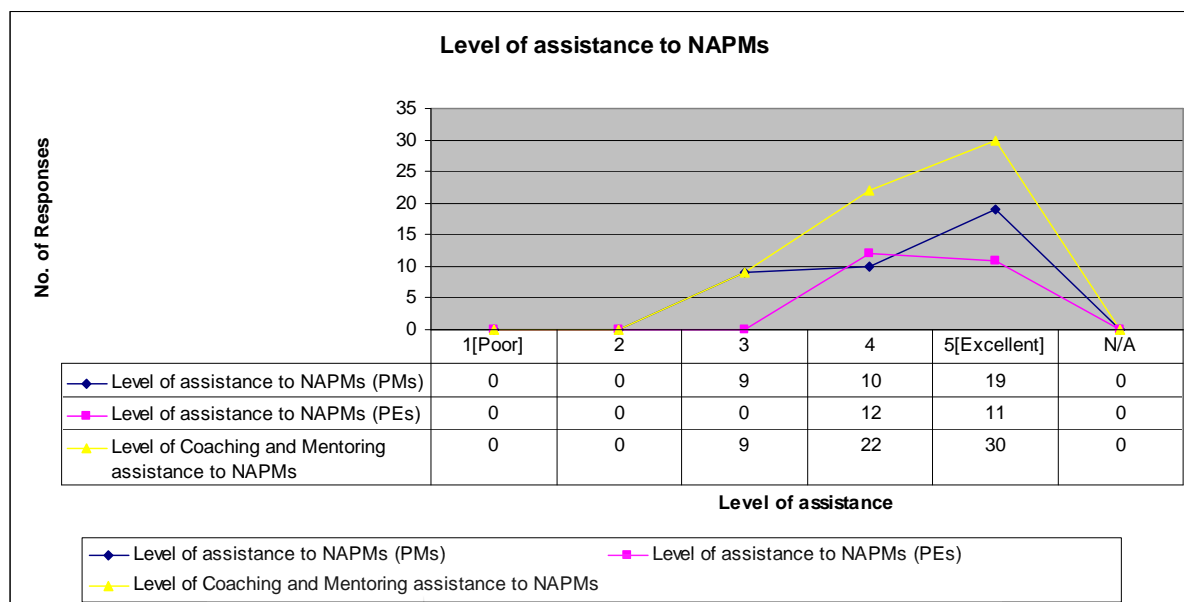


Figure 4.34 H5: Magnitude of assistance to newly appointed project managers to develop exceptional coaching and mentoring skills

4.4 CONCLUSION

This chapter introduced the reader to the overall presentation of the results obtained from the survey on project management managers and engineers. A brief discussion on each hypothesis and structure of the model design was discussed to provide an implication of the respondent’s response. The next chapter (chapter 5) provides the detailed analysis of the results where the outcome as a result of the applied research design is outlined.

CHAPTER 5

5. ANALYSIS OF RESULTS

5.1 INTRODUCTION

This chapter provides a detailed analysis of the results obtained from the survey. The analysis discusses the results as per questionnaire to ensure that all results are thoroughly analyzed. The structure of the chapter is as follows; there are three sections on the questionnaire (section A, B and C). Section A of the questionnaire provides the demographics results of the respondents, section B tests the five hypotheses proposed on chapter one and section C provides brief suggestions from the respondents on how project leadership skills can be enhanced in newly appointed project managers.

In testing the hypotheses, two categories were considered, in a scale from 1 (where 1 represents a **poor** score) to 5 (where 5 represents an **excellent** score), category 1 represents the number of respondents validating a less and equal to 2 (≤ 2) scale support of the hypotheses and category 2 represents the number of respondents validating a greater than 2 (> 2) scale support of the hypotheses. Refer to appendix A (Binomial test results Table) for the detailed survey results on the two considered categories. Chi-Square test method was used to test and analyze the survey results and the proposed hypotheses. Statistical and binomial test methods were also used to substantiate the Chi-Square test results. For all the detailed research results, refer to Appendix A. Refer to appendix F for all the detailed Chi-Square test results and the Chi-Square Distribution Table [21].

5.2 TECHNICAL TRAINING AND TECHNICAL COMPETENCY

It was hypothesized in chapter 1 section 1.4 that technical training to newly appointed project managers will improve the managers' technical competency and secondly technical competent project managers will provide good technical assistance to newly appointed project managers to develop project leadership skills such as technical competency.

With an expected distribution value of half the respondents (50 percent) supporting the above hypotheses, for the first hypothesis, the Chi-square test results showed a Chi squared value of 43.314 with 1 degrees of freedom and a two-tailed P value of less than 0.0001. By conventional criteria, this result is considered to be extremely statistically significant that technical training to newly appointed project managers will improve the managers' technical competency. For the second above hypothesis, a Chi squared value of 56.067 with 1 degrees of freedom and a two-tailed P value of less than 0.0001 is considered to be extremely statistically significant that technical competent project managers will provide good technical assistance to newly appointed project managers to develop project leadership skills such as technical competency. The two-tailed P value measures if the theory that generated the expected values were correct and what is the probability of observing such large discrepancy between the observed and expected values.

Table 5.1 shows the frequencies of the survey results for the first six questions on the questionnaire testing the first and the second hypotheses (under technical training and technical competency). Refer to appendix B for the questionnaire.

From Table 5.1, it is depicted that 77% of the respondents have technical background, about 50.8% of the respondents attended technical training courses and 95.1% of the respondents validated that technical training will improve the technical competency of the newly appointed project managers. Viewing Table 5.1 it becomes apparent that only half the group of project managers attended technical training courses even though they validated that attending the course is vital.

This is an expected result because most of the project managers and project engineers in the organization have technical background. The 50.8% of the respondents who attended technical training courses incorporated the 23% of the project managers with no technical background. Some of the project managers did not attend technical training courses only because attending the courses was not compulsory and there was no necessity of attending as most of the project managers already have technical experience from working on different technical challenging projects.

Table 5-1 Frequencies (technical training and technical competency)

Frequencies			
N – represents the total number of the respondents	Responses		Percent of Cases
	N	Percent	
^a B1_1 Do you came from a technical background?	47	18.6%	77.0%
B1_2 Do they offer technical training courses where you work?	46	18.2%	75.4%
B1_3 Have you attended any technical training courses?	31	12.3%	50.8%
B1_4 If yes, are the courses compulsory?	16	6.3%	26.2%
B1_5 Do you find it necessary for project managers to attend technical training courses?	55	21.7%	90.2%
B1_6 Would you say that technical training will improve the technical competency of project managers?	58	22.9%	95.1%
Total	253	100.0%	414.8%
a. Dichotomy group tabulated at value 1.			

Table 5.2 shows the statistical results from the survey and Table 5.3 shows the binomial test results from the survey. The “mean” is representing the sum of all the respondents divided by the number of values of the respondents (the average). The “median” is the middle value of the list (the center point) in a scaling from 1 (where 1 is equivalent to poor) to 5 (where 5 is equivalent to excellent). The “mode” is representing the most frequent value also in a scale from 1 to 5. The “standard deviation” shows a statistical value used to determine how spread out the data in a sample are, and how close individual data points are to the mean, or average, value of the sample.

Table 5-2 Statistical results (technical training and technical competency)

Statistics						
	N		Mean	Median	Mode	Std. Deviation
	Valid	Missing				
B1_7 To what extent has attending technical training courses or technical experience gained from working on projects improved your technical competency?	51	10	4.10	4.00	4	.855
B1_8 How important is it for project managers to be technical competent if working in project management environment?	61	0	4.11	4.00	5	.950
B1_9 To what extent will a technical competent project manager assist newly appointed project managers to develop project leadership skill(s) such as technical competency?	60	1	4.23	4.50	5	.871

From Table 5.2, question B1_7 was testing the hypothesis that technical training will improve the technical competency of newly appointed project managers. A “mean” of 4.10 shows that on average, 82% of the respondents validated that technical competency was improved after attending technical training courses is above 4 in a scale from 1 to 5; this means that on average, 82% of the respondents validated that their technical competency was improved after attending the courses. A “mode” of 4 means that after attending technical training courses and gaining technical experience from working on technical projects, 80% of the project managers validated that their technical competency was improved. A spread out of the responses from the “mean” is shown by the standard deviation; a 0.855 standard deviation shows a wide spread out of responses from the mean. This shows that the responses from the respondents were spread out in a scale from 1 to 5.

The observed proportion on how the technical competency of project managers was improved after attending technical training courses and gaining technical experience from working on technical projects is shown on Table 5.3. There were two categories of proportions, in a scale from 1 to 5; group 1 shows a 2 and less scale category and group 2 shows a 3 to 5 scale category of supporting the hypothesis. For question B1_7, about 0.96 of the respondents validated that project managers' technical competency improved between 60% - 100% and a 0.04 proportion showed that project managers' technical competency only improved by 40% or less after attending technical courses. This is shown by a ≤ 2 value and a > 2 value in a scale from 1 to 5 respectively on Table 5.3.

Table 5-3 Binomial test results (technical training and technical competency)

Binomial Test				
		Category	N	Observed Prop.
B1_7 To what extent has attending technical training courses or technical experience gained from working on projects improved your technical competency?	Group 1	≤ 2	2	.04
	Group 2	> 2	49	.96
	Total		51	1.00
B1_8 How important is it for project managers to be technical competent if working in project management environment?	Group 1	≤ 2	2	.03
	Group 2	> 2	59	.97
	Total		61	1.00
B1_9 To what extent will a technical competent project manager assist newly appointed project managers to develop project leadership skill(s) such as technical competency?	Group 1	≤ 2	1	.02
	Group 2	> 2	59	.98
	Total		60	1.00

Considering Table 5.2, question B1_9 was testing the hypothesis that technical competent project managers will provide good technical assistance to newly appointed project managers to develop good technical skills. A mean of 4.23 shows that on average, 84.6% of the respondents validated that good technical assistance

will be provided by technical competent project managers to newly appointed project managers to enhance the technical competency skills. The spread out of the responses from the mean is shown as 0.871 which confirms a wide spread out of responses. In proportion, Table 5.3 shows that 0.98 of the respondents validated that a technical competent project manager will present between 60% - 100% good technical assistance to newly appointed project managers to enhance the technical skills. Only 0.02 in proportion of the respondents showed that 40% or less of technical assistance will be provided to newly appointed project managers by technical competent project managers.

Good technical training and technical competency to project managers were shown to influence the enhancement of developing good technical skills in newly appointed project managers. This suggests that project managers who are technical competent in the project management environment enhances the development of project leadership skills success by offering exceptional technical assistance to newly appointed project managers. Training subordinates (through technical training) and technical competency is in contrast to Cleland's (2004) leadership model.

5.3 CONFLICT MANAGEMENT SKILLS

It was hypothesized that project managers with good conflict management skills will provide good assistance to newly appointed project managers to develop project leadership skills such as conflict management skills. Using a Chi-Square test method, a Chi squared value of 61 with 1 degrees of freedom and a two-tailed P value of less than 0.0001 shows by conventional criteria that this result is considered to be extremely statistically significant that project managers with good conflict management skills will provide good assistance to newly appointed project managers to develop project leadership skills such as conflict management skills.

Table 5.4 shows that 86.9% of the respondents confirmed that there are conflict management courses offered in the organization. About 96.7% of the respondents validated that attending conflict management courses will improve the conflict management skills of newly appointed project managers. More than 90% of the

respondents supported the necessity of having project managers with good conflict management skills in the organization.

Table 5-4 Frequencies (conflict management skills)

Frequencies			
	Responses	Percent of Cases	
		N	Percent
^a B2_1 Are there any conflict management courses offered where you work?	53	31.0%	86.9%
B2_2 Would you say that attending conflict management courses will improve the conflict management skills of project managers?	59	34.5%	96.7%
B2_3 Would you say that it's necessary for project managers to have good conflict management skills?	59	34.5%	96.7%
Total	171	100%	280.3%

a. Dichotomy group tabulated at value 1.

Table 5.5 shows the statistical results from the survey and Table 5.6 shows the binomial test results from the survey. From Table 5.5, question B2_5 was testing the third hypothesis (H3). A “mean” of 4.28 shows that on average, 85.6% of the respondents validated that experienced project managers will provide maximum extent of assistance to newly appointed project managers to develop good conflict management skills. There was a wide spread out of responses from the mean as shown on Table 5.5 by a standard deviation of 0.733.

Viewing Table 5.5 again, it shows that the most frequent responses on the extent of assistance that project managers will offer to newly appointed project managers to develop good conflict management skills (in a scale from 1 to 5) is 80% as shown with a mode of 4. Table 5.6 shows the Binomial test results where a proportion of 1.0

(all respondents) from the respondents confirmed that project managers with good conflict management skills will provide between 60% - 100% good assistance to newly appointed project managers to develop good conflict management skills.

Table 5-5 Statistical results (conflict management skills)

Statistics						
	N		Mean	Median	Mode	Std. Deviation
	Valid	Missing				
B2_4 How would you rate the handling of conflict from a project manager with good conflict management skills?	60	1	4.13	4.00	5	.833
B2_5 To what extent will a project manager with good conflict management skills assist newly appointed project managers to develop project leadership skill(s) such as good conflict management skills?	61	0	4.28	4.00	5	.733

Table 5-6 Binomial test results (conflict management skills)

Binomial Test				
		Category	N	Observed Prop.
B2_5 To what extent will a project manager with good conflict management skills assist newly appointed project managers to develop project leadership skill(s) such as good conflict management skills?	Group 1	<= 2	0	.00
	Group 2	> 2	61	1.00
	Total		61	1.00

As anticipated, experienced project managers with good conflict management skills promote the development of good conflict management skills in newly appointed project managers in the organization. This suggests that good conflict management is an essential skill that newly appointed project managers will need in order to be successful in the project management profession.

5.4 LEADERSHIP SKILLS AND PERSONAL CHARACTERISTICS

It was hypothesised that project managers with good personal characteristics and leadership skills will present good persuasion and influence to newly appointed project managers to develop good listening & communication skills, stressing the basics of project management, honesty and integrity, treating project team with respect and dignity, and enforcing project management standards of conduct. Chi-Square test method was used to test the hypotheses.

A Chi squared value of 60 with 1 degrees of freedom and a two-tailed P value of less than 0.0001 shows that by conventional criteria, this result is considered to be extremely statistically significant that project managers with good personal characteristics and leadership skills will present good persuasion and influence to newly appointed project managers to develop good listening & communication skills, stressing the basics of project management, honesty and integrity, treating project team with respect and dignity, and enforcing project management standards of conduct.

Questions B4_1 to B4_5 on Tables 5.7, 5.8 and 5.9 were testing the importance of having good listening and communication skills in project managers, and the persuasion that experienced project managers with exceptional listening and communication skills will present to newly appointed project managers to develop good listening and communication skills.

Viewing Table 5.7, about 98.3% of the respondents confirmed that project managers must have good listening skills and about 94.9% of the respondents validated the obligation of project managers having good communication skills.

Table 5-7 Frequencies (listening and communication skills)

Frequencies			
	Responses		Percent of Cases
	N	Percent	
^a B4_1 Do you listen and absorb information from team members and other project managers?	59	25.7%	100.0%
B4_2 Do you communicate clearly to team members and other project managers when running projects?	57	24.8%	96.6%
B4_3 Would you say that project managers must have good listening skills to be successful in project management?	58	25.2%	98.3%
B4_4 Would you say that it's obligatory for project managers to have good communication skills?	56	24.3%	94.9%
Total	230	100.0%	389.8%
a. Dichotomy group tabulated at value 1.			

Table 5.8 shows the statistical results on the persuasion that will be presented to newly appointed project managers to develop good listening and communication skills. On average, 85.8% of the respondents showed that experienced project managers with good listening and communication skills will provide good persuasion to newly appointed project managers to develop similar skills. This is shown by a mean of 4.29.

A mode of 5 confirms the high average percentage because it shows that most of the respondents gave a 5 out of 5 score on the persuasion that will be presented to newly appointed project managers to develop good listening and communication skills. There was a wide spread out of responses from the mean as shown by a standard deviation of 0.749.

Table 5-8 Statistical results (listening and communication skills)

Statistics					
B4_5 To what extent will a project manager with good listening and communication skills persuades newly appointed project managers to develop good listening and communication skills?					
N		Mean	Median	Mode	Std. Deviation
Valid	Missing				
58	3	4.29	4.00	5	.749

Table 5.9 shows the Binomial test results where a proportion of 1.0 of the respondents confirmed that project managers with good listening and communication skills will provide between 60% - 100% good persuasion to newly appointed project managers to develop good listening and communication skills.

Table 5-9 Binomial test results (listening and communication skills)

Binomial Test				
	Category	N	Observed Prop.	
B4_5 To what extent will a project manager with good listening and communication skills persuades newly appointed project managers to develop good listening and communication skills ?	Group 1	<= 2	0	.00
	Group 2	> 2	58	1.00
	Total		58	1.00

Tables 5.10 and 5.11 present the statistical and binomial test results where the extent of persuasion that project managers who understand basics of project management will present to newly appointed project managers to understand the basics of project management. The survey results showed that on average 85.2% of the respondents validated that experienced project managers will provide maximum extent of persuasion to newly appointed project managers to understand basics of project management. This is confirmed by a mean of 4.26. Most of the respondents gave a rating of 4 out of 5 on the extent of persuasion; this is shown by a mode of 4

on Table 5.10. The standard deviation is 0.705, this shows there was a wide spread out of responses from the mean.

Table 5-10 Statistical results (basics of project management)

Statistics						
	N		Mean	Median	Mode	Std. Deviation
	Valid	Missing				
B5_3 To what extent will a project manager benefit from understanding and knowing the basics of project management when running projects?	61	0	4.41	5.00	5	.692
B5_4 To what extent will a project manager who understands and knows the basics of project management persuades newly appointed project managers to understand the basics of project management?	61	0	4.26	4.00	4	.705

Table 5.11 shows the Binomial test results where a proportion of 1.0 of the respondents confirmed that project managers who understand the basics of project management will provide between 60% - 100% good persuasion to newly appointed project managers to understand the basics of project management.

Table 5-11 Binomial test results (basics of project management)

Binomial Test				
		Category	N	Observed Prop.
B5_4 To what extent will a project manager who understands and knows the basics of project management persuades newly appointed project managers to understand the basics of project management ?	Group 1	<= 2	0	.00
	Group 2	> 2	61	1.00

Tables 5.12 and 5.13 present the statistical and binomial test results testing the extent of influence that project managers who are honest and show integrity will present to newly appointed project managers to be honest and to show integrity. The survey results showed that on average 88.2% of the respondents validated that experienced project managers will present maximum extent of influence to newly appointed project managers to be honest and to show integrity. This is confirmed with a mean of 4.41 on Table 5.12. Majority of the respondents gave a rating of 5 out of 5 on the extent of the influence; this is shown by a mode of 5 on Table 5.12. The standard deviation is 0.761. This shows that there was a wide spread out of responses from the mean.

Table 5-12 Statistical results (Honesty and integrity)

Statistics					
B6_2 To what extent will a project manager who is honest and shows integrity influences newly appointed project managers to be honest and to show integrity?					
N		Mean	Median	Mode	Std. Deviation
Valid	Missing				
61	0	4.41	5.00	5	.761

Table 5.13 shows the Binomial test results where a proportion of 1.0 (all respondents) of the respondents confirmed that project managers who are honest and show integrity will provide between 60% - 100% good influence on newly appointed project managers to be honest and to show integrity to team members.

Table 5-13 Binomial test results (Honesty and integrity)

Binomial Test				
		Category	N	Observed Prop.
B6_2 To what extent will a project manager who is honest and shows integrity influences newly appointed project managers to be honest and to show integrity ?	Group 1	<= 2	0	.00
	Group 2	> 2	61	1.00
	Total		61	1.00

Tables 5.14 and 5.15 present the statistical and binomial test results testing the extent of influence that project managers who treat team members with respect and dignity will present to newly appointed project managers to treat team members with respect and dignity.

The results showed that on average 88% of the respondents validated that experienced project managers will provide maximum extent of influence to newly appointed project managers to treat team members with respect and dignity. This is confirmed by a mean of 4.4 on Table 5.14. Majority of the respondents gave a rating of 5 out of 5 on the extent of influence; this is shown by a mode of 5 on Table 5.14. The standard deviation of 0.718 shows a wide spread out of responses from the mean.

Table 5-14 Statistical results (Treating team members with respect and dignity)

Statistics					
B7_2 To what extent will a project manager who treats team members with respect and dignity influences newly appointed project managers to treat other project managers and team members with respect and dignity?					
N		Mean	Median	Mode	Std. Deviation
Valid	Missing				
60	1	4.40	5.00	5	.718

Table 5.15 shows the Binomial test results where a proportion of 1.0 of the respondents confirmed that project managers who treat team members with respect and dignity will provide between 60% - 100% good influence on newly appointed project managers to treat team members with respect and dignity.

Table 5-15 Binomial test results (Treating team with respect and dignity)

Binomial Test				
		Category	N	Observed Prop.
B7_2 To what extent will a project manager who treats team members with respect and dignity influences newly appointed project managers to treat other project managers and team members with respect and dignity ?	Group 1	<= 2	0	.00
	Group 2	> 2	60	1.00
	Total		60	1.00

Tables 5.16 and 5.17 present the statistical and binomial test results showing the extent of persuasion that will be presented to newly appointed project managers by experienced project managers. This persuasion will aid newly appointed project managers to enforce standards of conduct in project management. The survey results showed that on average 82.4% of the respondents validated that maximum extent of persuasion will be present to newly appointed project managers by experienced project managers to enforce standards of conduct in project management.

This is confirmed by a mean of 4.12 on Table 5.16. Majority of the respondents gave a rating of 5 out of 5 on the extent of influence; this is shown by a mode of 5 on Table 5.16. The standard deviation of 0.846 shows a wide spread out of responses from the mean.

Table 5-16 Statistical results (Enforcing standards of conduct)

Statistics					
B8_2 To what extent will a project manager who enforces standards of conduct in project management persuades newly appointed project managers to enforce project management standards of conduct?					
N		Mean	Median	Mode	Std. Deviation
Valid	Missing				
60	1	4.12	4.00	5	.846

A 0.98 proportion of the respondents in Table 5.17 validates that the extent of persuasion that experienced project managers will present to newly appointed project managers to enforce standards of conduct in project management is ranging between 60% - 100%. With only a 0.02 proportion of the respondents showing that the extent of persuasion to be presented to newly appointed project managers is by experienced project managers is 40% or less.

Table 5-17 Binomial test results (Enforcing standards of conduct)

Binomial Test				
		Category	N	Observed Prop.
B8_2 To what extent will a project manager who enforces standards of conduct in project management persuades newly appointed project managers to enforce project management standards of conduct ?	Group 1	<= 2	1	.02
	Group 2	> 2	59	.98
	Total		60	1.00

As proposed, good listening and communication skills, honesty and integrity, stressing the basics of project management and treating project team members with respect and dignity positively influence the development of project leadership skills in newly appointed project managers. This is therefore identified as the major

contributor to the development and the maintenance of the project leadership skills in the Regional project management department.

These results provide evidence that when a project manager has good listening and communication skills, sets example to team members by being honest and showing integrity and treats team members with respect and dignity improves the project leadership skills in the project management environment. Part of these results is in agreement with Cleland's (2004) leadership model who found a significant relationship between good listening skills, settings example and stressing the basics of project management by project managers when practicing leadership.

5.5 COACHING AND MENTORING SKILLS

It was hypothesized that project managers with good coaching and mentoring skills will provide good assistance to newly appointed project managers to develop project leadership skills such as coaching and mentoring skills. To test this hypothesis, Chi-Square test method was used. The results showed a Chi squared value of 61 with 1 degrees of freedom and a two-tailed P value of less than 0.0001. This shows that by conventional criteria, the result is considered to be extremely statistically significant that project managers with good coaching and mentoring skills will provide good assistance to newly appointed project managers to develop project leadership skills such as coaching and mentoring skills.

Table 5.18 shows that 100% (100% shows 60 of respondents who participated on the survey) of the respondents validated the necessity of allocating a coach and or a mentor to newly appointed project managers in project management. Moreover, 100% of the respondents again validated that good coaching and mentoring to newly appointed project managers will develop incomparable future project managers.

Table 5-18 Frequencies (coaching and mentoring skills)

Frequencies			
	Responses		Percent of Cases
	N	Percent	
^a B3_1 Would you say that it's necessary for newly appointed project managers to have a coach or a mentor in project management?	60	50.0%	100.0%
B3_2 Would you say that good coaching and mentoring to newly appointed project managers will develop them to become good project managers?	60	50.0%	100.0%
Total	120	100.0%	200.0%
a. Dichotomy group tabulated at value 1.			

Table 5.19 shows the statistical results from the survey and Table 5.20 shows the binomial test results from the survey. From Table 5.19, question B3_4 was testing the hypothesis H5. A “mean” of 4.34 shows that on average, 86.8% of the respondents validated that maximum extent of assistance will be provide to newly appointed project managers by project managers with good coaching and mentoring skills to develop similar skills. A standard deviation of 0.733 shows that there was a wide spread out of responses from the mean as shown on Table 5.19.

Table 5.19 also shows that the most frequent responses on the extent of assistance that project managers will offer to newly appointed project managers to develop good coaching and mentoring skills (in a scale from 1 to 5) is 100% as shown by a mode of 5. Table 5.20 shows the Binomial test results where a proportion of 1.0 of the respondents substantiates that project managers with good coaching and mentoring skills will provide between 60% - 100% (category > 2) good assistance to newly appointed project managers.

Table 5-19 Statistical results (conflict management skills)

Statistics						
	N		Mean	Median	Mode	Std. Deviation
	Valid	Missing				
B3_3 How important it is for project managers to continuously receive coaching and mentoring in project management?	60	1	4.10	4.00	5	1.085
B3_4 To what extent will a project manager with good coaching and mentoring skills assists newly appointed project managers to develop project leadership skill(s) such as coaching and mentoring skills?	61	0	4.34	4.00	5	.728

Table 5-20 Binomial test results (conflict management skills)

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Binomial Test

	Category	N	Observed Prop.
B3_4 To what extent will a project manager with good coaching and mentoring skills assists newly appointed project managers to develop project leadership skill(s) such as coaching and mentoring skills ?	Group 1	<= 2	0
	Group 2	> 2	61
	Total		61
			1.00

As anticipated, experienced project managers with good coaching and mentoring skills promote the development of good coaching and mentoring skills in newly appointed project managers in the organization by offering exceptional coaching and mentoring assistance. This suggests that good coaching and mentoring skills are essential skills that newly appointed project managers will need in order to be successful in project leadership skills development and in the project management

profession. To simplify the results analysis and the project leadership model, Figure 5.1 shows the summarized survey results. The Chi-Square test results, the mean, standard deviation, and the mode as explained in this chapter were extracted and shown on the Figure.

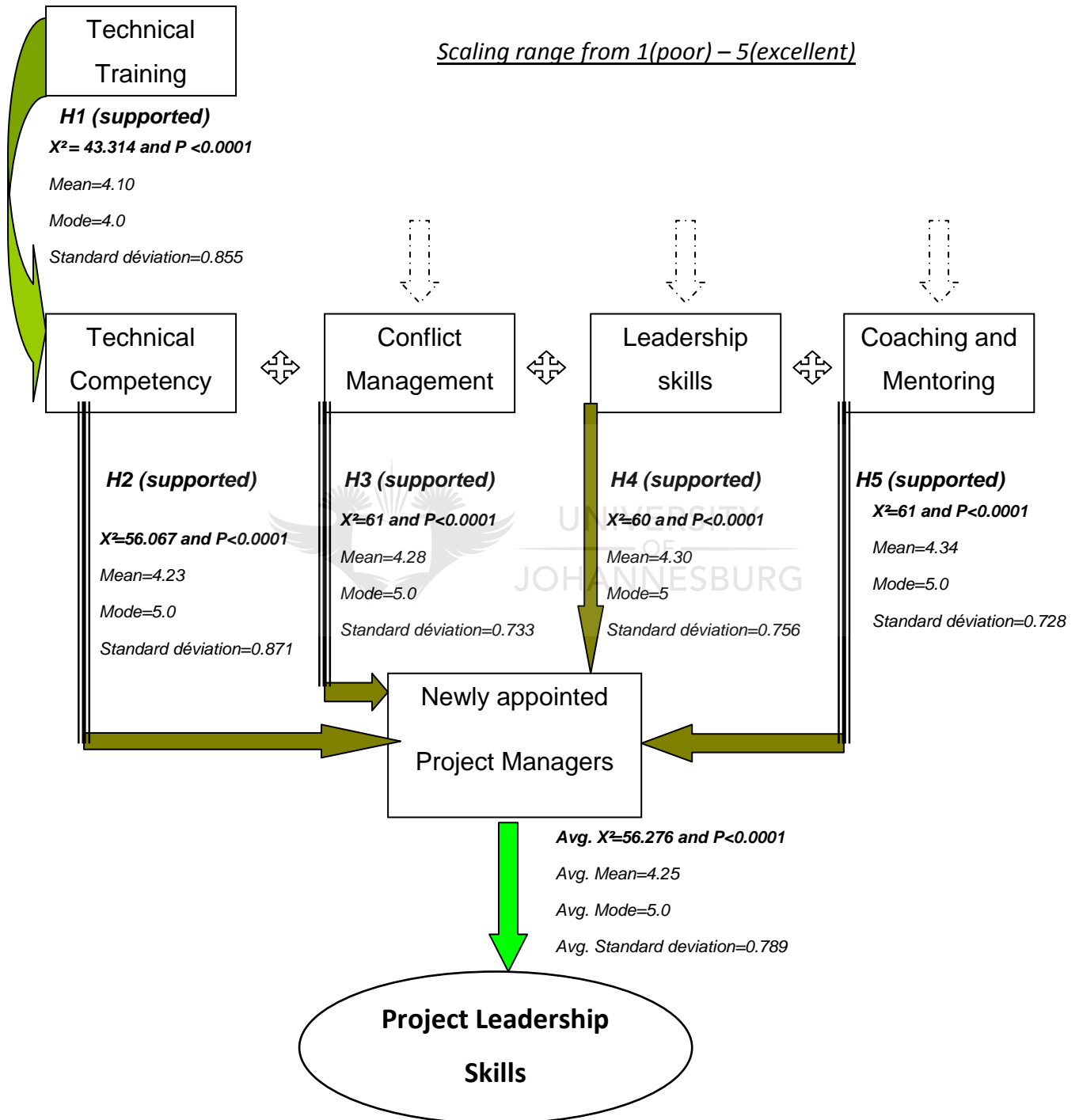


Figure 5.1 Summarized results and hypotheses

Table C.1 on appendix C shows brief suggestions from the respondents on how project leadership skills can be enhanced in newly appointed project managers.

5.6 APPLICATION OF THE MODEL

Figure 5.2 shows how to apply the developed and tested project leadership model using flow charts.

As a starting point, newly appointed project managers will have to undertake technical training to enhance their technical competency skills. At the same time they will have to attend more than one conflict management courses and forums to improve on their handling and managing of conflicts. The next step will be to attend leadership skills courses and conferences in order to improve on their leadership skills and personal characteristics. Concurrently with the previous steps, allocate a coach and a mentor to the NAPM to be coached and mentored and to improve on their coaching and mentoring skills so that they will be able to coach and mentor new appointees when they become senior project managers. A coach and a mentor can also be allocated before the first step of attending technical training courses. However, after 24 months in-house project management training, if the entire above not met, the newly appointed project manager shall not be granted more responsibilities and projects with bigger capital to manage, otherwise grant more responsibilities and more projects with bigger capital.

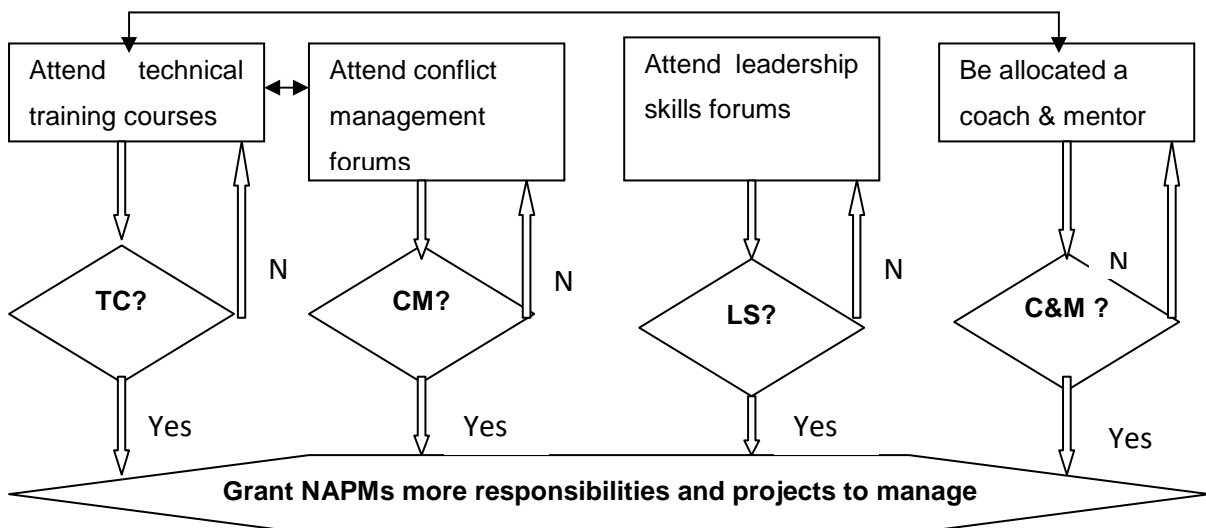


Figure 5.2 Application of the model

5.7 CONCLUSION

Chapter 5 showed the results obtained from the survey on project managers and project engineers. A brief discussion on each question from the questionnaire was discussed to provide an implication of the respondent's response. Chapter 6 provides conclusions for this research study based on the preceding chapters.



CHAPTER 6

6. CONCLUSIONS AND RECOMMENDATIONS

The primary objective of the study was to enhance project leadership performance by developing a project leadership model that will enhance project leadership skills in newly appointed project managers in Eskom Northern Region. This dissertation has shown that the proposed and tested project leadership model will provide project leadership skills development in newly appointed project managers in the Region and furthermore that the model has been supported by the majority survey participants.

However, as anticipated on chapter 1 section 1.5, this study had the following limitations:

- As a result of the time constraint imposed by the circumstances, the aspects to be concluded upon were based on informed impression, following from the voluntarily information collected from the Regional project managers and project engineers as opposed to national project managers and engineers.
- As a result of the time constraint again, this “research” focused on the minimum obscure fundamentals and principles of project management and project leadership.
- The relatively small sample size was also a limitation because participation in the survey was voluntary.

6.1 CONCLUSIONS: PROJECT LEADERSHIP SKILLS DEVELOPMENT

The responsibilities placed on project managers introduce new challenges to project managers who are willing to develop exceptional project leadership skills in the project management environment. The purpose of this study was to explore the development of a project leadership model that will enhance project leadership skills of newly appointed project managers in Eskom Northern Region. The model proposed had acceptable quality with the entire hypothesised paths (H1, H2, H3, H4

and H5 are the hypothesised paths) being supported. Based on the survey findings, the subsequent can be concluded:

6.1.1 Technical training and technical competency

Majority of the participants have technical background. More than 70% of the respondents confirmed that Eskom Northern Region offers technical training courses to project managers and project engineers. Even though majority of the participants come from a technical background, half of the respondents attended technical training courses after joining the project management department. As hypothesised, it was shown by the survey results and also validated by most of the survey respondents that technical training and technical experience gained from working on technical projects will improve the technical competency of project managers and newly appointed project managers. It can therefore be concluded that path **H1** on the project leadership model (refer to Figure 5.1 for the model) has been supported by the survey results.

Moreover, for newly appointed project managers to enhance their technical competency skills, they require exceptional technical assistance from experienced technical competent project managers and project engineers. Survey findings showed that on average more than 80% good technical assistance will be provided by experienced project managers to newly appointed project managers to develop good technical competency skills. The survey results therefore supported the hypothesis that technical competent project managers will provide good technical assistance to newly appointed project managers to develop exceptional technical competency skills. It can therefore be concluded that path **H2** on the project leadership model has been supported by the survey results.

Adjudicating from the survey results, it can be concluded that newly appointed project managers with less technical experience must attend technical training courses to enhance their technical competency skills. It can also be concluded that technical competent project managers in the Region will enhance the development

of technical skills to newly appointed project managers by providing good technical assistance whenever necessary.

6.1.2 Conflict management

The survey results showed that more than 80% of the respondents confirmed that Eskom Northern Region offer conflict management courses to all its project managers and project engineers, however, attendance is voluntarily. The survey findings also showed a very high support on the hypothesis that experienced project managers with exceptional conflict management skills will offer good assistance to newly appointed project managers to develop good conflict management skills in project management. It can therefore be concluded that path **H3** on the tested project leadership model has been supported by the survey results. This means that having project managers with good conflict management skills in the organization is vital; this is because they will be able transfer similar skills to newly appointed project managers.

6.1.3 Leadership skills and personal characteristics

The survey results showed that for newly appointed project managers to be successful in the project management profession, they must maintain good personal characteristics and leadership skills. Most of all, from the survey results, it can be concluded that newly appointed project managers must have good listening and communication skills in order to listen and communicate clearly to project team members when managing projects. Another observation that can be made is that newly appointed project managers must understand the basics of project management in order to complete projects successfully and to be successful in the project management profession.

Honesty and integrity were shown to be fundamental personal characteristics in project management. This means that newly appointed project managers must be honest and must show integrity to team members and management in order to be trustworthiness within the Region. As project managers work with team members in different projects, the survey results showed that project managers must treat team

members with respect and dignity in order to get the support they will need to complete projects successfully, on time and within allocated budget. Eskom Northern Region has standards of conduct. Survey results showed that for the success of the project management department in the Region, project managers must enforce standards of conduct in project management.

It can therefore be concluded that newly appointed project managers must be influenced by the right doings of experienced project managers to develop good listening and communication skills. Experienced project managers must also influence newly appointed project managers to be honest and to show integrity, and to understand the basics of project management. Moreover, experienced project managers must also influence newly appointed project managers to treat team members with respect and dignity and to enforce standards of conduct in the department.

The proposed hypothesis that experienced project managers with good leadership skills and personal characteristics will present good persuasion and influence to newly appointed project managers to develop good personal characteristics and leadership skills was supported by the survey results. This means that the path **H4** from the tested project leadership model has been supported by the survey results.

6.1.4 Coaching and mentoring skills

Coaching and mentoring of newly appointed project managers was of a particular interest for most of the survey participants. Coaching and mentoring skills were supported by most of the survey results. The results showed that most of the exceptional project managers came through good coaching and mentoring in the Region. It can therefore be concluded that the hypothesis that project managers with good coaching and mentoring skills will provide good assistance to newly appointed project managers to develop similar skills was supported by the survey findings. It can therefore be concluded that path **H5** on the tested project leadership model has been supported by the survey results. This means that the Region must have project managers with good coaching and mentoring skills in order to transfer similar skills to new appointees.

These conclusions are in line with suggestions by Cleland's (2004 and 2006) leadership model that leaders need to be technical competent, stress basics of project management, treat team with respect and set example to the rest of the team [2]. Project managers must invest in new skills that can play an influential role in the development and maintenance of project leadership skills in the department and the Region.

6.2 PROPOSITIONS FROM RESPONDENTS

In supporting the above conclusions, this section provides brief propositions from the respondents on how to enhance project leadership skills in newly appointed project managers in the Region (For more details on these propositions, refer to Table C.1 on appendix C).

Technical training and technical competency

- *“A manager should be placed in an induction programme of at least a month or three before taking over a project portfolio.”*
- *“All new PMs should have work experience in all the support fields of project management before they can be successful in executing projects. PMs must have excellent human resource (HR) skills and networking capabilities in order to achieve success. “*
- *“For us to manage construction, project well, I think we need to start attending technical courses and in-house training for one year.”*
- *“Make sure they have some technical experience of what they will be managing. Teach them how to keep team members informed of any changes in their projects (no surprises).”*
- *“Newly appointed PMs with no experience should be working under Senior PMs as trainees’ or juniors for at least two years. In this way they will pick up on most skills and they have opportunity to grow.”*
- *“On job training under guidance of qualified person with management skills. Appointees should be given the responsibility of running a project to apply practical knowledge.”*

- *“Over and above their basic academic mostly theoretical training a lot more emphasis on on-job training must be made.”*
- *“They must be trained and mentored by project managers with experience. Courses must be arranged for new project managers and their progress/performance must be closely monitored by senior management.”*

Conflict management

- *“Newly appointed project managers should be given opportunities to attend leadership and conflict management courses.”*

Leadership skills and personal characteristics

- *“Better communication skills identifying key stakeholders and their role and setting realistic dates/goals on the project.”*
- *“Communication is the key, talking to new project managers most of the time.”*
- *“Experienced project managers should always strive to show integrity at all times and improve ones technical competency and ensure that the newly appointed managers being mentored also strive to be technically competent and also improve their listening and leadership skills.”*
- *“Follow basic project management rules, be very committed, communication is the most critical issue, you must have technical experience on the projects you manage otherwise contractors’ resources will take you for a ride.”*
- *“If you treat team members with respect and dignity you will get the results and support.”*
- *“Involvement in actual projects following professional bodies’ standards to become a PPM.”*
- *“Manager a guide and understand team members code of conduct to bring harmony within team members and being goal driven, good advice to gain momentum quicker to understand the business. Accelerate mentorship to all team members so that we all understand and feel free to ask questions.”*

- *“Most of the time PMs are not honest about the manners their projects are executed. A practical information control among project teams should be set out and be followed accordingly.”*
- *“Project managers should take the lead, they should lead by example and communicate clearly what is needed and expected from the team, they should also take responsibility for actions and decisions made by them and carried out by the team.”*
- *“Stress the importance of working as a team, to be honest at all times, to ensure there are no surprises hidden regarding time, quality, cost and actual progress and possible stumbling stones on the project.”*
- *“They have to be honest all the time to team members”*

Coaching and mentoring skills

- *“As you are aware that there is a shortage of skill especially in project management it is important to mentor the new project manager so that the skill is transferred, this means that continuous mentoring is critical.”*
- *“Delegate, coach and assist properly.”*
- *“Give smaller project whilst coaching and monitoring the new project manager then let him/her grow to a few smaller projects simultaneously after some experience was gained give bigger projects.”*
- *“Integration among the stakeholders, coaching and mentoring always review task schedule budget verses actual and involve all the team and stakeholders in a project, open door policy from project managers.”*
- *“Mentoring and identifying the area where improvement is needed.”*
- *“Mentoring new appointees is of utmost importance knowledge of company, procedures, capital investment processes and tender processes etc.”*
- *“Project leadership skills of new appointed project managers should be monitored by the mentors to ensure efficient development and transfer of skills and competency thereof.”*
- *“Skills development not limited to coaching and mentoring.”*

6.3 RECOMMENDATIONS

Based on the findings, propositions and the conclusions made above, the following recommendations can be made:

- The Region must provide technical training courses to all newly appointed project managers and engineers and make them aware of all the available technical courses to improve their technical competency skills. Experienced project managers must have open door policy so that if newly appointed project managers need technical assistance they can always get assisted.
- The Region must offer conflict management courses locally (in the Region) and this information must be available to all new appointees. Experienced project managers with good conflict management skills must always be willing to transfer similar skills to new appointees at meetings and forums.
- Experienced project managers must at all times show good personal characteristics and leadership skills. This means that experienced project managers must always listen, communicate, be honest, show integrity, treat team members with respect and dignity and enforce standards of conduct in project management. This will influence and persuade newly appointed project managers to develop similar skills and good personal characteristics.
- All newly appointed project managers must be allocated a coach and or a mentor in the Region. Continuous coaching and mentoring to project managers must be a tradition in the Region to develop exceptional future project managers. There must be professional and good personal relationships amongst experienced project managers and newly appointed project managers to ease the transfer of project leadership skills.
- Since the survey results showed a high support on the proposed project leadership model, the Region can therefore adopt the model and measure the performance improvement of newly appointed project managers every six month within the 24 months of in-house project management training.

6.4 SUGGESTIONS FOR FURTHER RESEARCH

This study concluded and provided recommendations on the topic on developing a project leadership model that will enhance project leadership skills of newly appointed project managers. During the course of the research, the researcher surmised that two important future topics that could improve projects performance and project leadership skills development in the Region can be studied.

Project and leadership skills development in departmental managers

Departmental managers have inputs on the approval of projects in the Region. For these managers to make premeditated concrete pronouncement when approving projects, they need to understand the technology involved in the whole project. All the projects to be approved and implemented in the Region are technical, this means that for these departmental managers to make a good technical approval decision, they need to be technical competent.

A viable future research topic would entail the study on “*project and leadership skills development in departmental managers.*”

Project engineers taking on project management as a profession

From the survey results, even though it was not intended to measure how project engineers would develop project leadership skills as compared to project managers, the results showed good project leadership development skills from project engineers. Moreover, as project engineers in the Region are already technical competent, a transition from project engineering profession to project management profession could be achievable and beneficial to the Region. This is because project engineers understand the technology involved on the projects and are already managing the definition and planning stages of the project life cycle.

Another viable future research topic would entail the study on “*Project engineers taking on project management as a profession.*”

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LIST OF APPENDICES

Appendix A: Summary of findings

B1_3 Have you attended any technical training courses? * B1_6 Would you say that technical training will improve the technical competency of project managers? Cross-tabulation			
			Total
B1_3 Have you attended any technical training courses?	Yes	Count	31
		% within B1_3 Have you attended any technical training courses?	100.0%
	No	Count	27
		% within B1_3 Have you attended any technical training courses?	100.0%
Total		Count	58
		% within B1_3 Have you attended any technical training courses?	100.0%

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.632 ^a	1	.057		
Continuity Correction ^b	1.720	1	.190		
Likelihood Ratio	4.776	1	.029		
Fisher's Exact Test				.095	.095
Linear-by-Linear Association	3.570	1	.059		
N of Valid Cases	58				
a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.40.					
b. Computed only for a 2x2 Table					

Binomial Test						
		Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)
B1_7 To what extent has attending technical training courses or technical experience gained from working on projects improved your technical competency?	Group 1	<= 2	2	.04	.50	.000 ^a
	Group 2	> 2	49	.96		
	Total		51	1.00		
B1_8 How important is it for project managers to be technical competent if working in project management environment?	Group 1	<= 2	2	.03	.50	.000 ^a
	Group 2	> 2	59	.97		
	Total		61	1.00		
B1_9 To what extent will a technical competent project manager assist newly appointed project managers to develop project leadership skill(s) such as technical competency?	Group 1	<= 2	1	.02	.50	.000 ^a
	Group 2	> 2	59	.98		
	Total		60	1.00		
B2_5 To what extent will a project manager with good conflict management skills assist newly appointed project managers to develop project leadership skill(s) such as good conflict management skills?	Group 1	<= 2	0	.00	.50	.000 ^a
	Group 2	> 2	61	1.00		
	Total		61	1.00		
B3_4 To what extent will a project manager with good coaching and	Group 1	<= 2	0	.00	.50	.000 ^a
	Group 2	> 2	61	1.00		

mentoring skills assists newly appointed project managers to develop project leadership skill(s) such as coaching and mentoring skills?	Total		61	1.00		
B4_5 To what extent will a project manager with good listening and communication skills persuades newly appointed project managers to develop good listening and communication skills?	Group 1	<= 2	0	.00	.50	.000 ^a
	Group 2	> 2	58	1.00		
	Total		58	1.00		
B5_4 To what extent will a project manager who understands and knows the basics of project management persuades newly appointed project managers to understand the basics of project management?	Group 1	<= 2	0	.00	.50	.000 ^a
	Group 2	> 2	61	1.00		
	Total		61	1.00		
B6_2 To what extent will a project manager who is honest and shows integrity influences newly appointed project managers to be honest and to show integrity?	Group 1	<= 2	0	.00	.50	.000 ^a
	Group 2	> 2	61	1.00		
	Total		61	1.00		
B7_2 To what extent will a project manager who treats team members	Group 1	<= 2	0	.00	.50	.000 ^a
	Group 2	> 2	60	1.00		

with respect and dignity influences newly appointed project managers to treat other project managers and team members with respect and dignity?	Total		60	1.00		
B8_2 To what extent will a project manager who enforces standards of conduct in project management persuades newly appointed project managers to enforce project management standards of conduct?	Group 1	<= 2	1	.02	.50	.000 ^a
	Group 2	> 2	59	.98		
	Total		60	1.00		
a. Based on Z Approximation.						

Binomial Test				
		Category	N	Observed Prop.
B1_3 Have you attended any technical training courses?	Group 1	No	27	.47
	Group 2	Yes	31	.53
	Total		58	1.00
B1_6 Would you say that technical training will improve the technical competency of project managers?	Group 1	Yes	58	.95
	Group 2	No	3	.05
	Total		61	1.00
B2_2 Would you say that attending conflict management courses will	Group 1	Yes	59	.98
	Group 2	No	1	.02

improve the conflict management skills of project managers?	Total		60	1.00
B3_2 Would you say that good coaching and mentoring to newly appointed project managers will develop them to become good project managers?	Group 1	Yes	60	.98
	Group 2	No	1	.02
	Total		61	1.00

Custom Tables

	Yes		No		Total	
	Count	Row N %	Count	Row N %	Count	Row N %
B1_1 Do you came from a technical background?	47	77.0%	14	23.0%	61	100.0%
B1_2 Do they offer technical training courses where you work?	46	76.7%	14	23.3%	60	100.0%
B1_3 Have you attended any technical training courses?	31	53.4%	27	46.6%	58	100.0%

Cross-tabs

<p>B2_2 Would you say that attending conflict management courses will improve the conflict management skills of project managers? * B2_5 To what extent will a project manager with good conflict management skills assist newly appointed project managers to develop project leadership skill(s) such as good conflict management skills? Cross-tabulation</p>
Count

		B2_5 To what extent will a project manager with good conflict management skills assist newly appointed project managers to develop project leadership skill(s) such as good conflict management skills?			Total
		3	4	Excellent	
B2_2 Would you say that attending conflict management courses will improve the conflict management skills of project managers?	Yes	10	22	27	59
	No	0	1	0	1
Total		10	23	27	60

Custom Tables

			Group	
			Project Managers	Project Engineers
B1_4 If yes, are the courses compulsory?	Yes	Count	9	7
		Row N %	56.3%	43.8%
	No	Count	15	9
		Row N %	62.5%	37.5%
	Total	Count	24	16
		Row N %	60.0%	40.0%
B1_5 Do you find it necessary for project managers to attend technical training courses?	Yes	Count	36	19
		Row N %	65.5%	34.5%
	No	Count	2	4
		Row N %	33.3%	66.7%

Custom Tables

		Group			
		Project Managers		Project Engineers	
		Count	Row N %	Count	Row N %
B1_7 To what extent has attending technical training courses or technical experience gained from working on projects improved your technical competency?	Poor	0	.0%	0	.0%
	2	1	50.0%	1	50.0%
	3	3	30.0%	7	70.0%
	4	13	65.0%	7	35.0%
	Excellent	13	68.4%	6	31.6%
	N/A	6	85.7%	1	14.3%
B1_8 How important is it for project managers to be technical competent if working in project management environment?	Not	0	.0%	0	.0%
	2	2	100.0%	0	.0%
	3	12	66.7%	6	33.3%
	4	8	66.7%	4	33.3%
	Very	16	55.2%	13	44.8%
	N/A	0	.0%	0	.0%
B1_9 To what extent will a technical competent project manager assist newly appointed project managers to develop project leadership skill(s) such as technical competency?	Poor	0	.0%	0	.0%
	2	1	100.0%	0	.0%
	3	10	71.4%	4	28.6%
	4	11	73.3%	4	26.7%
	Excellent	15	50.0%	15	50.0%
	N/A	0	.0%	0	.0%

Custom Tables

	Group
--	-------

	Project Managers		Project Engineers	
	Count	Row N %	Count	Row N %
B2_1 Are there any conflict management courses offered where you work?				
Yes	35	66.0%	18	34.0%
No	3	37.5%	5	62.5%
B2_2 Would you say that attending conflict management courses will improve the conflict management skills of project managers?				
Yes	37	62.7%	22	37.3%
No	1	100.0%	0	.0%
B2_3 Would you sat that it's necessary for project managers to have good conflict management skills?				
Yes	36	61.0%	23	39.0%
No	0	.0%	0	.0%



Appendice B : Project management questionnaire

Topic: "Developing a project leadership model to enhance project leadership skills in newly appointed project managers in NR"

All responses will be kept confidential

If you would like the results of the study to be sent to you, please indicate your email address:

Please mark the relevant block with an "x"

A Demographics

1	Age	21 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55-60	> 60	
2	Discipline	Chemical	Civil	Electrical	Electronic	Industrial	Mechanical	Metallurgical	Mining	Other	
		If other, please specify									
3	Nature of contract with employer	Permanent	Temporary								
4	Are you more likely to run 5 or more projects at the same time?	Y	N								
5	would you say that all project managers are good leaders ?	Y	N								
6	Amount of experience in project management [years] ?	< 1	1 - 2	2 - 5	5 - 10	10 - 15	15 - 20	> 20			
7	How many projects (>R 100mil) have you executed to date?	None	< 10	10 - 20	20 - 30	30 - 40	40 - 50	> 50			
8	How many project managers have you trained or coached to date?	0	1	2	3	4	5	> 5			

Project leadership definition: is defined as "the art of influencing others to develop skills such as; technical competency, conflict management skills, coaching & mentoring skills, listening & communication skills, stressing project management basics, setting example (honesty and integrity), treating team members with respect & dignity, and setting & enforcing project management standards of conduct."

B Project leadership skills						
Technical training and technical competency						
1	Do you come from a technical background ?	Y	N			
2	Do they offer technical training courses where you work ?	Y	N			
3	Have you attended any technical training courses (especially when you just joined project management environment) ?	Y	N			
4	If yes from (3), are the courses compulsory ?	Y	N			
5	Do you find it necessary for project managers to attend technical training courses ?	Y	N			
6	Would you say that technical training will improve the technical competency of project managers (especially the newly appointed project managers) ?					
7	To what extent has attending technical training courses or technical experience gained from working on projects improved your technical competency ?	1 [Poor]	2	3	4	5 [Excellent] N/A
8	How important it is for project managers to be technical competent if working in project management environment ?	1 [Not]	2	3	4	5 [Very] N/A
9	To what extent will a technical competent project manager assists newly appointed project managers to develop project leadership skill(s) such as technical competency ? (refer to project leadership definition)	1 [Poor]	2	3	4	5 [Excellent] N/A
Conflict management skills						
1	Are there any conflict management courses offered where you work ?	Y	N			
2	Would you say that attending conflict management courses will improve the conflict management skills of project managers ?	Y	N			
3	Would you say that it's necessary for project managers to have good conflict management skills ?	Y	N			
4	How would you rate the handling of conflict from a project manager with good conflict management skills ?	1 [Poor]	2	3	4	5 [Excellent] N/A
5	To what extent will a project manager with good conflict management skills assists newly appointed project managers to develop project leadership skill(s) such as good conflict management skills ? (refer to the definition of project leadership)	1 [Poor]	2	3	4	5 [Excellent] N/A

Coaching & mentoring skills						
	Y	N				
1	Would you say that it's necessary for newly appointed project managers to have a coach or a mentor in project management ?					
	Y	N				
2	Would you say that good coaching and mentoring to newly appointed project managers will develop them to become good project managers ?					
	1[Not]	2	3	4	5[Very]	N/A
3	How important it is for project managers to continuously receive coaching and mentoring in project management ?					
	1[Poor]	2	3	4	5[Excellent]	N/A
4	To what extent will a project manager with good coaching and mentoring skills assists newly appointed project managers to develop project leadership skill(s) such as coaching and mentoring skills ? (refer to the definition of project leadership)					
Leadership skills (Personal characteristics/ capabilities)						
Listening and communication skills						
	Y	N				
1	Do you listen and absorb information from team members and other project managers ?					
	Y	N				
2	Do you communicate clearly to team members and other project managers when running projects ?					
	Y	N				
3	Would you say that project managers must have good listening skills to be successful in project management ?					
	Y	N				
4	Would you say that it's necessary for project managers to possess good communication skills ?					
	1[Poor]	2	3	4	5[Excellent]	N/A
5	To what extent will a project manager with good listening and communication skills persuades newly appointed project managers to develop good listening and communication skills ?					

Basics of Project management						
	Y	N				
1	Would you say that it's necessary for project managers to know and understand the basics of project management ?					
	Y	N				
2	Do you find it necessary for project managers to stress the basics of project management to team members when running projects ?					
	1 [Poor]	2	3	4	5 [Excellent]	N/A
3	Up to what extent will a project manager benefit from understanding and knowing the basics of project management when running projects ?					
	1 [Poor]	2	3	4	5 [Excellent]	N/A
4	To what extent will a project manager who understands and knows the basics of project management persuades newly appointed project managers to understand the basics of project management ?					
Honesty and Integrity						
	Y	N				
1	Would you say that project managers must set an example to other project managers and team members by being honest and show integrity ?					
	1 [Poor]	2	3	4	5 [Excellent]	N/A
2	To what extent will a project manager who is honest and shows integrity influences newly appointed project managers to be honest and to show integrity ?					
Treating project team with respect						
	Y	N				
1	Would you say that it's necessary for project managers to treat project team members with respect and dignity ?					
	1 [Poor]	2	3	4	5 [Excellent]	N/A
2	To what extent will a project manager who treats team members with respect and dignity influences newly appointed project managers to treat other project managers and team members with respect and dignity ?					
Enforcing standards of conduct						
	Y	N				
1	Would you say that it's necessary for project managers to enforce standards of conduct in project management ?					
	1 [Poor]	2	3	4	5 [Excellent]	N/A
2	To what extent will a project manager who enforces standards of conduct in project management persuades newly appointed project managers to enforce project management standards of conduct ?					

C Improving project leadership skills	
Briefly, what do you think should be done to improve the project leadership skills of newly appointed project managers (refer to project leadership definition) ?	



Appendix C: Propositions from respondents

C1: Brief propositions from respondents on how to enhance project leadership skills in newly appointed project managers

C1 Briefly, what do you think should be done to improve the project leadership skills of newly appointed project managers					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		14	23.0	23.0	23.0
	A manager should be put through an induction programme of at least a month or three before having to take over a project portfolio	1	1.6	1.6	24.6
	All new PM'S should have work experience in all the support fields of project management before they can be successful in executing project PM'S must have excellent HR skills and networking capabilities in order to achieve success.	1	1.6	1.6	26.2
	All project staff including project managers' project coordinators and facilitating staff should attend the PMBOK course to get an overview of the knowledge areas of project management.	1	1.6	1.6	27.9
	As you are aware that there is a shortage of skill especially in project management it is important to mentor the new project manager so that the skill is transferred	1	1.6	1.6	29.5
	Better communication skills identifying key stakeholders and their role and setting realistic dates/goals on the project	1	1.6	1.6	31.1
	Communication is the key talking to new projects managers most of the time	1	1.6	1.6	32.8
	Continuous mentoring critical	1	1.6	1.6	34.4

Courses must be attended by newly appointed PM and also the old PMs	1	1.6	1.6	36.1
Delegate, coach and assist properly	1	1.6	1.6	37.7
Experienced project managers should always strive to show integrity at all times and improve ones technical competency and ensure that the newly appointed managers being mentored also strive to be technically competent and also improve their listening and leadership skills	1	1.6	1.6	39.3
Follow basic project management rules be very committed communication is the most critical issue you must have technical experience on the projects you manage otherwise contractors resources will take you for a ride.	1	1.6	1.6	41.0
For us to manage construction project well I think we need to start attending technical courses	1	1.6	1.6	42.6
Give smaller project whilst coaching and mentoring the new project manager then let him/her grow to a few smaller projects simultaneously after some experience was gained give bigger projects	1	1.6	1.6	44.3
If you treat team members with respect and dignity you will get the results and support	1	1.6	1.6	45.9
In-house training for one year	1	1.6	1.6	47.5
Integration among the stakeholders coaching and mentoring always review task schedule budget vs. actual and involve all the team and stakeholders in a project open door policy from project managers	1	1.6	1.6	49.2
Involvement in actual projects following professional bodies standards to become a PPM	1	1.6	1.6	50.8
It should be emphasized to show high ethical values and possess professional leadership skills	1	1.6	1.6	52.5
Lead from behind so that you can proscribe any unwanted deviation	1	1.6	1.6	54.1

Make sure they have some technical experience of what they will be managing. Teach them how to keep team members informed of any changes in their projects (no surprises).	1	1.6	1.6	55.7
Manager a guide and understand team members code of conduct to bring harmony within team members and being goal driven good advice to gain momentum quicker to understand the business. Accelerate mentorship to all team members so that we all understand and feel free to ask questions.	1	1.6	1.6	57.4
Mentoring and identifying the area where improvement is needed	1	1.6	1.6	59.0
Mentoring new appointees is of utmost importance knowledge of company procedures capital investment processes tender processes etc	1	1.6	1.6	60.7
Mentoring, Coaching and handholding of newly appointed cadets	1	1.6	1.6	62.3
More communication	1	1.6	1.6	63.9
Most of the time PMs are not honest about the manners their projects are executed. A practical information control among project teams should be set out and be followed accordingly	1	1.6	1.6	65.6
Newly appointed PMs with no experience should be working under Senior PMs as trainee's or juniors for at least two years. In this way they will pick up on most skills and they have opportunity to grow	1	1.6	1.6	67.2
Newly appointed project managers should be given opportunities to attend leadership and conflict management courses	1	1.6	1.6	68.9
On job training under guidance of qualified person with management skills appetite should be given the responsibility of running an project to apply practical knowledge	1	1.6	1.6	70.5

Over and above their basic academic mostly theoretical training a lot more emphasis on on-job training must be made	1	1.6	1.6	72.1
Programme manager should be trustworthy and respect Project manager must be a good steward of Eskom assets recourses and finances	1	1.6	1.6	73.8
Project leadership skills of new appointed project managers should be monitored by the mentors to ensure efficient development and transfer of skills and competency thereof	1	1.6	1.6	75.4
Project Managers must have a good understanding of what exactly needs to be done and check whether the scope of is thoroughly defined to avoid scope changes and additions during implementation and execution stage of project	1	1.6	1.6	77.0
Project managers should take the lead they should lead by example and communicate clearly what is needed and expected from the team they should also take responsibility for actions and decisions made by them and carried out by the team.	1	1.6	1.6	78.7
Roles expectations boundaries responsibility are to be set clearly the person should understand what is expected and where the limits are have to be able to work with people	1	1.6	1.6	80.3
Skills development not limited to coaching and mentoring	1	1.6	1.6	82.0
Stress the importance of working as a team to be honest at all times to ensure there are no surprises hidden regarding time quality cost and actual progress and possible stumbling stones on the project	1	1.6	1.6	83.6
They have to be honest all the time to team members	1	1.6	1.6	85.2

They must be trained and mentored by project managers with experience. Courses must be arranged for new project managers and their progress/performance must be closely monitored by senior management	1	1.6	1.6	86.9
They must have engineering back ground for them to be able to estimate project costs and time, be able to compare amount claimed versus completed work thus including quality before he authorised the payments.	1	1.6	1.6	88.5
They should be monitored from time to time developed in terms of attending leadership skills courses	1	1.6	1.6	90.2
To allow project managers to have technical knowledge project management skills leadership skills and know the how to deal with stressful situations	1	1.6	1.6	91.8
To appoint the experienced candidates who have customer services background and understand project very well and be a hard worker	1	1.6	1.6	93.4
To ensure that project co coordinator and managers have technical knowledge and understands standards and have project management background	1	1.6	1.6	95.1
Training	1	1.6	1.6	96.7
Training and coaching to new employees	1	1.6	1.6	98.4
Use feedback to stay informed about what other people are doing in your area of responsibility and authority have regular focused meetings regarding the projects that you are responsible for	1	1.6	1.6	100.0
Total	61	100.0	100.0	

Appendix D

Case study: Developing a project leadership model - Problem Statement

The department of project management in Eskom Northern Region have no tangible methods on developing dominant future project managers. After a discussion with top management in the department, it was concluded that there is a need for developing tangible methods in the form of a project leadership model to enhance project leadership skills in newly appointed project managers. The key points to be looked at in developing this project leadership model are; purpose, direction, motivation, technical training, technical competency, managing conflict, leadership skills and personal characteristics and coaching and mentoring of newly appointed project managers and project team members.

In order to address the research problem effectively it is proposed/hypothesised that:

- **H1:** Technical training to newly appointed project managers will improve the newly appointed project manager's technical competency.
- **H2:** Project managers who are technically competent will provide good assistance to newly appointed project managers to develop project leadership skill(s) such as technical competency.
- **H3:** Project managers with good conflict management skills will provide good assistance to newly appointed project managers to develop project leadership skill(s) such as conflict management skills.
- **H4:** Project managers with good leadership skills will present good persuasion to newly appointed project managers to develop good leadership skills such as listening and communication skills, stressing the basics of project management, honesty and integrity, treating the project team with respect and dignity, and enforcing project management standards of conduct.
- **H5:** Project managers with good coaching and mentoring skills will provide good assistance to newly appointed project managers to develop project leadership skill(s) such as coaching and mentoring skills.

Project Leadership Model Design (linked to the hypotheses)

The model was developed using the leadership model of Cleland (2004) and Lussier and Achua's traits of effective leaders as starting points. The study proposes relationships between project leadership roles based on; technical training (TT), technical competency (TC), conflict management (CM), leadership skills (LS) or personal characteristics (listening and communication skills, stressing project management basics, honesty and integrity, treating team members with respect & dignity, setting & enforcing project management standards of conduct), and coaching & mentoring (C&M) of newly appointed project managers (NAPMs). The five hypotheses proposed in section 1.4 in chapter 1 have been linked to the project model and discussed fully in this chapter. Figure D.0 shows the proposed project leadership model to be tested.

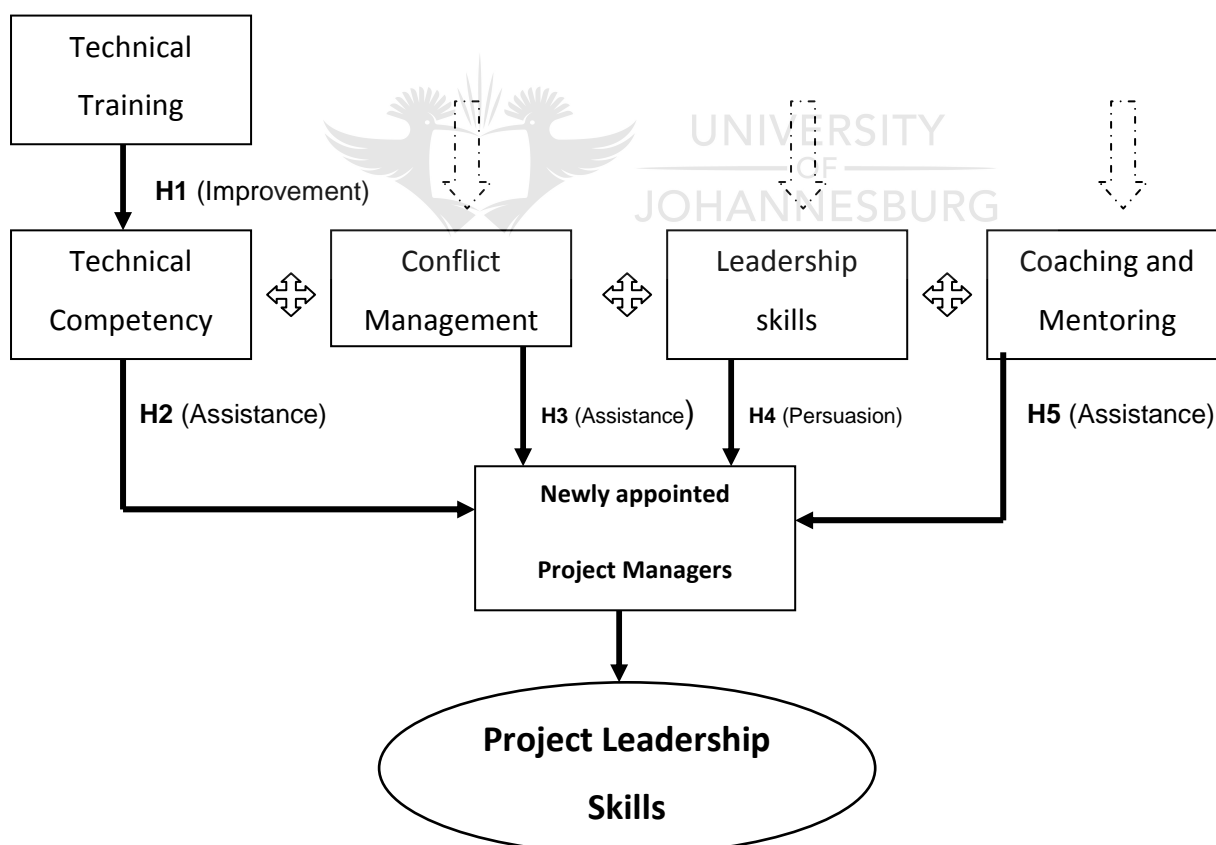


Figure D.0 Summarized results and hypotheses

Appendix E: Statistical Terminology - Mean and Standard deviation

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Standard deviation is a statistical value used to determine how spread out the data in a sample are, and how close individual data points are to the mean, or average, value of the sample. A standard deviation of a data set equal to zero indicates that all values in the set are the same. A larger value implies that the individual data points are farther from the average value.

In a normal distribution of data, also known as a bell curve, the majority of the data in the distribution — approximately 68% — will fall within plus or minus one standard deviation of the statistical average. This means that if the standard deviation of a data set is 2, for example, the majority of data in the set will fall within 2 more or 2 less than the average. Roughly 95.5% of normally distributed data is within two standard deviations of the mean, and over 99% are within three.

To calculate the **standard deviation**, statisticians first calculate the mean value of all the data points. **The mean, or average**, is the sum of all the values in the data set divided by the total number of data points. Next, the deviation of each data point from the average is calculated by subtracting its value from the mean value. Each data point's deviation is squared, and the individual squared deviations are averaged together. The resulting value is known as the variance. Standard deviation is the square root of the variance.

Typically, statisticians find the standard deviation of a sample from a population and use that to represent the entire population. Finding the exact data for a large population is impractical, if not impossible, so using a representative sample is often the best method. For example, if someone wanted to find the number of adult men in the state of California who weighed between 180 and 200 pounds, he could measure the weights of a small number of men and calculate their average, variance, and standard deviation and assume that the same values hold true for the population as a whole.

Appendix F: Chi-Square Test Results and Chi-Square Distribution

Expected responses distribution						
Group1 ≤ 2	50.00%	0.5 proportion				
Group1 >2	50.00%	0.5 proportion				
H1	Category	O	E	(O - E)	(O - E)²	(O - E)²/E
	Group1 ≤ 2	2	25.5	-23.5	552.25	21.6568627
	Group1 >2	49	25.5	23.5	552.25	21.6568627
			Chi Square value X ² =			43.31
	df =	1			p =	3.84
		51		0		51
H2	Category	O	E	(O - E)	(O - E)²	(O - E)²/E
	Group1 ≤ 2	1	30	-29	841	28.03333333
	Group1 >2	59	30	29	841	28.03333333
			Chi Square value X ² =			56.07
	df =	1			p =	3.84
		60		0		60
H3	Category	O	E	(O - E)	(O - E)²	(O - E)²/E
	Group1 ≤ 2	0	30.5	-30.5	930.25	30.5
	Group1 >2	61	30.5	30.5	930.25	30.5
			Chi Square value X ² =			61
	df =	1			p =	3.84
		61		0		61
H4	Category	O	E	(O - E)	(O - E)²	(O - E)²/E
	Group1 ≤ 2	0	30	-30	900	30
	Group1 >2	60	30	30	900	30
			Chi Square value X ² =			60
	df =	1			p =	3.84
		60		0		60
H5	Category	O	E	(O - E)	(O - E)²	(O - E)²/E
	Group1 ≤ 2	0	30.5	-30.5	930.25	30.5
	Group1 >2	61	30.5	30.5	930.25	30.5
			Chi Square value X ² =			61
	df =	1			p =	3.84
		61		0		61

Chi-Square Distribution

Degrees of Freedom (df)	Probability (p)											
	0.95	0.90	0.80	0.70	0.50	0.30	0.20	0.10	0.05	0.01	0.001	
1	0.004	0.02	0.06	0.15	0.46	1.07	1.64	2.71	3.84	6.64	10.83	
2	0.10	0.21	0.45	0.71	1.39	2.41	3.22	4.60	5.99	9.21	13.82	
3	0.35	0.58	1.01	1.42	2.37	3.66	4.64	6.25	7.82	11.34	16.27	
4	0.71	1.06	1.65	2.20	3.36	4.88	5.99	7.78	9.49	13.28	18.47	
5	1.14	1.61	2.34	3.00	4.35	6.06	7.29	9.24	11.07	15.09	20.52	
6	1.63	2.20	3.07	3.83	5.35	7.23	8.56	10.64	12.59	16.81	22.46	
7	2.17	2.83	3.82	4.67	6.35	8.38	9.80	12.02	14.07	18.48	24.32	
8	2.73	3.49	4.59	5.53	7.34	9.52	11.03	13.36	15.51	20.09	26.12	
9	3.32	4.17	5.38	6.39	8.34	10.66	12.24	14.68	16.92	21.67	27.88	
10	3.94	4.86	6.18	7.27	9.34	11.78	13.44	15.99	18.31	23.21	29.59	
	Nonsignificant								Significant			

The source for the Table: R.A. Fisher and F. Yates, Statistical Tables for Biological Agricultural and Medical Research, 6th ed., Table IV, Oliver & Boyd, Ltd., Edinburgh. Available from <http://www2.lv.psu.edu/jxm57/irp/chisquar.html> (Accessed 30 October 2010).

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