

Mentoring Practices in Information Systems Project Management

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**A Thesis submitted to
Auckland University of Technology
in fulfilment of the requirements for the Degree of
Doctorate of Philosophy (PhD)**

2012

AUT Business School, Faculty of Business and Law

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ATTESTATION OF AUTHORSHIP

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), no material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

ACKNOWLEDGEMENTS

Over the past three years, this scholarly experience has been an enriching journey. This would not have materialized without the support and encouragement of many well-meaning individuals. It is indeed a pleasure and my great privilege to thank and acknowledge these individuals for making this thesis a reality.

I am grateful to both of my academic supervisors at AUT University. They have been exemplary mentors, and their guidance/advice has been thought provoking. Overall, this journey has been stimulating, and their tutelage has been empowering, enriching and enjoyable. To my primary supervisor, Professor Felix Tan - thank you for your patience, kindness and nurturing, it has been most encouraging. Your oversight and foresight were priceless. My secondary supervisor, Professor Stephen MacDonell - thank you for your kind indulgence and enthusiasm, it has been most revitalizing. Your direction and advocacy were most invaluable.

The following individuals have made this scholarly experience possible. Associate Professor Mark Jackson and Professor Olaf Diegel - thank you for the PhD scholarship. Professor Ajit Narayanan - thank you for providing the lecturing/tutoring opportunities at SCMS. Jim Buchan - thank you for the great mentorship at SCMS. All the participating IS project managers – thank you for your time towards informing this study. I appreciate your contribution and especially taking time out of your respective busy schedules.

My dear wife, SiewEng, my loving sons, TianXiang and TianWen, and my mother, PohKeng Chan - your moral support, encouragement and most of all, your prayers were greatly appreciated. Thank you for your unconditional love and also for putting up with me. Relatives and friends at large in Auckland, Kuala Lumpur and Singapore – thank you for your prayers and encouragement.

Last, but foremost, my loving Heavenly Father - thank you for Your abundant grace, mercy and loving-kindness.

ABSTRACT

This thesis examines the adoption of mentoring practice across the Information Systems (IS) project management process in the context of project success improvement. The purpose of this research is to propose a model expanding on prevailing theories and research by explaining the nature and effects of mentoring practice adoption in IS project management (Gregor, 2006). This study adopted a two-part multiple-method research approach. As little was known about the nature and characteristics of IS project management mentoring in practice, an exploratory survey was conducted to assess the landscape of mentoring practice adoption. Practising IS project managers who were staff of multinational companies (MNCs) based in Malaysia were asked to relate their mentoring adoption experiences and perceptions as mentees across the IS project management process. Forty-six IS practising project managers participated in the initial web-based survey. Subsequently, in-depth one-to-one interviews were conducted using open-ended and semi-structured questions. To this end, McCracken's (1988) long-interview technique was used to draw out the experiences and perceptions of interviewees in narrative form. Narratives were collected from twenty-one IS project managers who were a subset of the initial group surveyed. The collected interview narratives were analysed using the iterative and constant comparison analysis technique of Miles and Huberman (1994).

Drawing on a combination of theoretical frameworks, including Kolb's theory of experiential learning (D. Kolb, 1984; D. A. Kolb et al., 1999), social exchange theory and communitarian theory (Gibb, 1999), the three models of mentoring (apprenticeship, competence and reflective models) (Maynard & Furlong, 1993), and the mentoring model of Anderson and Shannon (1995) this research has made significant contributions. This research not only contributes to IS literature but also IS project management practice and policy.

The espoused theory of IS project management mentoring provides a better understanding of the requirements, nature, and extent of the role of mentoring in effective IS project management. In this regard, four key findings emerged from

this study. Firstly, mentoring support was affirmed as an effective mechanism for project success improvement and problem-solving enhancement. Secondly, mentoring support nurtures IS project managers. Thirdly, learning is a key and effective outcome under IS project management mentoring; mentoring as a learning platform was efficacious. Fourthly, human capital can be fostered and social capital enriched through mentoring adoption. The study found that participating IS project managers were provided with tactical support towards project success over the duration of the project and, over the long term, their competencies were perceived as being enhanced. IS project management mentoring therefore brings about the suggestion of advancement and maturation of competencies to IS project managers.

As for key contributions to IS project management practice and policy, this research underscores the efficacy of mentoring adoption in the soft-skill development, strategic overviews and development of key deliverables, and improvement of key project processes that are related to scheduling, staffing and costing. This research also brings knowledge of key impediments to mentoring practice adoption, and this can serve as early warning signals. Last but not least, the strengthening of IS project management competencies can be done by advocating purposeful adoption of IS project management mentoring practice and/or by institutionalizing the role of IS project mentors in IS projects. These pragmatic advices to practice and policy may lead a greater human capital investment realization of the person of IS project manager.

CHAPTER 1 INTRODUCTION

1.1 Outline of the Chapter

This chapter introduces the research study and provides the pertinent background information. The focus of this research is on the examination of mentoring as a supporting role across the Information Systems (IS) project management process towards the improvement of IS project success. Section 1.2 describes the background of this research study and the professional background of the researcher. His many years of prior commercial experience in IS project management potentially add value to the analysis and discussion of this journey of empirical discovery. Section 1.3 then presents a brief outline of the research study before Section 1.4 presents the research objectives. Section 1.5 addresses the significance of and motivations for this study; it also indicates the potential contributions to knowledge of this research.

The research questions are introduced in Section 1.6; these address the knowledge gap relating to the adoption of mentoring across the IS project management process. The answers to these questions constitute the primary and principal focus of this research study. Section 1.7 then describes the overall research approach and methodology. Section 1.8 outlines the scope of the study and presents its various assumptions and limitations. The penultimate section provides an outline of this research thesis. The final section presents a chapter summary.

1.2 Background Information

1.2.1 Background of the Researcher

This researcher has more than 25 years experience in IS related work in the Asia-Pacific region. During that time, he has been involved in IS project management in various capacities. In the course of his professional career, he has had extensive exposure to various IS project management methodologies, tools and techniques. He has participated in both small and very large IS projects across diverse sectors including government, banking, telecommunications and commercial enterprise.

1.2.2 Background Information Leading to the Initiation of this Study

In the late 1980s, while working with one of the then big six consulting firms, the researcher had the opportunity to be informally mentored. He was project manager for a large IS project in the Asia-Pacific region at the time. The assigned IS project mentor had more than 30 years' experience in the management of IS projects. The mentoring experience was a very positive one which sparked the researcher's interest in IS project management mentoring. Later, in the mid-1990s, the researcher was offered the role of formal IS project mentor to a group of IS project managers in a large mobile telecommunication organization in Malaysia. This also proved to be a positive experience.

Prior to the beginning of this study, the researcher's knowledge of IS project failures had been mainly anecdotal, i.e. based on personal experience, the experiences of his peers or gained through the reading of IS-related business magazines and journals. Fundamentally, the researcher was motivated by the desire to avert project failure. In retrospect, this has in part triggered the motivation to contribute to the body of knowledge of IS project management literature.

1.2.3 Background Information to Context of the Research Study

Businesses are increasingly dependent on effective IS (Carugati & Rossignoli, 2011; Halpin et al., 2010). As the single point of accountability/responsibility, the IS project manager plays a pivotal role in the success of the project and by extension, the business organization (APM, 2011; Heerkens, 2001). Effective IS project management is highly desirable and a prized commodity (G. Klein & Jiang, 2001). Generally, IS is no longer a choice but a necessity for progressive business organizations to be successful. Evidence from non IS fields generally shows that an individual does benefit from the mentor relationship (E. E. Ensher & Murphy, 2006; Gabbaro, 1987; D. Thomas & Kram, 1987). The practice of mentoring is well documented and researched in the fields of psychology, management, academia, counselling, social work, and sociology (Tashakkori, Wilkes, & Pekarek, 2005). Mentoring is a tool for learning through systematic critical reflection (Nicholls, 2002) and Jarvis (1987) observed that 'all learning begins with experience'. Towards this

end, study on mentoring in IS project management can improve IS project effectiveness in business organizations – this constitutes a worthy candidate of investigation that is specific to IS. Chapter 2 provides an in-depth discussion of the context of this research study.

1.3 Research Introduction and Outline

This research study is exploratory in nature. The key research consideration is to further the understanding of the adoption of mentoring as perceived by IS project managers in the project management process. As such, this study proposes to use a descriptive model (of IS project management mentoring) to explain this phenomenon. This descriptive model is developed based on theoretical frameworks from the disciplines of IS project management and mentoring; which also include extant mentoring adoption literature in the practice areas of management, academia, counselling and medicine. The research findings are inductive, i.e. the broad generalizations and theories of this study derive from conclusions made as a result of specific observations of the research data.

The overall research approach has two parts. The first consisted of an initial assessment of the state of practice of mentoring adoption across the IS project management process – a mix of closed and opened questionnaire survey was used. The second involved the conducting of interviews of practising IS project managers. The state of practice survey enabled an initial assessment of the adoption of mentoring based on feedback of the participating IS project managers. Thereafter, the interview narratives of the IS project managers collected using McCracken's (1998) long-interview technique provided the in-depth data for the study. The targeted participants were IS project management practitioners of Malaysian-based multinational companies (MNCs).

1.4 Research Objectives

The principal objective of this research study is to identify the nature and extent to which the adoption of mentoring is present and considered efficacious in the support

of IS project managers across the IS project management process. This involves the examination and documenting of the aspects of IS project management and the practice of mentoring in the context of project effectiveness. This context includes project problem-solving enhancement and improvement of IS project success rates.

The subsidiary objective of this research is to explore and document the practices of mentoring adopted and applied within the context of IS project management process. This involves examining the context of the adoption of mentoring across and within IS project management processes from the perspective of practising IS project managers.

The specific objectives of this research study are:

1. To examine the characteristics, relationships, attitudes and motivations in the adoption of mentoring across IS project management processes.
2. To examine and establish the aspects of IS project management learned through mentoring adoption. This includes the examination and establishment of learning characteristics.
3. To examine and establish the factors that contribute to possible improvements of IS project success through the adoption of mentoring. This includes contributions to the enhancement of project problem-solving.
4. To advance theory by way of the development of a descriptive model of IS project management mentoring across IS project management processes.
5. To identify and encourage future research on IS project management and mentoring and to apply these empirical research results to the practice space of IS project management.

1.5 Statement of Significance

Achieving the stated research objectives the IS project management body of knowledge will enhanced the areas of mentoring and project effectiveness. This would potentially generate further research in areas related to IS project management mentoring. In this regard, a better understanding of the nature and extent of the role of mentoring, effective IS project management can further benefit project owners and key stakeholders. Pragmatic advice together with empirical evidence can lead to the greater realization of human capital (Getha-Taylor & Brudney, 2006). In brief, this study can contribute to the literature and practice of IS project management in the following ways:

1. Build on existing research in the areas of IS project management success improvement.
2. Bring about refinement to theoretical frameworks and applications of IS project management.
3. Deliver better return on human capital investment of IS project managers by leveraging the experiences of senior, more experienced IS project managers.
4. Against the backdrop of increasing business process sophistication, better management of IS projects not only preserves the high investment cost of IS implementation but also realizes the benefits of IS application systems faster.

The demonstration that improved project success rates is a perceived key consequence of IS project management mentoring would be significant. It would not only enrich the IS project management body of knowledge, but also benefit IS project management practitioners, project owners, students of IS project management and other key stakeholders.

1.6 The Research Questions

To achieve the research objectives described in Section 1.4, this study proposes five research questions. Their underlying objective is to fill the apparent knowledge gap discussed in Section 2.4.1. This gap concerns the adoption of mentoring as a

supporting mechanism in the IS project management process. The five research questions of this study are:

1. What are the perceptions of IS project managers towards the adoption of mentoring practice?
2. Why are mentoring practices being adopted by IS project managers?
3. What aspects of IS project management process have been learned through the mentoring practice?
4. How is learning characterized by IS project managers in the adoption of mentoring practice?
5. What contributions towards IS project success are perceived by IS project managers in the adoption of mentoring practice?

Research questions 1 and 2 are designed to explore and document the adoption of mentoring across and within the context of IS project management processes. This constitutes the first phase of this research project. This phase serves to provide an assessment by way of an update of the landscape of the practice (or the state of practice) of mentoring across the IS project management process. The answers to these questions provide the necessary contextual information for the remaining three research questions 3, 4 and 5. The first two research questions provide an assessment of mentoring adoption as perceived by IS project managers, i.e. their attitudes and perceptions, characteristics, rationales, motivations, and their ideas concerning the benefits and barriers of mentoring adoption. The first phase also facilitated the identification and selection of IS project managers as interview participants for the second phase.

The second phase examines and documents the aspects of IS project management that are learned through mentoring practices. It also identifies learning characteristics, and examines and documents the contributions of IS project management mentoring towards project effectiveness. It is hoped that this examination of the nature and extent of the adoption of mentoring across the IS project management process cycle will provide supporting evidence towards the

improvement of IS project success. To this end, research questions 3, 4 and 5 are designed.

1.7 The Research Approach

To address and provide answers to the above research questions, this research study adopts a two-part multiple-method research approach that broadly follows the interpretivist paradigm. This research approach is adopted with the view of further understanding the experiences and perceptions of practising IS project managers who are mentees learning from, and being guided by, a (usually) more experienced individual or group of individuals (K. E. Kram, 1985). In short, this research approach was adopted to derive maximum meaning from the experiences and perceptions of the practising IS project managers towards the adoption of mentoring across the IS project management process.

The first part of the research (Phase 1) is in the form of a state of practice survey. A web-based survey instrument was used as an exploratory tool to assess the landscape of project management mentoring practice across the IS project management process. It identified key attributes such as the attitudes of IS project managers to mentoring practice and their knowledge and understanding of mentoring as a practice, as well as the characteristics of mentoring adoption. It also identified the experiences and perceptions of practising IS project managers with regard to the obstacles of adoption and their recommendations with respect to the advice they would offer to intending adopters. These insights into project management mentoring practice provide essential context for the second part of the study.

The second part of the research (Phase 2) adopts an inquiry by narrative interview approach (Choudrie & Dwivedi, 2005; Clandinin, 2006); where narrative analysis was applied on the collected interview narratives. To assist in the collection of narratives from practising IS project managers, McCracken's (1988) long-interview technique is used (Hunter, 2007). Semi-structured questions of an open-ended nature were used to elucidate attitudinal responses from practising IS project managers. The long-interview technique encourages participants to freely describe

and share their experiences and perceptions. The interview narratives were recorded and analyzed following the framework and recommendations of Miles and Huberman (1994). Comprehensive research protocols related to both the survey and interview components were developed in the conduct of the two-part multiple-method research approach.

1.8 Scope and Assumptions

The scope of this research study covers the examination, analysis and documentation of IS project managers' experiences and perceptions of the adoption of mentoring across the IS project management process.

The primary focus of this study is on practising IS project managers and the IS project management process. An IS project manager is an IS professional who has a leadership role in IS projects. This study uses *A Guide to the Project Management Body of Knowledge (PMBOK Guide)* (PMI, 2004) as a baseline reference. The *PMBOK Guide* outlines five process groups – Initiating, Planning, Executing, Monitoring and Controlling, and Closing – which represent all the activities necessary for the management of IS projects.

This study focuses on the perspective of the practising IS project manager as a mentee who is assisted by way of advice and guidance from a more experienced individual or individuals (the mentor) in a mentoring relationship. In most cases, the mentors are more experienced IS project managers.

The key assumptions of this study are:

1. There is a social aspect and dimension related to IS project management. A key part of problem solving revolves around the participation of humans as social beings. Generally, it is people-, procedure- and process-centred in nature (Benson & Standing, 2002; R. Stair & Reynolds, 2003).
2. There is a social aspect and dimension to project management and the learning of project management (Berggren & Söderlund, 2008).
3. The actual physical project environment was not a focus and therefore there is no examination of it as such.

4. The IS project manager participants are professionals. Their conduct and professionalism was considered altruistic, ethical, committed and responsible. In addition, their responses in the form of shared experiences and perceptions were considered to be 'for the good of the profession'. In this respect, their responses were assumed to be accurate and truthful; the basis of reflection is based on their personal experiences and perceptions i.e. 'upon the fullness of the experienced moment' (Kohl, 1992).
5. The IS project manager is the main actor. The focus of this research study is on the experiences and perceptions of the IS project manager (i.e. as a mentee). The IS project manager is often considered as the single point of accountability/responsibility within the project (APM, 2011; Heerkens, 2001).
6. The adoption of mentoring is considered to include either in full or part mentoring functions such as teaching, sponsoring, encouraging, counselling, and befriending (Anderson & Shannon, 1995).

1.9 Outline of the Thesis

There are altogether seven chapters in this thesis. Each chapter begins with an overview that describes the objectives of the chapter and ends with a chapter summary. Sections and subsections are used in each chapter for purpose of clarity and perspective.

The first chapter serves as an introduction and provides the pertinent background information of the research study. Its main sections are background information; research introduction and objectives; statement of significance; the research questions; the research approach; scope, assumptions and limitations; outline of the thesis; and summary of the chapter.

Chapter 2 sets out to establish the context of this research study by conducting a literature review and develops the descriptive model of IS project management mentoring used in this study. The model draws on theoretical frameworks of IS project management and mentoring and the extant literatures.

Chapter 3 describes the approach and methodology utilized in the implementation and conduct of the research processes. The target research participants are described, and the ethics application and approval of AUTECH outlined. The theorizing process is then described, along with the assumptions associated with the conduct of the research.

Chapters 4 and 5 respectively describe the first and second parts of the analysis of the research findings. Chapter 4 focuses on the state of practice survey of mentoring adoption across the IS project management process – the ‘whats’ and ‘whys’ are described. The principal focus is on research questions 1 and 2. Chapter 5 focuses on analysis of the aspects of IS project management process that mentees perceived to have been learnt through mentoring adoption. The analysis also focuses on the resultant learning characteristics and the contributions to project success improvement. The principal focus of this chapter is on research questions 3, 4 and 5.

Chapter 6 discusses the research findings using the theoretical lens of the descriptive model (of IS project management mentoring). It is followed by the establishment of a theory of IS project management mentoring.

Chapter 7 concludes this thesis. The contributions made by this study to the IS project management and mentoring literatures are presented. In addition, the contributions to IS project management practice, project stakeholders and IS project management policy are outlined. Lastly, recommendations for future research are made.

Next are sections of thesis appendixes and list of figures. The last section is the thesis bibliography. This is the acknowledgement of the materials used in the form of books, journals, articles and electronic resources. Style and system of referencing used is that of the APA (American Psychological Association) sixth edition format. It is listed by alphabetical order by the last name of the author(s).

1.10 Summary of the Chapter

Both the principal and subsidiary objectives of this study on mentoring adoption across the IS project management process were described and the five research questions presented. Background information concerning both the researcher and the initiation of this study was provided. Following the statement of significance, the research approach was described and a brief overview of the study was presented. Lastly, an explanation of the scope, assumptions and limitations of the study was given.

The next chapter reports a literature review and describes the theoretical foundations and frameworks of IS project management and mentoring that are related to this study. The descriptive model of IS project management mentoring used in this study is presented at the end of the chapter.

CHAPTER 2 LITERATURE REVIEW

2.1 Outline of the Chapter

This chapter reports a literature review that leads to the development of a descriptive model of IS project management mentoring. The model is designed to promote project effectiveness through enhancement of problem solving and to improve IS project success. Supported by theoretical frameworks of both IS project management and mentoring, this descriptive model presupposes the nature and characteristics of the mentee/mentor dyad based on extant mentoring literature in the disciplines management, academia, counselling and medicine. As a theoretical lens, the model is used to explain the phenomenon of mentoring adoption across the IS project management process and is informed by practising IS project manager.

Sections 2.2 and 2.3 focus on IS project management and the theoretical framework of project management. They outline the importance and characteristics of IS projects and introduce the main actor of this study, the IS project manager, along with their associated competency characteristics and issues surrounding management of IS projects. Section 2.4 focuses on the context of the mentor/mentee dyad relationship with respect to it serving as an enabling, learning and supporting tool. In addition to a literature review on the practice of mentoring in IS projects and other disciplines, this section discusses the positives and negatives of mentoring, aspects of learning, and the process and outcome of mentoring. The knowledge gap of IS project management mentoring is also discussed in this section. Section 2.5 focuses on the theoretical frameworks of mentoring and describes three key mentoring theoretical models. Section 2.6 then describes the descriptive model of IS project management mentoring. This section underlines the research objective of seeking better understanding of IS project management mentoring by addressing the identified knowledge gap. The last section summarizes this chapter.

2.2 Context to IS Project Management

This section discusses the context of IS project management and has five subsections. In addition to the importance and characteristics of IS projects, the discussion is also focused on the main actors of this study, IS project managers. The competency characteristics of IS project managers are outlined together with the issues surrounding management of IS projects. Lastly, IS project success is discussed.

2.2.1 Importance of IS and IS Projects

The primary purpose of business organization is to create value and prosperity for stakeholders, and the antecedent to this is usually satisfying customers. To this end, some organizations aim to provide superior service while some focus on business delivery mechanisms.

Today's business environment is complex and at times very fluid (Harmon, 2010). The need to manage success, create value, and ensure business continuity is vital (Doughty, 2002). To this effect, IS is recognized as a key component by most businesses. IS is central to the re-modelling and re-definition of business processes, structures and delivery mechanisms (Bannister, 2002; Pardo & Tayi, 2007). The modern global economy will continue to be profoundly impacted and shaped by IS and its creative use. As a result, businesses are increasingly dependent on IS, which is considered the fastest growing industry in developed countries (Kagermann, Österle, & Jordan, 2010). At the same time, however, IS project management is still considered to an immature discipline (J. L. Smith, Shawn, & McCrickard, 2005)

Recent years have seen the role of IS not only has increased but also in diversity of use (Isomäki, 2010). It has become even more essential and crucial to businesses. A plethora of IS literature now describes how IS has transformed the competitive landscape and position of business (Kagermann et al., 2010; M. Porter & Millar, 1985). Today, successfully implemented and managed IS-driven business applications are crucial operating cornerstones of well-conceived business strategy.

IS is generally designed to provide information-processing capability and intelligence to support decision-making, problem-solving or operational business activities of an organization (Damij, Damij, Grad, & Jelenc, 2008). IS as a user-interface performs the collection, processing and storing of necessary information for the completion of business activities (Satzinger, Jackson, & Burd, 2008). Broadly, IS can be considered a combination of all relevant supporting information technology related infrastructures and purpose-designed business application software components. It is designed to handle information relating to one or more business processes (Stahl, 2008).

Examples of IS projects are the implementation and commissioning of; ERP (Enterprise Resource Planning), CRM (Customer Relationship Management), GIS (Geographical Information System), SCM (Supply Chain Management) and e-Learning systems (Hong & Kim, 2002; Ketikidis, Koh, Dimitriadis, Gunasekaran, & Kehajova, 2008; Motwani, Akbulut, Mohamed, & Greene, 2008; Ralph Stair & Reynolds, 2011).

2.2.2 Characteristics of IS Projects

A project is a temporary endeavour undertaken to create a unique product, service or result (PMI, 2004) that is considered as a 'vehicle of change' (APM, 2011). In contrast to an operational business function, a project has clearly defined business objectives with a pre-determined time scale and specific start and end dates (PMI, 2004; Reiss, 1992). Projects are normally unique in nature and inherently uncertain (P. Atkinson & Delamont, 2006; Jun, Qiuzhen, & Qingguo, 2010). They are usually urgent and non routine in nature (APM, 2011; Dominick, Lechler, & Aronson, 2004; PMI, 2004).

IS projects subscribe to the abovementioned characteristics. Inherently, IS projects are complex. Not only do the technological related issues need to be handled expeditiously, but also the organizational and management ones (Davis & Pharro, 2003; Xia & Lee, 2004).

Typically, IS projects are divided into a number of stages or phases in order to facilitate better and effective management and control. Collectively, these stages are

sometimes known as the project life cycle. Examples of stages are definition, planning, execution and finally delivery. Normally, the number of stages in a project is dictated by its characteristics and the management approach used. Within each stage, project activities are defined. These activities may be split into stages or sub-stages. The project management approach manages the definition of the project activities. To this end, project management approaches may be incremental, interactive, phased, collaborative or combinatory (Fox & Wilkinson, 2007; PMI, 2004).

2.2.3 IS Project Managers and Competencies

The IS project manager is essentially the single point of accountability and responsibility (APM, 2011; Heerkens, 2001). Typically, he or she sits at the apex of the project organization, and can be considered as the CEO of a 'temporary company' (Kharbanda & Stallworthy, 1990). Normally, this project leader role is vested with significant formal authority to guide, monitor and direct project resources. The responsibility of managing the activities and resources within agreed parameters lies solely on the shoulders of the project manager.

Effective project management-related skills are often cited as important factors that can contribute to the success of IS projects (Du, Johnson, & Keil, 2004). Such skills are highly desirable; most businesses prize them (G. Klein & Jiang, 2001). To this end, a competent project manager is one who can consistently apply project management knowledge towards delivering project success such that stakeholders' requirements are met. This involves the bringing together of knowledge, skills, personal characteristics, and attitudes in a synergistic manner (PMI, 2004, 2007). The duties of IS project managers are both demanding and multifarious. The ability to juggle several issues at once is expected and IS project managers who are successful, experienced and skilful are generally in greater demand because IS projects are often crucial to business success (APM, 2011; Heerkens, 2001). Effective project managers generally influence the likelihood of project success (Lechler & Dvir, 2010; Sharlett, 2009). To this end, experience and good project

management practices and skills are crucial (Davenport & Prusak, 2000; Ropponen & Lyytinen, 2002).

A key project management-related skill is practice competency, which is a measure of the ability to perform a certain activity. It may be defined as the ability to transform knowledge and skills into practice (Byrd, Lewis, & Turner, 2004; Dreier, 2000). The competency of an individual reflects their ability to put their skills to use; of which it may include abilities, knowhow and understandings. Generally, competency, academic aptitude and personal characteristics are determinants of the IS project manager's ability to perform and be successful in the workplace (Lucia & Lepsinger, 1999). Effectiveness and superior performance can be related to competencies, management skills and leadership – rather than methods, tools and techniques are pivotal in projects (Hartman & Ashrafi, 2002; Heerkens, 2001; J. Rose, Pedersen, Hosbond, & Kræmmergaard, 2007). J. Rose et al. (2007) identified seven competencies required in IS project management, which pertain to the technical environment, process management, team management, customer management, business management, personal management and uncertainty management.

The skills expected of IS project managers are both hard and soft. Technical and technology-related skills are considered as hard skills, relating to methods, techniques and tools (Thamhain, 1989). Soft skills are generally people-related skills.

2.2.3.1 Soft Skills and Hard Skills

Competencies required of project managers are generally not centered on methods, tools and techniques but rather it is skewed more towards people-centric skills (J. Rose et al., 2007). Soft skill sets have great influence on project management practices in respect to IS project success (El-Sabaa, 2001; B. R. Hall, 2011; Pant & Baroudi, 2008; Sukhoo et al., 2005) and have been likened to survival skills (Brewer, 2005). Hard skills have less influence on project success, but they are still a crucial skill set. This is alluded to by Pan and Baroudi (2008) and they suggested a greater emphasis on the soft skills aspects in project management education.

Soft skill competences that are considered core success factors for projects are: the ability to communicate at multiple levels; verbal and written skills; attitude; and the ability to deal with ambiguity and change (Stevenson & Starkweather, 2009). Examples of other soft skills include; negotiation, decision-making, communication, organization, conflict resolution, team-building, motivation, listening and stress management (Brewer, 2005; Du et al., 2004; El-Sabaa, 2001; Motschnig-Pitrik & Figl, 2007; Pant & Baroudi, 2008; Sukhoo et al., 2005).

Soft skills are often described as an 'art' – they are essentially about people management. They are also referred to as 'practical intelligence' or 'human' skills (Joseph, Ang, Chang, & Slaughter, 2010; Pant & Baroudi, 2008). Soft skills such buy-in processes need to be managed well because project owners, stakeholders and project team members need to be dealt with objectively and amicably over the course of the project.

To manage projects effectively, it is imperative that IS project managers have good soft skills (Jalil & Shahid, 2008; Kruglianskas & Thamhain, 2002; Pant & Baroudi, 2008). However, soft skills are often weak in IS implementation projects and this was alluded to by Hall (B. R. Hall, 2011) in the context of IS educational institutions developing courses to develop project managers' competencies in this area.

Project related competencies can be acquired by project managers as commodities (Hölzle, 2010). To this end, soft skill-related abilities and competencies can be acquired more effectively through on-the-job experience than through formal instructions (Joseph et al., 2010). In addition, they are more effectively learned through informal channels (Taylor & Woelfer, 2009) and the leveraging of past experiences as lessons learned (Cooke-Davies, 2002).

2.2.4 Management of IS Projects

Project management is about 'getting things done', and the essential need is to address the 'manner of people do it' (R. M. Wideman, 1995). This involves the planning and implementation of (normally) a predetermined set of activities. The fundamental premise of project management revolves around the optimal use of knowledge, skills, competencies, methods, tools, techniques and resources. In

addition, Berggren and Söderlund (2008) have noted the social aspect/dimension of project management.

Modern project management began in the early 1960s (Berkun, 2005) and had its genesis in the construction, engineering and defence sectors (Cleland & Gareis, 2006). The practice of project management today is generally multidisciplinary.

The objective of project management is to meet (or even to exceed) the project owners' or stakeholders' expectations and needs. Project management can be broadly defined as 'the application of knowledge, skills, tools, and techniques to project activities to meet project requirements' (PMI, 2004). IS project management as in other disciplines, subscribes to this definition. For example, the multidisciplinary project management framework of the Project Management Institute (PMI) is the accepted standard for ICT projects or IS related-projects. The Institute of Electrical and Electronics Engineers (IEEE) has accepted and endorsed the PMI framework as IEEE Std 1490-2003 (a revision of IEEE Std 1490-1998) (Fernández-Diego & Montesa-Andrés, 2007; IEEE, 2004). With regards to the definition of project management, there are many different ones, however the common key project activities include planning, organising, monitoring and controlling. These come under a single point of responsibility (APM, 2011; Burke, 1993) and involve the mandate of measurable project success (Chatfield & Johnson, 2007).

Project management is considered a formal discipline and there are several management approaches (Bainey, 2004), which can be incremental, interactive, phased or collaborative (Fox & Wilkinson, 2007; PMI, 2004). The focus of these approaches is broadly on either the project, the people, the organization or a combination of these areas (Zonis, 2009). Notwithstanding the completeness and usefulness of these project management approaches, the single primary challenge is to deliver project success (Cadle & Yeates, 2007; PMI, 2004). To this effect, there are numerous established project management knowledge repositories, standards, frameworks and books of knowledge oriented to fostering and improving the IS project management discipline (Agile, 2009; Brandon, 2006; Highsmith, Highsmith, Eastlake, & Niles, 2002; Khosrow-Pour, 2006; Satzinger et al., 2008). Examples are:

- The US-based Capability Maturity Model Integration (CMMi) of the Carnegie Mellon Software Engineering Institute (Persse, 2007; SEI, 2011).
- AGILE project software development - www.agilemanifesto.org.
- ISO 10006:1997, the International Organization for Standardization's guidelines to quality in project management (ISO, 2011).
- The UK government-based PRINCE2 (PProjects IN Controlled Environments) a project management method that covers the management, control and organization of a project - www.prince2.com.
- The UK based IT Infrastructure Library (ITIL) - www.itil-officialsite.com
- The US-based PMBOK i.e. Project Management Institute Body of Knowledge - <http://www.pmi.org>.
- BS6079, the British Standards Institute's Guide to Project Management (<http://www.bsigroup.com/en/About-BSI/News-Room/BSI-News-Content/Sectors/Construction--Building/NEW-Project-Management-Guide/>).
- The Europe-based ICB i.e. the IPMA (International Project Management Association) Competency Baseline - <http://www.ipma.ch>.
- The Europe-based APMBOK (Association for Project Management Body of Knowledge) - <http://www.apm.org.uk>.
- The Japan-based P2M, the guidebook on Project and Program Management for Enterprise Innovation published by ENNA (Engineering Advancement Association of Japan) - <http://www.enna.or.jp>.

The adoption of a project management methodology is said to offer many advantages and benefits, including an assurance of best practices (McHugh & Hogan, 2010; Zielinski, 2006), better control of budgets and resources, better management of change and strengthening of working relationships (H. Kerzner, 2009). In addition, Zielinski (2006) and Kerzner (2009) have noted the increased likelihood of project success when a methodology is adopted; methodologies increase management process effectiveness and efficiency. Wangenheim et al. (2008) found that methodologies promoted better return on IS investments. However, there seems to be an apparent disconnect between project management practice and theory (C. Smith, 2007). A similar contention was noted in an earlier

report funded by the main relevant UK government research organization, the Engineering and Physical Sciences Research Council (EPSRC) entitled Rethinking Project Management (EPSRC, 2006). It included critique of project management theory and noted the widening of the gap between conventional project management theory and developing practice. The report recommended a bridging process should be adopted (EPSRC, 2006). In a follow up study by Sauer and Reich (2009), the appropriateness of the “Rethinking Project Management” agenda in the IS context was underscored. To this end, two broad additional directions for IS project management, which would respectively see projects as a knowledge process and projects as an emotional process. In this regard, the disconnect between theory and practice has recently been observed by Alleman (2011) as a phenomenon that is long standing.

2.2.5 IS Project Success

IS project success improvement is the key context of this research on IS project management mentoring. As a significant positive outcome of supporting of project managers across the IS project management process, IS project success points to the efficacy of mentoring practice adoption. The next two sections describe the success criteria of IS projects and the key reasons of IS project failures.

2.2.5.1 IS Project Success Criteria

IS project success is significant to overall project outcome and in this regard, V. Petter et al. (2008) note the increasing high investment cost of IS infrastructures and implementations. In addition, business organizations are increasingly dependent on effective IS (Carugati & Rossignoli, 2011; Halpin et al., 2010). Effective and successful management of IS projects was considered highly a decade before (G. Klein & Jiang, 2001) and with today’s increasingly complex business environment (Harmon, 2010), success is even more vital.

Generally, project success is considered a difficult and elusive concept; it has different meanings to different stakeholders (G. Thomas & Fernández, 2008). The measurement of IS project success can be complex - there may not be one single

success factor or a definitive set of success factors - and it is generally as regarded a matter of perception. Accordingly, it can be shaped by the political landscape and context of the project, and may also be subjected to the views of different stakeholders or groupings of stakeholders. There are therefore many measurements and many variations (S. Petter et al., 2008).

Time, budget and scope are commonly articulated IS project success factors; they are commonly known by both scholars and practitioners as the 'triple constraints' and also the 'iron triangle' (Chatfield & Johnson, 2007). This study is cognizant of the many other factors that are indicators of IS project success, which include project duration (Huang & Han, 2008); size/complexity (Donnellan, Larsen, Levine, & DeGross, 2006); user satisfaction (Bailey & Pearson, 1983); ease of use; and stakeholder satisfaction (G. Thomas & Fernández, 2008). Berntsson-Svensson and Aurum (2006) cited further examples such as accuracy and completeness of requirements; project scope being well defined; and maintenance of agreed project schedule and active user participation, while Thomas and Fernández (2008) add sponsor satisfaction; business continuity; project team satisfaction; and steering group satisfaction. The ten-year update of the DeLone and McLean IS project success model cited many of the aspects described above and considered user requirements satisfaction and fulfilment as key measures of success (Delone & McLean, 2003).

The experience of project managers is also regarded as a contributing factor to project success; and may include elements such as organizational and interpersonal political skills. Project management approaches, methodologies, standards and project leadership are therefore important considerations that can help to bring about success in IS projects (Du et al., 2004; H. Kerzner, 2009; Markus & Keil, 1994).

As a yardstick to measure IS project success, this study adopts the commonly used characteristics of the triple constraints of completion on time, within budget, and scope (Dalcher, 2009), together with the broader considerations of user requirements satisfaction and fulfilment (Delone & McLean, 2003).

As a side note, risks in IS projects that are well managed can increase the likelihood of project success. Ropponen and Lyytien (2002) note that prior (of similar) experiences of project managers can help to mitigate potential project risk.

2.2.5.2 IS Project Failures

IS projects do fail - and some of these failures are well documented. Notwithstanding the availability of numerous IS project management tools, techniques and methodologies, failures are still considered a widespread phenomenon (Keil, 1995; Tiwana, Keil, & Fichman, 2006). In this regard, there are many unanswered questions - for example the Cobbs paradox: 'We know why projects fail; we know how to prevent their failure – so why do they still fail?' (Cobb, 1996).

The constraints of completion on time and within budget are major reasons for IS project failure (Dalcher, 2009). Some studies have found an alarmingly high failure rate, for example Klein and Jiang (2001) note that about 85% of all projects in their study ended in failure. Dorsey (2000) considers this a catastrophe because the failure rate potentially could be higher; however this may be attributed to the natural human tendency of not publicising the bad news of project failures. Jones (1995) suggests that only 20% of large software systems are successfully implemented within the scheduled time and about two-thirds of those systems experience cost overruns by almost 100%. The study of Hidding and Nicholas (2009) reaffirm that failure rate remains high despite efforts towards reducing it over the last four decades.

Generally, IS project managers are mindful of the consequences of unsuccessful or failed IS projects. It not only drains away expensive and scarce resources but also can result in loss of opportunities. This can represent a significant waste of an organization's resources. Notwithstanding the many statistics on failed IS projects, many successfully implemented IS projects are also documented (Lam & Chua, 2005). In this regard, Hedquist (2008) notes that not all is lost and that the silver lining or good news of IS project success is very much attainable. Hedquist argues

that in order to attain success the basics of project and people management must be adhered to.

IS project failure is attributable to many factors, including unrealistic user expectations, lack of competent resources, project size, weak management, political rivalry and technical aspects of the system (Imamoglu & Gozlu, 2008; Markus & Keil, 1994). IS projects generally fail because of management, not technical deficiencies. Lack of good management practice is a likely contributing factor (Viskovic, Varga, & Curko, 2008), and Plant and Willcocks (2007) have underscored the significance of the project management process. In particular, the lack of project management competencies has been cited as a factor in project cancellation, significant cost over-runs and serious schedule slippage. Hoffman (2003) reported that more than 75% of 219 IS executives in a study of META Group Inc. identified the lack of project management skills as a critical IS workforce issue. The general lack of management support for project management training cannot be ruled out as a contributing factor - training is generally considered a constraint on the project budget. For example, organizations generally viewed it as a low ROI¹ item in studies reported by Wysocki (2006). In addition, there is a need to shift the emphasis from hard skills and programmed learning towards soft skills in the educational and training aspect of project management (Pant & Baroudi, 2008). In this context, the lack of soft skills in IS project managers does impede project success. This is also reaffirmed by the analysis of Kappelman et al. (2006) informed by a panel of 19 experts and 55 IS project managers.

As noted above, some failed IS projects are well documented. For example, in 1993, the failure of software systems in French Railways' computerized reservation system provoked nationwide strikes (Mitev, 1996). The abandonment of the Integrated National Criminal Investigation System in New Zealand in 1999 resulted in a reported direct financial cost of more than NZ\$100 million (Gauld & Goldfinch, 2006). A third high-profile example is the multi-million dollar software system project

¹ ROI = return on investment.

of the Central Provident Fund Board of Singapore, which was reported to have failed despite extensions to project deadline in 2006 (V. Yeo, 2009).

2.3 IS Project Management Theoretical Framework

Project management is principally concerned with delivering the agreed measureable business results although it has a variety of definitions (see Section 2.2.4 above). A project is 'a temporary endeavour undertaken to create a unique product or service' (PMI, 2004) and while there are many different project management approaches, they generally have similar principles (Hass, 2007). Section 2.2.4 outlined some of the major project management repositories and approaches. In this respect, elements such as planning, organising, monitoring and controlling falling under a strong single point of responsibility (APM, 2011; Burke, 1993) with the mandate of measurable project success (Chatfield & Johnson, 2007) are common across the varieties of definitions and approaches. This research study is cognizant of the arguments and counter-arguments about the suitability and merits of the various project management repositories and approaches for IS projects. There is evidence of them being utilised either partly as a whole, or in an integrated manner (Blokdijs, 2008; Hayslett & Wildemuth, 2004; Van Bon & Verheijen, 2006). Generally, project management is about projects, people or organizations, or a combination of these (Zonis, 2009).

This study adopts the practice-based PMI PMBOK standards and framework (PMI, 2004) as the baseline project management theoretical framework. The IEEE and the American National Standards Institute (ANSI) accept PMBOK as a project management standard and framework, classifying respectively as IEEE Std 1490-2003 (a revision of IEEE Std 1490-1998) and ANSI/PMI 99-001-2004 (Ahlemann, Teuteberg, & Vogelsang, 2009; Fernández-Diego & Montesa-Andrés, 2007; IEEE, 2004; OCIO, 2010). More specifically, the IEEE Std 1490 recognizes the PMBOK as the de facto standard for ICT projects (Fernández-Diego & Montesa-Andrés, 2007). PMBOK is considered by some to be one of the best practice-based project management frameworks (Callegari & Bastos, 2007). It is widely recognized as a

relevant project management theoretical framework in much IS related literature, a recent example being Pocatilu et al. (2010).

Practice-based project management standards such as PMBOK can assume the legitimacy of having an epistemological base by virtue of wide endorsement (Wenger, 1997), and Morris et al. (2006) and Morris (2010) argue that this is the case with PMBOK. The Project Management Institute is the world's leading not-for-profit membership association for the project management profession (PMI, 2011) with more than half a million members and credential holders in 185 countries.

This research study is cognizant of concerns about the lack of an explicit theoretical basis for project management, and criticisms of PMBOK as a project management theoretical framework (Jugdev, 2008; Koskela & Howell, 2002; Pollack, 2007; H. J. Smyth & Morris, 2007; Winter, Smith, Morris, & Cicmil, 2006). Winter et al. (2006) and Morris (2010) have noted the lack of a single theoretical framework for the explanation and guidance of project management and the existence of numerous overlapping theoretical approaches. Winter et al. (2006) discussed the growing criticism of project management theory in their paper 'Directions for future research in project management: The main findings of a UK government-funded research network', and an earlier study of Koskela and Howell (2002) asserted the need for an all-encompassing theoretical foundation. Furthermore, Pollack (2007) has argued that the changing paradigms of project management and its theoretical basis needs greater explicit understanding if it is to progress. These concerns notwithstanding, PMBOK provides an appropriate project management theoretical framework for this study.

The next two sections outline the PMBOK process groups and knowledge areas in the context of IS project management processes.

2.3.1 PMBOK Project Management Process Groups

The basic foundational framework of a project is that it is driven by a project management function that is constrained by a predefined time (PMI, 2004; Schwalbe, 2009). Normally there are several activities and entities associated with a project management function. The time in which to complete each activity is also

generally predefined. One or more individuals can be assigned to the partial or full completion of each activity. A 'deliverable' can be produced either in part or in full by each activity. The sum of all the deliverables constitutes the deliverable of the project.

An activity may be a task or a process. The PMBOK Guide defines a process as 'a set of interrelated actions and activities that are performed to achieve a pre-specified set of products, results, or services' (PMI, 2004). The management of process is 'the direction, control and coordination of work performed to develop a product or a service' (IEEE, 1990) and the underlying concept for the interaction among the project management processes is the plan-do-check-act cycle (PMI, 2004). The sum total of all the activities or processes is the project itself. As the PMI states:

'The specifics for a project are defined as objectives that must be accomplished based on complexity, risk, size, time frame, project team's experience, access to resources, amount of historical information, the organization's project management maturity, and industry and application area. The required process groups and their constituent processes are guides to apply appropriate project management knowledge and skills during the project. In addition, the application of the project management processes to a project is iterative and many processes are repeated and revised during the project' (PMI, 2004).

The PMBOK Guide describes the nature of project management processes in terms of the integration between the processes, the interactions within them, and the purposes they serve (PMI, 2004). These processes are categorized into five groups, defined as project management process groups: Initiating, Planning, Executing, Monitoring and Controlling, and Closing. Figure 2.1 illustrates the relationship and integration of the five groups within the boundaries of a project.

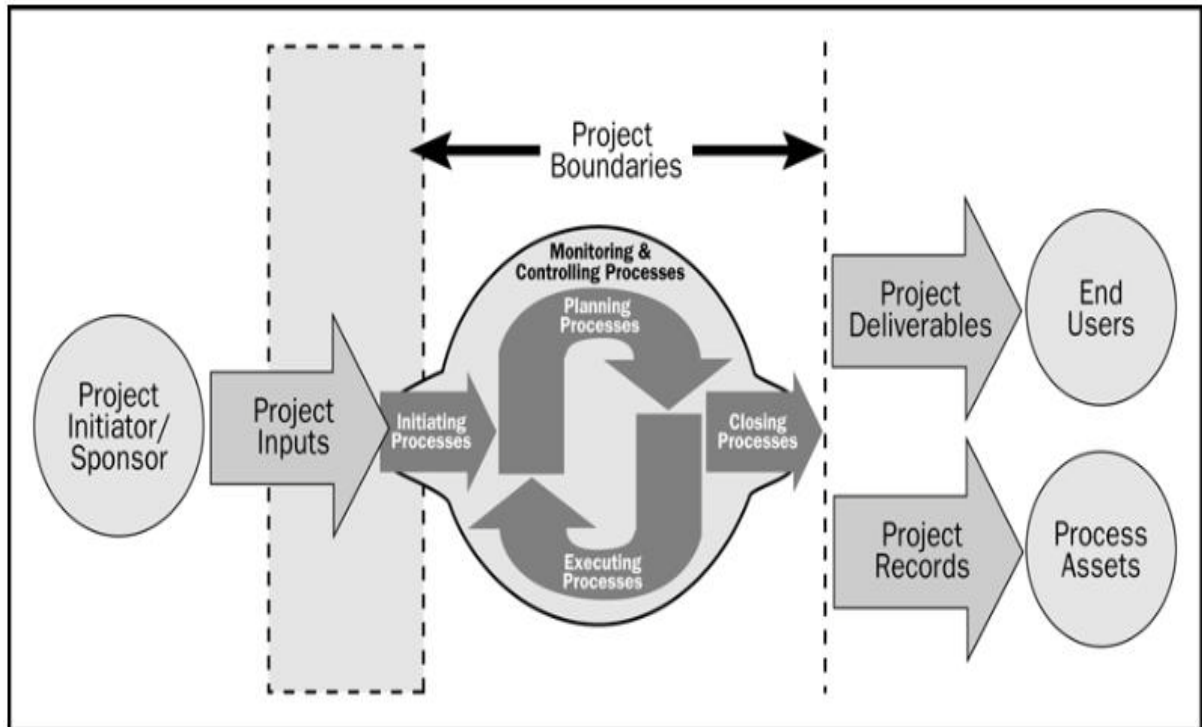


Figure 2.1 Project Boundaries and Management Process Groups (PMI, 2004)

2.3.1.1 Initiating Process Group

The Initiating process group is generally concerned with the project scope of control. It consists of the processes that facilitate the formal authorization to start a new project or a project phase. Initiating processes are often carried out externally to the project's scope of control by the organization processes (PMI, 2004).

2.3.1.2 Planning Process Group

The Planning process group defines and refines project/phase objectives, and plans the course of action required to attain the objectives and scope that the project is undertaken to address. It 'helps gather information from many sources with each having varying levels of completeness and confidence. The planning processes develop the project management plan. These processes also identify and define the project scope, project cost, and schedule the project activities that occur within the project' (PMI, 2004).

2.3.1.3 Executing Process Group

The Executing process group integrates people and other resources to carry out the project management plan for the project. The objective is 'to complete the work defined in the project management plan to accomplish the project's requirements. The project team should determine which of the processes are required for the team's specific project. This process group involves coordinating people and resources, as well as integrating and performing the activities of the project in accordance with the project management plan' (PMI, 2004).

2.3.1.4 Monitoring and Controlling Process Group

The Monitoring and Controlling process group measures and monitors progress to identify variances from the project management plan so that corrective action can be taken when necessary to meet project objectives. 'Project performance is observed and measured regularly to identify variances from the project management plan. The Monitoring and Controlling process group also includes controlling changes and recommending preventive action in anticipation of possible problems' (PMI, 2004).

2.3.1.5 Closing Process Group

The Closing process group formalizes acceptance of the project by 'formally terminating all activities of a project or a project phase, handing off the completed product to others or closing a cancelled project' (PMI, 2004).

The five PMBOK project management process groups are further subdivided into 44 processes (see Appendix 6), and they are the 'interrelated actions and activities that are performed to achieve a pre-specified set of products, results, or services' (PMI, 2004).

The PMI PMBOK framework is compatible to other practice-based standards and body-of-knowledge repositories (Callegari & Bastos, 2007; Waina, 2004; M. Wideman, 2008) including Prince2 (www.prince2.com) and CMMi (www.sei.cmu.edu). This study is also cognizant of mapping of other project management disciplines with the best practices in PMBOK. For example, Charbonnea (2004) provided a mapping between the best practices in the Rational

Unified Process (RUP) project management discipline and those in the PMBOK, and Fitsilis (2008) compared Agile Project Management software development processes with PMBOK.

2.3.2 PMBOK Project Management Knowledge Areas

Project managers are required to exhibit project management knowledge and performance competence on a consistent basis. The Project Manager Competency Development (PMCD) framework of PMI (2007) serves to increase the 'likelihood of delivering projects that meet stakeholders requirement'. Three dimensions - knowledge, performance and personal - constitute the PMCD framework's outline and project managers are to bring together the elements of knowledge, skills, personal characteristics, and attitudes in purposefully focusing on successful project delivery. Related to these dimensions are the nine knowledge areas of project management: Project Integration Management, Project Scope Management, Project Time Management, Project Cost Management, Project Quality Management, Project Human Resource Management, Project Communications Management, Project Risk Management, and Project Procurement Management (PMI, 2004, 2007). The PMBOK is fundamentally a detailed framework of these nine knowledge areas, which are broken down into 44 project management processes across the five PMBOK project groups (see Appendix 6). Descriptions of each of the nine knowledge areas are listed in Appendix 4 have been extracted from the PMBOK Guide (PMI, 2004). These knowledge areas are the 'sum of knowledge' that are recommended for good project management practice.

2.4 Context of Mentoring

This section focuses on the context of the mentor/mentee dyad relationship with respect to it serving as an enabling, learning and supporting tool. It has four subsections: a literature review of the practice of mentoring in IS projects and other disciplines; the positives and negatives of mentoring; aspects of learning; and the process and outcome of mentoring.

2.4.1 Practice of Mentoring in IS Projects and the Knowledge Gap

Mentoring appears to play a role in the practice of IS project management. The 'been there and done that' approach of mentoring in project management practice is exemplified in the practice of the New York State government (OFT, 2008) and in the advocacy of the Project Management Institute (www.pmi.org.nz). These two organizations encourage the practice of IS project management mentoring through purposeful adoption. Mentoring relationships provide a platform to utilize limited resources in a productive manner; they facilitate the up-skilling of project managers and team members through experiential-based learning (D. A. Kolb et al., 1999). In this regard, Klasen and Clutterbuck (2001) affirm that mentoring is an effective methods for increasing individuals' learning and development.

As discussed in Section 2.2.3, IS project managers are considered a key success factor (Ehsan et al., 2010) and play a critical role. They are responsible for making critical decisions, and their prior experiences can potentially affect project success. Awareness of potential pitfalls and past mistakes can be very helpful and it is therefore important to proactively leverage such experiences. To this end, IS project managers are generally selected based on their experience as well as their academic credentials (Davenport & Prusak, 2000).

Experience is a critical component in knowledge creation (Nonaka, 1994). In this respect, mentoring is considered a main channel to communicate experience from one individual to another (Swap, Leonard, Shields, & Abrams, 2001). Leveraging knowledge and prior experiences is considered crucial and the 'reuse of experiences' among IS project managers has been confirmed in Petter and Vaishnavi (2008); in which they also highlighted the need for further research in areas such as the capture of IS project management experiences.

This study is cognizant of the numerous discussions related to roles of mentors and mentoring in the IS literature. Examples include the review study of Silva and Doss (2007) which noted the growth and importance of mentors (sometimes called coaches) in the Agile community, and the study of Santos, Montoni, Figueiredo and

Rocha (2007) noted the role of mentoring in the project execution phase in Software Process Improvement (SPI). Other studies have found that:

- mentoring plays an integral part in the professional development of women and minorities in computing (Pfleeger & Mertz, 1995),
- informal mentoring over the phases of project management is still required (Boonzaaier & Van Loggerenberg, 2006),
- a project management office substantially promoted and improved its project delivery capability (Harold. Kerzner, 2003) where it had elements of mentoring practice (Boonzaaier & Van Loggerenberg, 2006),
- mentoring was important in an IS project of 150 developers (Berg, Cline, & Girou, 1995)
- mentoring was crucial to the success of a Geographic Information Systems implementation (Ricker, 2006),
- an increase in the number of quality-improvement teams across IS departments was noted when mentoring skills were emphasized (Shrednick, Shutt, & Weiss, 1992), and
- a reduction of project life-cycle costs when mentoring was employed (Scher, 1996)

Mentoring has received significant attention in the management literature over the past 30 years (Chandler, 2010). Some of the most influential works since the late 1970s highlighted by Eby et al. (2007) were as follows:

- A seminal study of human development by Levinson, D. J., Darrow, D., Levinson, M., Klein, E. B., and McKee, B. in 1978 highlighted the important role of relationships in human development, specifically the relationship with a mentor of 40 men.
- Vaillant's study in 1997 titled 'Adaptation to life' found that some of the most outstanding and successful men in the United States have had mentors in their young adulthood,

- A highly publicized *Harvard Business Review* article by Roche, G. R. in 1979 titled 'Much ado about mentors' reported that two-thirds of nearly 4,000 executives listed in the Who's News column of the *Wall Street Journal* reported having a mentor.

Formal mentoring programs in US government departments and corporations were introduced over 30 years ago and these have been studied by Ehrich & Hansford (1999). These were driven by an awareness of the advantage and potential of learning on the job, and also the recognized need for employee growth. Mentoring practice has been extensive and pervasive, however the mentor/mentee dyad of Moses and Joshua in the battle with the Amalekites over water dispute in the Book of Exodus 17:9 (New King James Version Holy Bible) is an early example.

Chandler (2010) noted that empirical studies of mentoring as a phenomenon are few despite the widespread practice of mentoring. Mentoring practice seems well researched and documented in the disciplines of psychology, management, academia, counselling, social work, sociology, and medicine and health care (Sambunjak, Straus, & Marušić, 2006; Tashakkori et al., 2005). But, the study (of mentoring practice in the context) of mentoring programs' effectiveness has been highlighted by Zellers et al. (2008) as an area that warrants more rigorous investigation. In addition, Singh et al. (2002) have noted that little research has been conducted on the benefits of mentoring (to an organization) as an organization supporting mechanism. Furthermore, Forehand (2008) asserts that the mentoring process is generally an understudied area. In a broader context, Bozeman and Feeney (2007) have argued that overall mentoring-related research adds up to less than the sum of its parts. To this end, studies in relevant subject domains have progressed on an incremental basis while core concepts and theory have attracted very little attention.

Mentoring not only contributes to project success, it can enhance the transformation process of tacit knowledge into a more explicit and definite characteristic (Nicholls, 2002). Clutterbuck (1992) noted that mentoring is effective in the translation of experiences and learning of soft skills for the mentee. Generally, this process of

learning from more experienced individuals is thought to have inherent positive effects and outcomes.

There appears to be a relative paucity of empirical IS literature studying the mentoring relationship, process and practice in support of the IS project management process. The focus of this study is therefore on filling this knowledge gap; its stated research objectives were presented in Section 1.4. The five research questions described in Section 1.6 outline the scope of this study.

Mentoring practice adoption and its associated project success improvement can benefit both IS project managers and IS professionals (Stokes, 1994). As in the academic and medical disciplines, mentoring can be expected to contribute prominently in IS. For example, right-sizing of IS professionals can shift emphasis to a mentoring style from that of a routine surveillance style (Burkhardt & Brass, 1990). Further, the learning style of IS professionals appears to have shifted gradually from a programmed learning approach (considered typical of hard skills development) to that of an 'observation and feedback' based learning approach (considered typical of soft skills development) (Heerkens, 2001). 'Observation and feedback' with elements of reflection are characteristics of mentoring (Brockbank & McGill, 2006) and Schon (1987) has emphasized that a reflective learner is likely to be practicum-centric.

2.4.2 Meaning of Mentoring and Aspects of 'the Good and the Bad'

Mentoring is often exemplified by the following:

'As iron sharpens iron, so a man sharpens the countenance of his friend.'
Book of Proverbs 27:17 (New King James Version Holy Bible).

'In all things, success depends upon previous preparation and without such preparation there is sure to be failure' Confucius c. 450 BC.

'Tell me, and I will forget. Show me, and I may remember. Involve me, and I will understand'. Confucius c. 450 BC.

The word 'mentor' originated around 700 BC. It was anthropomorphized from Homer's epic poem of title 'The Odyssey'; in which Mentor was entrusted to tutor and guide Telemachus, the son of Odysseus (P. Jarvis, 1995). Mentoring has been often described as a 'protected relationship between two individuals who are at different stations of their professional life cycle with the intent of development of skills, knowledge and insight through experimentation, exchange and learning' (Mumford, 2002). It may also be defined as a 'collaborative partnership' between individuals where mutual interests are shared and developed. Mentoring functions include; teaching, sponsoring, encouraging, counselling, and role modelling may also be carried out in the process. Mentoring shares the following common characteristics with coaching: apprenticeship, action learning, facilitation and tutoring (Douglas & McCauley, 1999). Anderson (1987) considers mentoring as a nurturing process to promote the professional/personal development of less experienced individuals, with more experienced individuals serving as role models, teachers, sponsors, encouragers, counsellors and friends. Normally, it is conducted within the context of an ongoing and caring relationship between the mentee/mentor dyad.

The pervasiveness of mentoring adoption in the disciplines of psychology, management, academia, counselling, social work, sociology, and medicine and health care (Tashakkori, Wilkes et al. 2005; Sambunjak, Straus et al. 2006) has inevitably led to numerous working definitions of mentoring (Crabwell-Ward, Bossons, & Gover, 2004; Marquardt & Loan, 2006). Despite the many variations in the definitions and conceptualizations of mentoring (Crabwell-Ward et al., 2004), the common central themes of mentoring are development, reinforcement and empowerment. To this end, it broadly revolves around elements of self-directed learning, confidence, competencies and teamwork building (Marquardt & Loan, 2006).

A mentor is generally viewed as a father figure but can also be considered a teacher, a role model, a confidant, a challenger, a coach, a trainer, a trusted adviser, an opener of doors, a protector, a sponsor, a positive role model, an encourager and a visionary-idealist (Carruthers, 1993; Galvez-Hjornevik, 1986). The other actor in

the mentoring dyad is the mentee; who is under the guidance of the mentor. A mentee is also known as a protégé. Generally, the relationship is that of one individual to another (T. M. Smith & Ingersoll, 2004), but, it can extend beyond a one-mentee-to-one-mentor model. Kram and Higgins (2008) point out that providing guidance and advice in a complex environment is normally beyond a one-to-one model. To this end, managing IS projects can be complex, and IS project managers may need more than one experienced individual to manage the challenges.

Typically, a mentor is very experienced (and the mentee considerably less so), and there is a willingness to participate in a relationship of mutual trust. The relationship can be motivated by a variety of reasons such as to support or expedite the personal and professional growth of the mentee (K. E. Kram, 1985) and for the mentor to share knowledge with a less experienced individual (Clutterbuck, 1992). The more experienced individual may be someone who is within or outside the mentee's organization and can be a direct supervisor or peer (L. T. Eby, 1997; T. A. Scandura & Schriesheim, 1994). Davenport and Prusak (2000) described the mentoring relationship as the connection of the past to the present, and Swap et al. (2001) noted the connection involves sharing and reflecting on experiences. Generally, this is the basis of mentoring: it is an intentional learning process of engaging with one another that can result in transformation and improvement (Brockbank, McGill, & Beech, 2002). Because of this, it is considered one of the oldest and most effective methods of developing individuals. However it has received significant attention in the management literature only over the past 30 years (Chandler, 2010).

The use of mentoring in businesses to support professional development is not uncommon. The passing on of experience is often initiated through anecdotal evidence and common sense (Gibb, 2003). The role of mentoring has long been emphasized in the workplace (Swap et al., 2001). Mentoring accelerates the process of change. In addition, it improves effectiveness and enhances productivity. The process and practice of mentoring can enhance success (Crabwell-Ward et al., 2004); it has positive inherent effects (Scher, 1996) and it adds value to businesses (Paglis, Green, & Bauer, 2006). Individuals, who are mentored, generally have a

higher likelihood of handling work-related issues such as failure/disappointment, lack of career objectives, and lack of enthusiasm. In contrast, individuals without mentors are generally more vulnerable (Torrance, 1984) and can be disadvantaged with respect to career success (Underhill, 2006).

Many studies testify to the advantage of having mentor relationships (E. E. Ensher & Murphy, 2006; Gabbaro, 1987; D. Thomas & Kram, 1987), which not only benefit the mentee, but also the mentor and their organization (Broadbridge, 1999). Mentoring relationships improve productivity of both business organizations and employees, and they can contribute to better employee retention (Brian Hansford, Lee, & Ehrich, 2002). In addition, they promote higher career satisfaction and recognition, pave the way to better career opportunities (David Clutterbuck, 2004) and enhance professional and personal competence (Tillman, 2005). The benefits derived by businesses not only ensure the availability of professional skills and support from within on a sustainable basis, but also unlock potential talents from within the organization. To the mentor, it can offer a potential gain of personal prestige, recognition, self-satisfaction and also the advantage of a wider network (Arnold, 1997), while organizations can enjoy positive cost-benefit ratios (David Clutterbuck, 2004).

Notwithstanding the positives and potential of mentoring for the personal growth and development of the mentee; there are some negative elements. Mentoring is not all together problem-free and nor it is straightforward (L. T. Eby, Butts, Durley, & Ragins, 2010; Brian Hansford et al., 2002). While there are relatively few studies on the dysfunctional and abusive dimensions of mentoring, they are not insignificant and are sometimes collectively described as the 'dark side' (Long, 1994; Neider & Schriesheim, 2010). Ehrich et al. (2004) found that an individual that is not being mentored can be better off than one that is poorly mentored. Unmet expectations in the mentee/mentor dyad (L. T. Eby & Lockwood, 2005) and the lack of a proper exit procedure (Allen, Finkelstein, & Poteet, 2009) are examples of poor mentoring. Confidentiality breaches on the part of the mentor have been identified as potential concerns for the mentee (Alliott, 1996); private information may be disclosed either intentionally or unintentionally during the course of the mentoring relationship. In

addition, the conflict of interest between the supervisory (direct line management) and mentoring roles of the mentor can be a shortcoming, and a possible blurring of roles especially during the assessment and appraisal of the mentee may occur (Shaw, 1983). Non-availability of the mentor's attention and time is another demerit to effective mentoring. Smith and Maclay (2007) reported that this can impact the mentee's psychological well-being. Furthermore, mentees who are not sufficiently challenged by their mentors tend to lack motivation (Dunne & Bennett, 1997). Limitations to effective mentoring can also be due to there being insufficient time to develop the mentoring relationship (Walker, Chong, & Low, 1993), mismatch of the mentee-mentor pairing (Kirkham, 1993) and over-reliance on the mentor (Daresh & Playko, 1992).

However, the overall positives of mentoring do outweigh the negatives (Ragins & Scandura, 1999; Taherian & Shekarchian, 2008). In general, mentoring is considered an important developmental process (Ehrich & Hansford, 1999; Mincemoyer & Thomson, 1998; Taherian & Shekarchian, 2008) and awareness on the part of an intending adopter of mentoring and also careful planning on the part of the mentoring dyad, can minimize potential negative effects (Ehrich et al., 2004).

2.4.3 Characteristics of Mentoring and Aspects of Learning

Mentoring can be broadly defined as a nurturing process (Anderson, 1987). Competent people, who are generally more experienced individuals, serve as nurturers or enablers, typically playing the roles of teachers, advisors, counsellors. To this effect, mentees benefit from the mentoring relationship when for example insight and knowledge are shared (Klopf & Harrison, 1981). Daloz (1983) likened the enabler to a guide in a travel allegory. The travel guide (the mentor) carries out the function of pointing the way and offering support to the tourist (the mentee). The five major functions of the mentoring process have been outlined by Anderson and Shannon² (1995) and include teaching, sponsoring, encouraging, counselling, and

² Referred by numerous scholars and examples are:
Jonas, M. (1996). "Mentoring the mentor: A challenge for staff development." *Journal of Staff Development* 17: 2-7.

befriending (see Figure 2.2). Characteristically, the mentor/mentee dyad evolves and exists within a social context (K. Kram, 1988) and in the presence of an interpersonal relationship (Gilbert & Rossman, 1990) that enables learning. Figure 2.3 summarizes the mentoring model of Anderson and Shannon (1995).

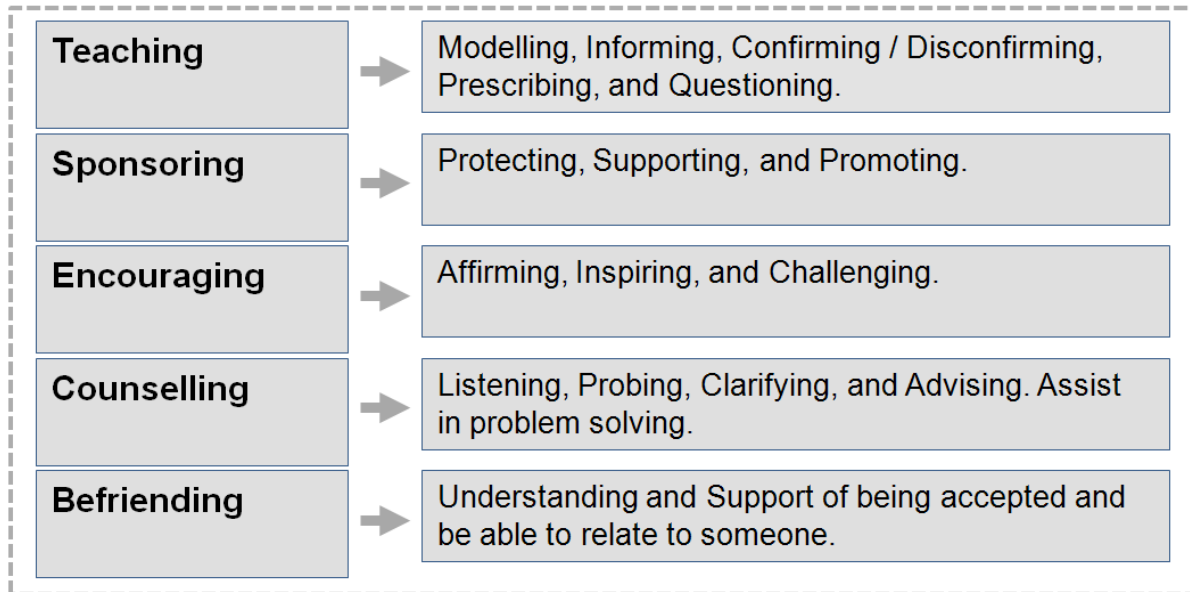


Figure 2.2 Five Mentoring Functions (Anderson & Shannon, 1995)

Relationships and relationship building are important considerations to the interpersonal phenomenon in the mentor/mentee dyad (Gilbert & Rossman, 1990). For example, the assumption of a regular meet-up arrangement is not uncommon between the mentor/mentee dyad. Normally it is flexible, carried out in a mutually respectful and trustworthy manner. These observations are noted in Cunningham and Eberle (1993). They are considered key characteristics to a meaningful mentoring relationship and are consistent with the broad definition of mentoring discussed in Section 2.4.2.

Roberts, A. (2000). "Mentoring revisited: a phenomenological reading of the literature." *Mentoring and Tutoring* 8(2): 145-170.

Golden, J. (2010). Use of the Evolutionary Conscious Model to Sustain a Formal Mentoring Program. *Recruitment, Development, and Retention of Information Professionals: Trends in Human Resources and Knowledge Management*. E. Pankl, D. Theiss-White and M. C. Bushing, IGI Global: 342.

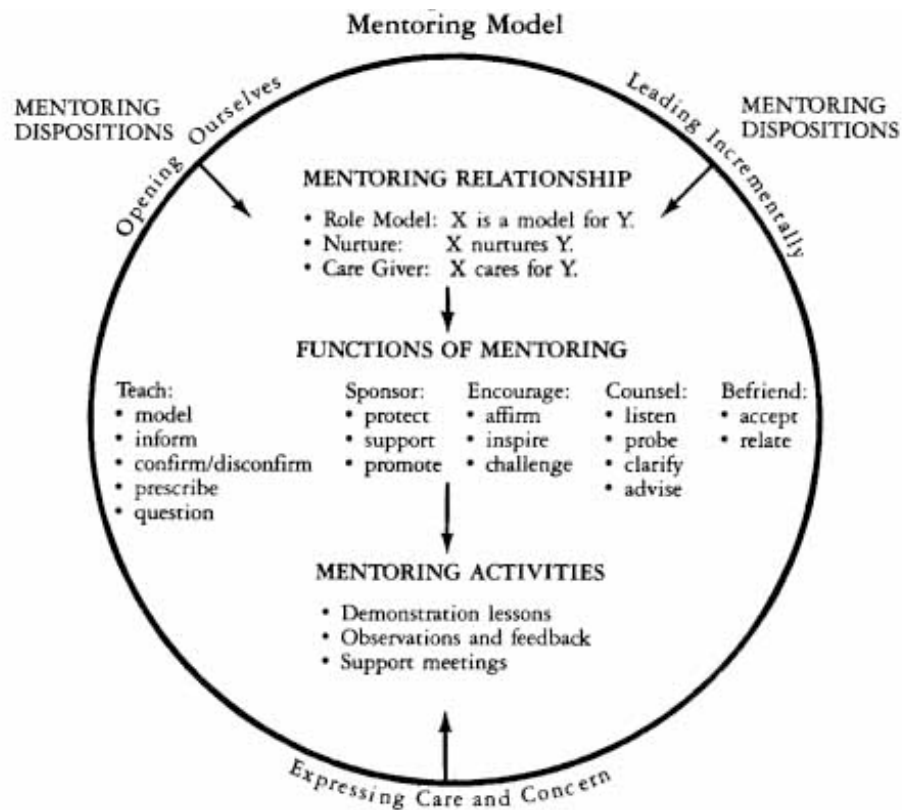


Figure 2.3 Mentoring Model of Anderson and Shannon (1995)

The mentoring characteristics identified by the National Endowment for Science, Technology and the Arts (NESTA) are used as a foundation for the discussion in this study (NESTA, 2009). NESTA (www.nesta.org.uk) is an independent body set up with a mission to make the United Kingdom more innovative. Mentoring characteristics reviewed in the NESTA study were initially defined and set out by the Chartered Institute of Personnel and Development (CIPD) (www.cipd.co.uk). CIPD is considered Europe's largest human resource and development professional body. Its key mentoring characteristics are as follows:

- It is essentially a supportive form of development.
- It focuses on career and personal development, on helping an individual manage their career and improve skills.

- Personal issues can be discussed more productively; unlike in coaching where the emphasis is on performance at work.
- Mentoring activities have both organizational and individual goals.
- It is an ongoing relationship, can last over a long duration.
- The relationship can be informal, with meetings taking place whenever the mentee needs advice, guidance or support.
- It is performed on the basis that the mentor is more experienced, qualified or in a senior position to the mentee.
- The agenda is set by the mentee, with the mentor providing support and guidance.

Learning can be a two-way process of active and purposeful information-seeking by both the mentee and the mentor (E. J. Mullen, 1994). The mentoring relationship is one of privilege (Drotar, 2003) in which the contexts of mutual trust and respect are key. It is not normally dominating, dictating or judging. The expected form of exchange is negotiation (Drotar, 2003; Nicholls, 2002). A supportive atmosphere facilitates discussion, reflection and disclosure in the mentor/mentee dyad. The relationship may be considered as an investment in trust on the part of the mentee and also the mentor (Sauer & Reich, 2009) and a platform for the mentee with regard to career development and advancement support (Hansman, 2002; J. F. White, 1988). All this should take place in the context of sponsorship, exposure, visibility, coaching and protection.

The privilege of being assigned with challenging tasks has been identified as another key characteristic of the mentoring relationship (K. E. Kram, 1983). This provides an opportunity for the mentee to increase their self-sufficiency. The mentoring relationship can be considered as an act of grooming, meaning the mentee can take up higher responsibilities and roles as a result. The infusion of the philosophies and opinions of the mentor into the mentee can be a possibility as there may be a tendency to imitate the career path of the mentor on the part of the mentee (Belcher & Sibbald, 1998).

Mentoring can be: a one-on-one relationship or a network of multiple mentors (Baugh & Scandura, 1999); peer-to-peer (E. A. Ensher, Thomas, & Murphy, 2001); long-term or short-term; and convened electronically or face-to-face (Boonzaaier & Van Loggerenberg, 2006; Kasprisin, Boyle, Single, & Muller, 2003). It may be a formally or informally assigned relationship. A formal relationship is one that is normally structured and monitored for progress. In contrast, an informal relationship is one that receives no formal mediation aside the initial introductory meeting and is generally not monitored. An informal relationship normally promotes learning better and provides better career-related support to the mentee (Chao, Walz, & Gardner, 1992; Taylor & Woelfer, 2009).

Mentoring not only provides a support framework for career development, it promotes and cultivates learning in the work environment. It is considered a fundamental way of fostering learning in the workplace and is used for the advancement of careers, orientation of new employees in the learning of workplace culture, and also to provide psychological support (Hansman, 2002). As an exchange between mentee and mentor, mentoring promotes learning (Brockbank & McGill, 2006) through role modelling and nurturing (Allen & Eby, 2008; Nicholls, 2002).

Mentoring has been (and is gaining ground in the academia as) a significant method for professional learning (Nicholls, 2002). It is considered an act of acquisition, development and dissemination of new knowledge and skills (Snyder & Cummings, 1998) and together with storytelling, it is considered one of the most effective carriers of knowledge (Swap et al., 2001). Learning that is done collectively can positively influence and benefit organizations (Leroy & Ramanantsoa, 1997) and a learner-support approach can be significant in the workplace (Stern & Sommerlad, 1999), particularly in the negotiation of major transition points (QPID, 2000).

Learning is considered a prerequisite for performance improvement (Gilley, Dean, & Bierema, 2001; Vakola, 2000). Jarvis (1987) described learning as a process that transforms experiences and Kolb (1984) has argued that experience can be transformed into knowledge through the process of learning. In brief, learning can

result in the advancement of knowledge, skills and attitude and can be realized on a formal or informal basis (P. Jarvis, Holford, & Griffin, 2003). Senge (2006) contended that learning is an open pursuit of dialogue that involves thinking more freely at deeper levels, talking about beliefs, exploring ideas and gaining insight, adding knowledge, stretching oneself, and diverging towards varied interests.

Ellinger and Bostrom (1999) found that the exposure of the mentee to opinions and viewpoints of different people allows the examination of issues at hand from more perspectives. A mentoring relationship also engages the mentee in a more reflective manner (D. T. Hall, 1996). Kram and Cherniss (2001) suggested that an individual's untapped potential can be unplugged via the relationship and Pan et al. (2010) noted that learning and self-efficacy are salient features. The mentoring relationship can provide a platform for learning (K. E. Kram, 1996) which is viewed as the acquisition of new knowledge and skills that contribute to the development of the individual (Gilbert & Rossman, 1990; K. Kram, 1988).

Lankau and Scandura (2002) described two scales of learning. The first is termed 'relational job learning' and is defined as 'an increased understanding about the interdependence or connectedness of one's job to others'. The second is termed 'personal skill development' and is defined as 'an acquisition of new skills and abilities that enable better working relationships'. The emphasis in personal skill development is on interpersonal skills (K. E. Kram, 1996) which are concerned with the need to 'communicate effectively, listen attentively, solve problems, and be creative in developing relationships' with team members or co-workers (Lankau & Scandura, 2002). The absence (or lack) of improvement and continuous learning in the workplace can result in repetitions of past mistakes; in the measurements of project management maturity, this is usually considered as the lowest level (H. Kerzner, 2000). Past mistakes can be overcome by the knowledge of lessons learned through mechanisms such as 'learning histories' (Kleiner & Roth, 1998). In this respect, hindsight is also an important consideration; the lack of it may result in non-occurrence of learning (Toft, 1992). Cooke-Davies (2002) considered learning from prior experience an effective means of learning particularly in projects.

2.4.4 Process and Outcome of Mentoring

Learning, and in particular reflective learning, is a fundamental part of the mentoring process (Brockbank & McGill, 2006; Brockbank et al., 2002). Earlier sections of this chapter considered the validity of mentoring as a relevant mechanism for the learning and development of the mentee as an individual. Mentoring is a tool and process of effecting learning through critical reflection (Nicholls, 2002). Jarvis (1987) asserted that 'all learning begins with experience' and the central premise of mentoring is learning. Individuals can best learn through processes of observation, doing, challenging and critique (Nicholls, 2002).

Kathy E. Kram, who is considered a maven of mentoring (Chandler, 2010) underscored that the quest of personal and professional development goals is an essential feature of mentoring relationships (K. E. Kram, 1985). As such, mentoring is considered a deliberate pairing of the two individuals in the dyad. This is driven by the intention of growing the mentee through the development of specific competencies (Murray & Owen, 1991) via two distinct support functions (K. E. Kram, 1983).

The first is the career related-dimension: the outcomes are concerned with professional skills development and competencies enhancement and included actualization of sponsorship, exposure, visibility, coaching, protection and challenging assignments. Examples of such outcomes are: job/work/career satisfaction, career success, promotions, compensation, and work morale and attitudes (Allen, Eby, Poteet, Lentz, & Lima, 2004; Marable & Raimondi, 2007; Underhill, 2006).

The second is the psychosocial dimension: the outcomes are concerned with building the self-efficacy, self-worth and professional identity of the mentee. Activities influence the self-image and competence of the mentee, such as role modelling, acceptance, confirmation, counselling and friendship. Examples of psychological outcomes are: personal well-being, psychological health and relationship satisfaction (L. T. Eby, Allen, Evans, Ng, & DuBois, 2008).

In addition, Ehrich et al. (2001) considered a third support function of mentoring - the learning dimension. The level of learning goal orientation of the mentee is associated with the levels of psychosocial and career development support. (Godshalk & Sosik, 2003).

The mentoring process promotes and cultivates learning in the work environment (Brockbank & McGill, 2006; Hansman, 2002) and enables learning to occur in the mentoring dyad. As such, there are interrelated linkages between outcomes and functions of the mentoring process and the learning goals of the mentee (Godshalk & Sosik, 2003). In short, the three dimensions - career, psychosocial and learning underpin a good mentoring experience.

Many notable professionals have credited mentoring as a major factor in their success (E. E. Ensher & Murphy, 2006). The mentoring process generally provides the platform of expertise and the thought process to be shared during the project management life cycle (La Greca & Martin, 2004). It is a commonly used management tool in the nurturing of talents (Odiorne, 1985) where experiential-based learning provides the transformation platform (P. Jarvis, 1987). Mentoring has had and continues to have value as a practice tool in enhancing success (Scher, 1996) and being beneficial to organizations (Matuszek, Self, & Schraeder, 2008; Stokes, 1994).

Examples of key positive outcomes of mentoring mentioned are the following;

- Enhances project success by a significant reduction of project life cycle costs (Scher, 1996).
- Relationship satisfaction and positive influence of mentoring of the mentee resulting from mentee self-disclosure in mentoring relationships (Wanberg, Kammeyer-Mueller, & Marchese, 2006).
- Higher levels of overall compensation, promotions and career advancement, enhanced career mobility, and career satisfaction to the mentee (K. E. Kram, 1985).

- Adds value to career capital in the form of human, agentic and developmental network capital. This enhances career success with the expectations of promotions and advancement (R. Singh, Ragins, & Tharenou, 2009).
- Higher job satisfaction and self-esteem, greater organizational commitment and perception of promotion opportunities, lower work stress, and lower work–family conflict of those who have the privilege of being mentored (Underhill, 2006).

This study is cognizant of the negative aspects of mentoring experience (see Section 2.4.2); but, the overall positives outweigh the negatives (Ragins & Scandura, 1999; Taherian & Shekarchian, 2008). Overall however, mentoring is considered an important developmental process that is beneficial (Ehrich et al., 2001; Mincemoyer & Thomson, 1998; Taherian & Shekarchian, 2008).

Mentoring acts as a positive mechanism towards the development of soft skills such as management and organizational skills. In this context, Nicholls (2002) has noted that it enables the mentee to move forward by building on an environment of constructive criticism, support and relationship. Mentoring can be likened to being a good parent: it involves supporting the mentee's efforts by way of sharing the mentor's expertise (La Greca & Martin, 2004). To this end, mentoring is considered a declared and accepted tool for career advancement and development (Slmonetti, Ariss, & Martinez, 1999).

2.5 Mentoring Theoretical Frameworks

Section 2.4.1 reported the broad application of mentoring across disciplines and both Crabwell-Ward et al. (2004), and Marquardt and Loan (2006) have noted the numerous working definitions of mentoring and conceptualizations of mentoring. In an earlier review of mentoring literature, Jacobi (1991) noted 15 definitions of mentoring in the literatures of education, psychology and management. In addition, the lack of theoretical and conceptual base was also noted. There is an apparent lack of a standard definition (Healy, 1997) and of one that is universally applicable (Galvez-Hjornevik, 1986; Murphy, 1995). Gibb (1999) noted 'a substantive

theoretical analysis of mentoring has been absent, implicit, limited or underdeveloped’.

This situation notwithstanding Brockbank et al. (2002), and Brockbank and McGill (2006) identified aspects of reflective learning as the foundation of mentoring practice. As discussed earlier, mentoring is considered a tool for learning through systematic critical reflection (Nicholls, 2002) and McKimm et al. (2007) considered learning the heart of the mentoring process. Gibb (1999) suggested two theoretical frameworks provide broad understandings of mentoring and the phenomenon of mentoring: social exchange theory and communitarian theory. Considerations of social cost and reciprocity, and the spirit of community are their respective underlying premises. Maynard and Furlong (1993), Kerry and Mayes (1995) and Diaz-Maggioli (2004) have each identified mentoring models, respectively called the apprenticeship model, competency model and reflective model. These are respectively known as the ‘learning-to-see’, ‘learning-to-do’ and ‘learning-to-be’ models.

In addition to the above theories and models there are several other frameworks that can assist in the understanding of the phenomenon of mentoring. The meta-analysis study of Ehrich et al. (2001) identified a wide range of theoretical frameworks and models used in the explanation of mentoring by examining over 300 pieces of empirical research. The categories of these frameworks and models are wide and include economics, developmental theories, selection process of mentoring, power, leadership/management, learning, organizational structures/socialization and network, and interpersonal relationships. The meta-analysis found a majority of the examined literature tended to list at least one particular theoretical underpinning of mentoring.

In the context of this study, (1) the theoretical frameworks of reflective and experiential learning; (2) social exchange theory and communitarian theory; and (3) the three mentoring models (apprenticeship, competence and reflective) together form the theoretical foundation for the interpretation, discussion and explanations of the research findings. These three subsections are discussed in turn.

2.5.1 The Reflective and Experiential Learning Framework

This subsection focuses on the aspects of learning in the mentor/mentee dyad. Iran-Nejad et al. (1990) note the multisource nature of learning and the complicated characteristics of learning. In this regard, there are numerous perspectives on learning theories, but there are three philosophical perspectives: behaviourism, constructivism and cognitivism (Sawyer, 2006; Siemens, 2005).

Behaviourism focuses on behavioural patterns; constructivism focuses on individual experiences – it is on the premise of one's own perspective of the world; and cognitivism focuses on the thought process behind the behaviour - it is learning by promoting meta-cognitive thinking (i.e. thinking about thinking). Cognitivism provides learners with tools to move forward as professionals. In this connection, one of the key strengths of meta-cognition is its fostering of independent learning (Costa & Garmston, 1994) based on the premises of expert problem-solving, reflection and cognitive coaching. Towards this effect, the mentee solve problems in the like manner of the mentor (Barnett, 1995).

As noted previously in this chapter, learning is considered the heart of the mentoring process (McKimm et al., 2007) and Brockbank et al. (2002) found that the use and the practice of reflective learning was the basis of successful mentoring. Reflective learning, or learning by reflection, is generally defined as 'an intentional process, where social context and experience are acknowledged in which learners are active individuals, wholly present, engaging with another, open to challenge and the outcome involves transformation as well as improvement for both the individuals and their organization' (Brockbank et al., 2002).

Action and experimentation on the other hand are key aspects of experiential learning (Berggren & Söderlund, 2008). An example of this is when the mentee solves a problem in a manner similar to how the mentor would. In this connection, Barnett (1995) suggests that the mentee moves in a conscious manner from being a dependent problem-solver to an independent expert problem-solver.

Numerous scholars have used learning-related theoretical frameworks in the identification, understanding and discussion of mentoring (Bandura, 1977; Clapper,

2010; L. T. Eby, Lockwood, & Butts, 2006; Fawcett, 1997; Brian Hansford, Tennent, & Ehrich, 2003; D. Kolb, 1984; D. A. Kolb et al., 1999; K. D. Strang, 2009). The mentoring literature indicates a strong interconnection and link between learning and adult learning theories and mentoring. Dominant learning and adult learning theoretical frameworks include:

- Knowles's theory of adult learning called 'andragogy' developed in the 1960s and later renamed as the theory of human learning
- Kolb's theory of experiential learning developed in 1984
- Brookfield's theory of adult learning developed in 1986
- Daloz's theory of adult learning developed in 1986
- Schön's theory of reflection on learning developed in 1987
- Bandura's theory of social learning developed in 1977 and
- Bandura's theory of social cognitive learning developed in 1999.

Kolb's theory of experiential learning is one of the influential and well regarded theoretical frameworks (Holman, Pavlica, & Thorpe, 1997; D. Kolb, 1984; Platsidou & Metallidou, 2009). It has motivated and influenced many works in the mentoring and learning-related fields. Kolb's theory builds upon the groundwork of experience-based learning contributions of Kurt Lewin, John Dewey and Jean Piaget (Shields, Aaron, & Wall, 2011). Peter Jarvis expanded Kolb's theory of experiential learning and many different approaches and routes to experiential learning has been revealed (L. A. White, 2005). Many support and promotional resources are available for the teaching and learning of these experience-based approaches. There is a Kolb research library and a bibliographic repository of experiential learning theory at Experience Based Learning Systems, Inc (www.learningfromexperience.com) in the United States and a membership-based association, the National Society for Experiential Education (www.nsee.org). Kolb's theory is not without its critics, however (Greenaway, 2011). For example, Race (2005) criticizes the unrealistic nature of Kolb's learning cycle and claims that it is unnecessarily academic.

Kolb's theoretical framework states that effective learning entails the processing and perception of information. This theory of experiential learning (D. A. Kolb et al.,

1999) suggests there are four distinct stages of learning preference that are available to an individual: Concrete Experiences, Reflective Observation, Abstract Conceptualization and Active Experimentation (see Figure 2.4). Concrete Experience involves immersing oneself in the new experience through sensing in concrete reality and Reflective Observation refers to watching others or developing observations about one's own experience. Abstract Conceptualization involves creating theories to explain observations and Active Experimentation involves using theories to solve problems and make decisions.

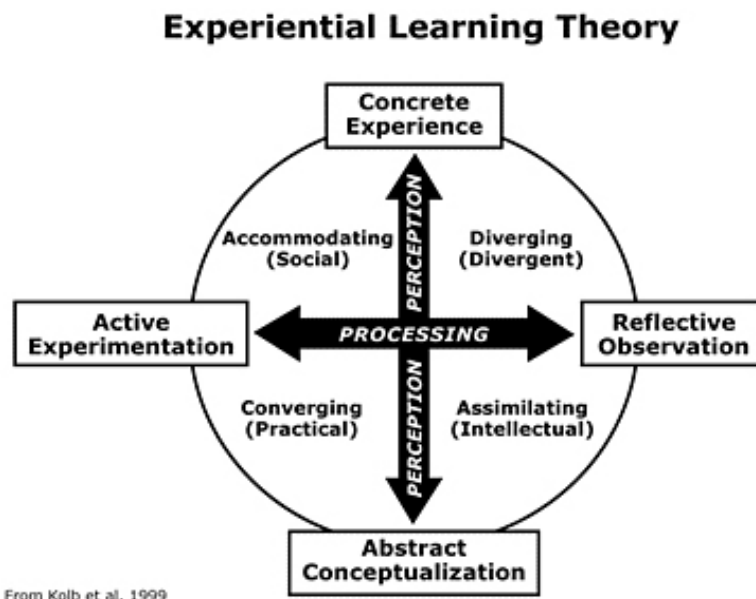


Figure 2.4 Kolb's theory of experiential learning (D. A. Kolb, Boyatzis, & Mainemelis, 1999)

The learning cycle can be initiated at any of these four stages. Figure 2.5 presents a simplified diagrammatic form of Kolb's theory of experiential learning. The criterion for the occurrence of successful learning is that all the four stages need to be followed through in sequence. The element of experience is an important ingredient in the learning cycle and reflection on experiences is considered essential. Kolb (1984) argued that reflection enables the application of concepts and generalizations (of the experiences) to new circumstances or situations. In the testing of the new learning to the new circumstances or situations at hand, there is a

linking between action and theory. The linking process involves thinking out, acting out, reflecting, recounting and reverting to the theory. Kolb's theory of experiential learning asserts that learning is a cyclical process: learning happens when learners interact with their environment. This is followed by reflecting on those experiences, developing generalizations, and subsequently testing those generalizations through further input of experiences (D. Kolb, 1984; Roberts, 2006).

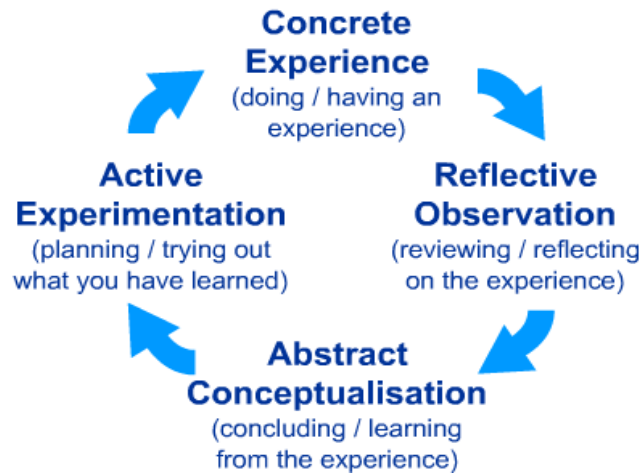


Figure 2.5 A simplified diagrammatic form of Kolb's theory of experiential learning (Davies & Lowe, 2008)

Kolb's theory of experiential learning offers a framework for understanding the processes of learning and adaption; and these processes reflect the phases of human development (Wolfe & Kolb, 1984). Both NESTA (2009), and Ling et al. (2010) affirm the usefulness and appropriateness of Kolb's theory of experiential learning in their respective studies on mentees learning from the experiences of mentors. Kolb's theory of experiential learning is an appropriate and useful framework for the interpretation and discussion of the empirical data informed by practising IS project managers.

2.5.2 Social Exchange Theory and Communitarian Theory

Mentoring is a natural component of leadership dynamics within a business. Gibson et al. (2000) noted that mentoring of any form is profitable to the individual employees; it gives the mentored individuals a position of advantage. Individuals

and organizations are generally attracted to mentoring by monetary and economic considerations. In addition, the development of human capital elements such as skills, knowledge and experience are also powerful motivators (Snell & Dean Jr, 1992). For organizations, productivity improvement is a key underlining motivation but for the individuals it is normally the desire to achieve and fulfill basic needs such as physiological, safety, love, esteem, and self-actualization (Maslow, 1946). Individuals working together in organizations normally exhibit a sense of community. It adds meaning to life (Sarason, 1974) and can be described as 'the feeling of belonging or of sharing a sense of personal relatedness', 'a sense of mattering and of making a difference' and 'the commitment and belief that members have shared and will share history, common places, time together, and similar experiences' (McMillan & Chavis, 1986).

Social exchange theory and communitarian theory enable a broad understanding of mentoring and its implementation in the workplace (Gibb, 1999; Westanmo, 2000). Gibbs (1999) and Westanmo (2000) both observed that these two theories are generally applicable to learning and mentoring. Both have pro-social behavioural roots and are pro-social in attitude. Their shared fundamental premise in the context of this study is doing the right thing to benefit one another in the mentee/mentor dyad. This attitude of caring for one another is a natural part of leadership and the altruistic attitude in the mentee/mentor dyad can be explained by both theories (Gibb, 1999).

However, some aspects of social exchange theory and communitarian theory seem contradictory and dissimilar. Focus on entitlements such as direct personal economic rewards (Etzioni, 1993) and seeking a maximized return are key attributes of social exchange theory, whereas communitarian theory holds the opposite (Homans, 1961). Communitarian theory does not assume or require the element of reciprocity, whereas social exchange does (Etzioni, 1993; Gibb, 1999).

Social exchange theory has an economic element to it. Notwithstanding the pro-social relationship nature of helping one another, there is an evaluation of cost and benefits in the consideration and viability of a mentoring relationship (Gibb, 1999;

Lee & Nolan, 1998). The elements of social cost and reciprocity are central. Social exchange theory likens humans to a sort of 'rational calculator' (Gibb, 1999). Blau (1964) describes social exchange relationships as being based on trust: the individual who gives, gives on the assumption that the receiving individual will reciprocate. This nature of exchange influences the mentee/mentor dyad. Kram (1985) characterizes the exchange between the two individuals as an 'evolutionary process'. As a social exchange, therefore, the mentoring relationship can have rational and cost-benefit elements but these may not necessarily be pre-determined (P. M. Blau, 1986; DuBois & Karcher, 2005) and their value may not be purely economic. They can take the form of friendship, job connections or just the wish to 'exchange' (P. Blau, 1964; Homans, 1961). In addition, they can be related to the high-profile nature of a project, i.e. visibility.

Like social exchange theory, communitarian theory provides a broad understanding of mentoring and the implementation of mentoring in the workplace (Gibb, 1999; Westanmo, 2000). As noted above, it is also a pro-social theory. It assumes that an offer of help from one individual to another comes without any expectation of direct personal benefits. Helping is the norm. This theory centres on the spirit of community as the foundation of developing mentoring (Gibb, 1999). Naylor et al. (1996) note that the spirit of community is about working cooperatively and collaboratively; a sense of trust, considerations, empowerment and justness prevails. Furthermore, such a relationship is generally without tension. The premise of this theory is that people generally act in a virtuous manner. Embedded attitudes and values such as sense of belonging and being members of a community provide the connection that binds the involved individuals. Time and energy expended by the involved individual members is generally unselfish in nature; it is considered the right thing to do to (Etzioni, 1995). The sense of community can overcome the divide of 'us and them' and this is very reflective of attitudes in the mentee/mentor dyad relationship (Gibb, 1999).

In summary, both the social exchange theory and communitarian theory are considered as underpinning the mentoring relationship (Gibb, 1999). Furthermore, mentoring impacts positively on the social capital value of the dyad (Hezlett &

Gibson, 2007). Elements of social capital can be referred to as 'network ties of goodwill, mutual support, shared language, shared norms, social trust, and a sense of mutual obligation that people can derive value from' (Huysman & Wulf, 2004). In general, this would not only enhance personal relationships but also career initiatives.

2.5.3 The Apprenticeship, Competence and Reflective Models

These three models of mentoring represent very different principles (Diaz-Maggioli, 2004; Kerry & Mayes, 1995; Maynard & Furlong, 1993). The main characteristic of the apprenticeship model is that the mentee observes the mentor and learning takes place (Maynard & Furlong, 1993). In the competence model, the mentee, however, the mentee systematically receives feedback about their progress and performance, and in the reflective model, the mentee receives assistance by being a reflective practitioner. These three models provide a theoretical basis for the understanding of mentoring (and the phenomenon of mentoring) and are described in turn in the next three sections.

This study is cognizant of the overlaps between them and in this connection Maynard and Furlong (1995) have noted the following:

- The mentor's role of observing the mentee and providing feedback on an agreed list that is predetermined may cause an overlap between the apprenticeship model and competence model (Maynard & Furlong, 1995).
- The gain of the mentee from a state of less experience to a state of greater experience may see a shift from one model to another over the duration of the mentoring relationship. It can be a shift from that of the competence model to the reflective model over the duration of the mentoring relationship; where 'acquisition of competencies' can build-up a 'capacity for critical self-reflection' (Bleach, 1999).

Moreover, the situation and the context of application and adoption are important. Adoption of these three models may be on an individual model basis or involve a synthesis of all three. In this respect, Clutterbuck and Lane (2004) noted that there

are no simple recipes for effective mentoring. That is, effective mentoring implementation strategies are generally dependent on the context of the situation and the mentoring dyad; on the purpose of the mentoring relationship; and to a larger extent on the values, skills and attitude of the dyad. As a side note, Whitehead (1995) has observed that the reflective model can be complementary to both the apprenticeship and competence models in certain situations.

2.5.3.1 The Apprenticeship Model

The apprenticeship model takes the approach of 'learning-to-see' (Diaz-Maggioli, 2004). The mentee learns from the mentor, who is likened to a master; the mentee watches and learns by way of intentional observation of the experienced professional in the workplace (Maynard & Furlong, 1995). This act of emulating the mentor's exemplary practice is like 'sitting by Nellie'³ (Morton-Cooper & Palmer, 2000) and provides an increased awareness of the relevant key factors while guiding the mentee to a higher level of competency. Under such an approach, learning is reinforced, thereby enhancing the learning process. This model may habituate the mentee to being reactive and as such the mentee needs to be mindful of the possibility of picking up bad habits from the mentor. Normally, the mentor is a role model guiding the mentee into practice (Brooks & Sikes, 1997).

In the broader context, this model includes cognitive apprenticeship, which is defined as 'learning through guided experience on cognitive and meta-cognitive, rather than physical, skills and processes' (Collins, Brown, & Newman, 1989). This has its roots in social learning theories. The cognitive apprenticeship model is quite similar to the apprenticeship model. Dennen and Burne (2008) state that

'It is dependent on expert demonstration (modeling) and guidance (coaching) in the initial phases of learning. Learners are challenged with tasks slightly more difficult than they can accomplish on their own and must rely on assistance from and collaboration with others to achieve these tasks. In other words, learners must work with more experienced others and with time move from a position of observation to one of active practice'. Generally, 'the

³ Also known as buddying.

learning tasks in cognitive apprenticeship are holistic in nature and increase in complexity and diversity over time as the learner becomes more experienced. A major advantage of learning by cognitive apprenticeship as opposed to traditional classroom-based methods is the opportunity to see the subtle, tacit elements of expert practice that may not otherwise be explicated in a lecture or knowledge-dissemination format'.

The apprenticeship model has limiting factors; Holloway and White (1994) for example, have drawn attention to the dependency factor of the mentee on the mentor.

2.5.3.2 The Competence Model

The competence model takes the approach of 'learning-to-do' (Diaz-Maggioli, 2004). This model is similar to the apprenticeship model but it operates within predetermined standards - it is competency-based. Examples of predetermined standards are a predefined plan of action and schedule of activities that require accomplishment, and a predefined set of specified competencies (Maynard & Furlong, 1993). These predetermined standards serve as a criteria checklist that can be used to appraise the mentee's accomplishment. In other words, a learning agenda serves to drive the quest of skills and competencies. This provides a framework and a focus for the mentoring dyad. It also facilitates the 'speaking of the same lingo' during discussion of work-related activities among a broad spectrum individual disciplines (Cockerill, Hunt, & Schroder, 1995).

This model provides the mentee with a pragmatic approach to competencies improvement. Generally, the competencies of an individual are reflected in their effective use of knowhow, skills and understandings. Lucia and Lepsinger (1999) observed that academic aptitude and personal characteristics are also important; these characteristics are a general indication of an individual's ability to perform and be successful. Competencies may allude to the effectiveness of one's performance. The learning of competencies is possible, which mentoring provides an avenue towards. In this respect, Maynard and Furlong (1995) found that a competency-based 'method of training' is useful in an instructional learning situation i.e. learning

by practical and systematic teaching where mentors provide feedback based on pre-agreed behaviours and standards. The identification of the necessary competencies required in the performance of an assignment is important and this is a key characteristic of this model. Fogg (1999) considers the competence model as a descriptive tool that pre-identifies the required competencies.

The Competence model of mentoring is not without its challenges and limitations. There is a tendency of the mentee to replicate the mentor's ways of getting things accomplished. Maynard and Furlong (1993) observe that such mimicking is usually characterized as doing without the benefit of understanding. In addition, the action of 'ticking the boxes' of the predetermined standards (or learning agenda) may potentially deprive the mentee of the need to think and deliberate; of which mental thinking is considered essential in the learning process. The framing of competencies in predetermined standards can diminish the thinking processes involved in the utilization of abilities, knowhow, skills (Ashworth & Saxton, 1990). Moreover, idiosyncratic competencies can at times be a contribution to success - this is not uncommon in technology-based workplaces (Lippman & Rumelt, 1982) – and these may not have the opportunity to flourish as the competence model can be stifling in this context (Lado, Boyd, & Wright, 1992). Another potential limiting factor of this model is the aspect of negative perception⁴ that the mentee is someone who is still in need of more training (Brooks & Sikes, 1997).

2.5.3.3 The Reflective Model

The last of the three models of mentoring is the reflective model. It takes the approach of 'learning-to-be' (Diaz-Maggioli, 2004). Broadly, the reflective model represents a constructivist approach to learning (Chapman, 2008). Dewey (1933) laid the foundations of reflective practice and reflection was originally defined as the 'active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends'. Reflection is achieved through a continued cycle of constructing and reconstructing and critical reflection is considered a key component to the reflective

⁴ That is, the perception of other people towards the mentee.

model (Chapman, 2008). In other words, it is reflection followed by action. Sometimes, the term 'intellectual reflection' is also used (Maynard & Furlong, 1993). Brooks and Sikes (1997) described the experience of the reflective model from the standpoint of the mentor as 'learning to teach becomes a much more tentative, exploratory, context-specific, value-laden activity shaped in and through experience'. The following excerpt from Dewey's (1933) book *'How we think'* captures the essence of reflective learning:

'Reflective thinking, in distinction from other operations to which we apply the name of thought, involves (1) a state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates, and (2) an act of searching, hunting, inquiring, to find material that will resolve the doubt, settle and dispose of the perplexity'.

Dewey (1933) lists three attitudes that are both considered necessary and expected of an individual who performs reflective learning. The first attitude is that of 'open-mindedness', being open to ideas and thoughts that are new. The second attitude is that of 'whole-heartedness', the capacity to be fully engaged with new ideas which is accompanied by active adoption and seeking new ideas out. The third attitude is that of responsibility, the state of being aware of the full significance and implications of the adoption of a new action. Berggren and Söderlund (2008) showed that action and reflection are dialectically associated, i.e. the action provides the testing ground for reflection and articulated reflection opens the way for new perspectives, fostering the generation of new knowledge. Previous knowledge or assumptions may hinder the 'emancipation of perspective-limiting assumptions' and in this respect reflection can play a critical role in the examination of these assumptions (Kayes, 2002).

An earlier study by Schön (1987) supported the description of critical thinking in the reflective learning approach and introduced terms like 'knowing-in-action', 'reflection-in-action' and 'reflection-on-action'. The term 'knowing-in-action' is the involvement of action that is spontaneous together with skilful execution. The term 'reflection-in-action' involves the process of thinking back and thinking aloud about the action; modifications of the consequential subsequent actions may take place as

a result of the act of reflection. The term 'reflection-on-action' involves thinking about the action during the moment of the execution of the action; modification to the action during the moment of the execution takes place. The resultant changes brought about by the action of reflection on knowledge and experience build personal meaning. This is part of the basic assumption of reflective inquiry. This form of learning is important to a project environment, as the emphasis of the reflective model is in helping the mentee to develop new insights by way of invoking the thinking process.

A negative aspect to this model of mentoring is that the process of learning consumes more time compared to the other two models – apprenticeship and competence. In contrast, one of its positive aspects is that reflective learning using the experiences from previous actions can avoid the risk of 'second-handedness of the learned world' (Berggren & Söderlund, 2008).

2.6 Descriptive Model of IS Project Management Mentoring

This study's descriptive model of IS project management mentoring is informed by the theoretical frameworks of both IS project management (see Section 2.3) and mentoring (see Section 2.5). The synthesis of the key mentoring theoretical foundations with an IS project management theoretical framework is supported by the extant mentoring literature in the mature disciplines of management, academia, counselling and medicine (Section 2.4 described the context of mentoring in these matured disciplines).

The descriptive model supports the understanding of the phenomenon of mentoring practice adoption across the IS project management process. Used as a composite lens of explanation to the data (informed by practising IS project managers), this descriptive model will provide insights into the nature and effects of mentoring practice adoption and the promotion of project effectiveness through enhancement of problem solving and project success improvement.

The key characteristics of this descriptive model of IS project management mentoring are:

- It is supported by the PMBOK IS project management theoretical framework (PMI, 2004).
- It is supported by theoretical foundations that have been tested in the wide and varied mentoring literature:
 - Kolb's theory of experiential learning (D. Kolb, 1984; D. A. Kolb et al., 1999).
 - Social exchange theory and communitarian theory (Gibb, 1999).
 - The three models of mentoring: apprenticeship, competence and reflective models (Maynard & Furlong, 1993).
 - The mentoring model of Anderson and Shannon (1995).
- It is grounded in the copious literature drawn from a wide range of matured disciplines and areas such as management, academia, counseling and medicine (Sambunjak et al., 2006; D.A. Schön, 1983; Tashakkori et al., 2005).
- It is an extension of earlier IS research. Mentoring is generally acknowledged and noted as important and useful to IS professionals in the IS literature (Berg et al., 1995; Boonzaaier & Van Loggerenberg, 2006; Pfleeger & Mertz, 1995; Ricker, 2006; Santos et al., 2007; Scher, 1996; Shrednick et al., 1992; Silva & Doss, 2007).

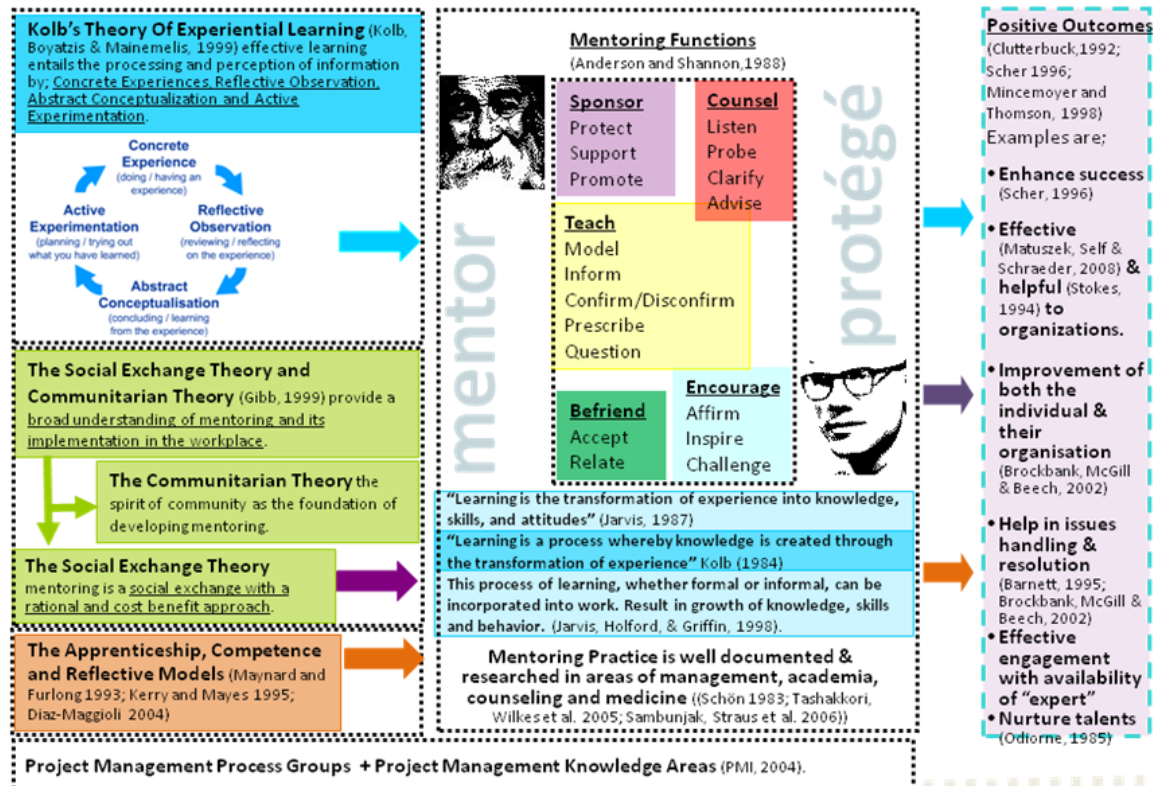


Figure 2.6 A Descriptive Model of IS Project Management Mentoring (Note - an enlarged diagram in Appendix 5)

The descriptive model of IS project management mentoring depicted in Figure 2.6 is a four-part model. The first part, 'Mentoring Functions' is informed by the key functions of mentoring from Anderson and Shannon's (1995) mentoring model (described in Section 2.4.3). The second part, 'Project Management Process Groups and Knowledge Areas' (described in Section 2.3), is informed by the IS project management theoretical framework of PMBOK. The third part, 'Mentoring Theoretical Frameworks' is informed by the three key theoretical frameworks of mentoring described in Section 2.5. Lastly, the fourth part, 'Positive Outcomes', describes the positive outcomes that result from mentoring adoption (described in Section 2.4.4). This descriptive model presupposes the positive outcome and nature of the mentee/mentor dyad based on a review of the mentoring literature in the disciplines of management, academia, counselling and medicine.

In summary, the mentoring process principally facilitates the transfer and translation of the experiential knowledgebase of skills, competencies, capabilities and abilities generally from a more experienced individual to a generally less experienced one (Blandford, 2000). IS project managers (as mentees) can be helped and up-skilled by this scaffolding process (Diaz-Maggioli, 2004) and learning during⁵ the duration of the project can be enhanced by the mentoring process and even accelerated (Bell, 2000). The mentoring process can also act as a positive mechanism in the development of soft skills such as management and organizational skills. Given its sound basis, it is expected that this descriptive model of IS project management mentoring can increase our understanding of the mentoring relationship across the IS project management process within the context of IS project success improvement. IS project managers can move forward by leveraging the experiences of the project mentor in an environment of constructive criticism, support and nurturing, and in a relationship of mutual trust (Nicholls, 2002).

2.7 Summary of the Chapter

The presentation of the descriptive model of IS project management mentoring was preceded by the description of the theoretical frameworks and models related to IS project management and mentoring. The IS project management framework adopted was PMBOK's (2004) project management theoretical framework. With regard to the mentoring theoretical frameworks, the three discussed were the experiential learning theory, social exchange theory and communitarian theory. The three models of mentoring described were the apprentice, competence and reflective models. In addition, Anderson and Shannon's (1995) mentoring model was also discussed. The next chapter presents the research methodology of this study.

⁵ It can be on-going process; of which it is spanned over multiple projects.

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Outline of the Chapter

This chapter outlines the methodology of this thesis. There are eight main sections. Section 3.2 revisits the research questions presented in Chapter 1 before Section 3.3 describes the overall research design and justification for the study. The two-part multiple-method research approach adopted is described in Section 3.4; the first part involves a questionnaire survey and the second combines an inquiry by narrative interview with the long-interview technique of McCracken (1988). The respective theoretical framework, and data gathering and analysis techniques of these research methods are discussed in Sections 3.4.1 and 3.4.2. Section 3.4.3 describes the approach taken for data analysis of the interview narratives, which is the principal focus of the study, and has three subsections. The first describes the steps of the data analysis; the second outlines the use of NVivo, a software tool, in the analysis process; and the third describes the standards of rigour applied.

Section 3.5 presents the pertinent background information of the IS project managers who participated in both the questionnaire survey and interviews. Section 3.6 then outlines the ethics application and approval from the AUT Ethics Committee and Section 3.7 describes the process of making connections between the analysed data and the theoretical frameworks using the researcher's knowledge and interpretations. The research assumptions are listed in Section 3.8 and the last section presents a chapter summary.

3.2 The Research Objectives and Research Questions – a Revisit

In Section 1.4, the following five research questions were outlined:

1. What are the perceptions of IS project managers towards the adoption of mentoring practice?
2. Why are mentoring practices being adopted by IS project managers?
3. What aspects of IS project management process have been learned through the mentoring practice?

4. How is learning characterized by IS project managers in the adoption of mentoring practice?
5. What contributions towards IS project success are perceived by IS project managers in the adoption of mentoring practice?

To address and provide meaningful answers to these five research questions, a multiple-method research approach is adopted. This is fundamentally a two-part multiple-method research approach which supports the elicitation of the perceptions and experiences of practising IS project managers with respect to the adoption of mentoring across the IS project management process.

The principal research objective of this study is to examine and document aspects of IS project management and the practice of mentoring in the context of project effectiveness, with the aim of improving project success rates and problem-solving enhancement. This objective addresses research questions #3, #4 and #5. It is anticipated that this examination of the nature and extent of mentoring practice adoption across the project management process cycle will yield results that can improve the effectiveness of IS project implementation.

The subsidiary objective of this study is to explore and document mentoring practice across the context of the IS project management process. This objective addresses research questions #1 and #2. The intention is to provide an updated assessment on the state of practice/landscape of mentoring. The answers to these research questions provide the necessary contextual information for the answering of research questions #3, #4 and #5.

The motivation for this research is to contribute to the body of IS project management knowledge by building a deeper understanding of the adoption aspects surrounding the practice of IS project management mentoring. This study is by no means an attempt to solve the issue of IS project failure; it rather hopes to improve IS project success rates through the effective adoption of mentoring practice.

3.3 Research Design and Justification

This study aims to understand the phenomenon of mentoring as perceived by practising IS project managers across the IS project management process. It involves the use of qualitative data towards the understanding and explanation of mentoring. These data are solicited primarily from interviews and to a lesser extent from survey. The research conclusions of this study are drawn from qualitative interpretations⁶ of its actors - practising IS project managers. This is in line with Walsham's (1995a) assertion that knowing reality and also the knowledge of reality is a social construction of human actors. To achieve this aim, this study adopts an overall broad interpretivist paradigm. It is however noted that not all qualitative research are of the interpretivist stance; where for example qualitative research can also be of a positivist stance (Myers, 1997). The interpretivist paradigm is not uncommon and unnatural in IS and mentoring studies (Oates, 2006; Terri A. Scandura & Pellegrini, 2007; Walsham, 1995b, 2006). Interpretive research is accepted by most mainstream IS journals. Furthermore, it is well regarded as a valid and important approach to IS research (Cecez-Kecmanovic, 2010; H. Klein & Myers, 1999).

This study is cognizant of the positivism versus interpretivism paradigm debate. It is evident from the literature that both paradigms are used. The wide spectrum of IS research poses a dilemma for researchers (Järvinen, 2006), but a widely accepted answer to this dilemma is that there is more than one way of knowing (Baskerville, 1999; Kuhn, 1970). To this end, Pallas (2001) has explored the heart of the debate:

“... behind the welter of names - positivism, naturalism, postpositivism, empiricism, relativism, feminist standpoint epistemology, foundationalism, postmodernism, each with an array of subspecies - lie important questions: Is there a single, absolute truth or are there multiple truths? Can we count on our senses, or on reason, to distinguish that which is true about the world from that which is false? Are there methods that can lead us close to understanding, or are there inherent indeterminacies in all methods? Is

⁶ Refer to qualitative analysis of the survey's mixed quantitative-qualitative data (Section 3.4.1) and qualitative analysis of the interview's qualitative data (Section 3.4.2.3).

knowledge of the world discovered, or constructed? Can knowledge of the world be evaluated independent of the social and historical contexts in which it exists, or is it always contingent upon, or relative to, particular circumstances?”.

Generally, interpretivism, positivism and critical science are considered the three most widely utilized research paradigms in management and sociological studies (Gephart, 1999), and also in IS (Cecez-Kecmanovic, 2010). To promote knowledge, each has its own unique advantages, sets of assumptions, and epistemological standpoints.

Interpretivism, in contrast to positivism and critical science, seeks to understand the meaning, values and beliefs associated with social phenomena (Galliers & Land, 1987; J. K. Smith & Heshusius, 1986). It was derived primarily from anthropology, phenomenology and hermeneutics (H. Klein & Myers, 1999). The positivist paradigm, meanwhile, has dominated social sciences research for over 100 years. It is based on the assumption that uncovering universal laws that govern social events is possible and establishes facts based on associations and correlations (Gephart, 1999; Wardlow, 1989). Critical science, on the other hand, involves explaining social inequities through actions taken to effect change (Comstock, 1982).

As noted above, the interpretivist paradigm is considered a valid approach in IS research (H. Klein & Myers, 1999). Given that the development and use of IS is a technical process as much as a social one, interpretivism can provide powerful insights into the human subjective experience which positivism can overlook. The contextual focus of this research study is on understanding the social actions and behavioural phenomena of IS project managers with respect to the adoption of mentoring practice across the IS project management process. Adopting the interpretivist paradigm to comprehend and explore this phenomenon is therefore readily justified. The interpretivist paradigm with its focus on human experience and perception is well suited to the study of the personal experiences of practising IS project managers.

Subjective characterization (embodied through particular personalized experience) as opposed to objectivity is a major epistemological difference between the interpretivist and positivist paradigms. This study has the key characteristics of interpretivism, i.e. there are no predefined independent and dependent variables (Galliers & Land, 1987). Subjective characterization generally provides depth and richness and is considered a core strength of interpretive studies (M. Myers, 2000). It is not subjected to experimental control and hypothesis testing but rather research questions (Fitzgerald & Howcroft, 1998). To this end, under the context of this study, it is unlikely that a positivist paradigm would be considered appropriate.

The purpose of the above philosophical justification and positioning is to lay the foundation for the conduct of this study. The next section discusses the overall research approach and the conduct of the data collection and analysis.

3.4 A Two-part Multiple-Method Research Approach

The multiple-method research approach originated in the social sciences and psychology and is also known as mixed method (H. W. Smith, 1975). It has subsequently been adopted in the IS and management disciplines (Kaplan & Duchon, 1988). Multiple-method in IS research is not uncommon (Gable, 1994; Kaplan & Duchon, 1988; Lázaro & Marcos, 2006; Patton, 1990). Examples are:

- Pinsonneault and Kraemer (1993) noted the adoption of the multiple-method research approach in their assessment of IS research between 1980 and 1990;
- Gable (1994) used multiple-method in the study 'Integrating Case Study and Survey Research Methods: An Example in Information Systems'.

Likewise, the use of multiple methods of data collection is not uncommon in mentoring studies (Allen, Eby, O'Brien, & Lentz, 2008). For example, Mincemoyer and Thompson (1998) used an approach that combined an initial pre-assessment survey approach and an in-depth interview approach; through which mentoring relationships were explored based on the perceptions and experiences of the mentoring dyad. Multiple-method is also used in business process management

research; Bandara et al. (2007) adopted such an approach in the study of operational efficiency.

Reasons for adoption of a multiple-method research approach have gone beyond the initial intention of eliminating the weaknesses of individual methods (N.K. Denzin, 1978). Kaplan and Duchon (1988) have argued that the approach improves the richness of IS as a discipline; it also provides new insights from different perspectives (Denscombe, 2007; Kaplan & Duchon, 1988). In addition, Petter and Gallivan (2004) noted that it brings additional insightfulness to the analysis of complex phenomena. Furthermore, Trauth and Jessup (2000) asserted that different analyses of the same data can potentially bring about more comprehensive results towards the understanding of studies on phenomena.

To further understand the perceptions and experiences of IS project managers in the adoption of mentoring practice across the IS project management process, this study adopts a two-part multiple-method research approach. Such an approach would also enable the researcher to make better sense of, and ascribe meaningfulness to, the experiences of practising IS project managers. Figure 3.1 presents an overview of the research approach. First, a web-based survey instrument was used as an exploratory tool to gather data on mentoring relationships and their patterns and characteristics with respect to mentoring adoption across the IS project management processes. The collected survey data not only provides a state of practice assessment but also essential contextual information for the second part of the study.

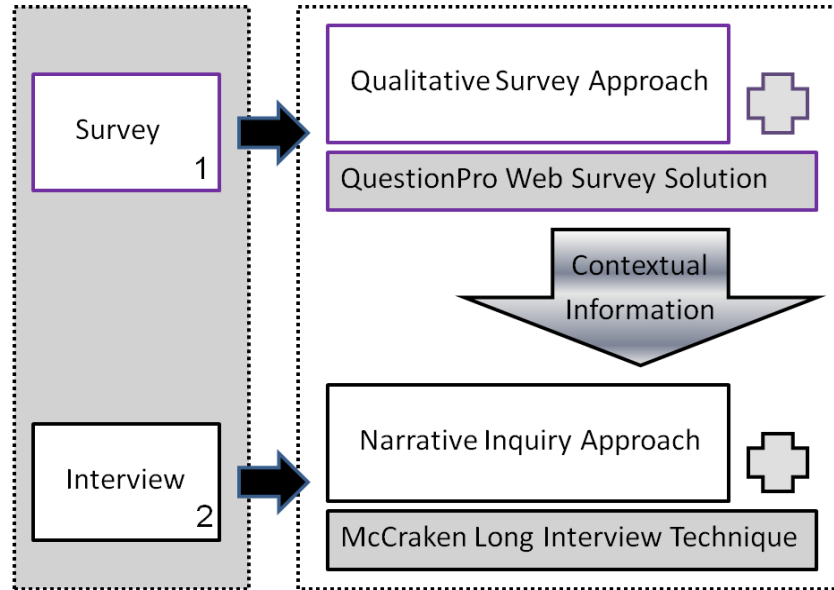


Figure 3.1 Two-part Multiple-Method Approach

The second part of the research approach uses inquiry by narrative interview in conjunction with McCracken's (1988) long-interview technique (Hunter, 2007); where narrative analysis was applied on the collected interview narratives. Semi-structured questions that are open-ended in nature were used to elucidate attitudinal responses from the participating IS project managers. The objective was to encourage the participants to describe their experiences and perceptions in an unbounded manner, guided by the framework of IS project management. Narratives drawn from the interview process served as data which were analysed to provide a better understanding of the phenomenon of mentoring adoption.

The justification of carrying out the survey before the interview is reaffirmed in part by the order of Gregor's (2006) theory types. The survey's main characteristic reflects the distinguishing attribute of theory type I i.e. says 'what is'. Whereas, the interview is characterised by the distinguishing attribute of theory type II i.e. says 'what is', 'how', 'why', 'when', 'where'.

The aspects of IS project management processes learned by mentee IS project managers through the adoption of mentoring were one focus; another was the mentor-mentee dyad. This is under the context of IS project effectiveness i.e. IS

project success improvement and problem-solving enhancement; and from the perspective of practising IS project managers learning from (and/or being guided by) a generally more experienced individual or group of individuals (K. E. Kram, 1985).

The next subsections, namely 3.4.1, 3.4.2 and 3.4.3 describe the research methods used in this study. Included are also the survey and interview protocols. Aspects of the process such as the instruments used, data gathering techniques and analysis guidelines are outlined.

3.4.1 Qualitative Survey Research Method

3.4.1.1 Literature Overview

Exploration, description, explanation, evaluation and assessment are amongst some of the key characteristics of survey research. Generally, the main purposes of survey research are to describe attitudes, behaviours, opinions and characteristics of a population-based sample. These characteristics and purposes apply to both quantitative and qualitative survey research. Quantitative surveys provide exact answers to research questions and typically incorporate statistical analysis that provides answers with certain confidence levels (Wohlin et al., 2000). In contrast, the qualitative survey is less exact in nature. There is generally an absence of statistical significance with no exact figures. However, qualitative surveys allow broader research questions to be studied (Jansen, 2010; Laender, Ribeiro-Neto, da Silva, & Teixeira, 2002). Furthermore, Jansen (2010) noted that qualitative surveys could be used in the establishment of meaningful variation such as relevant dimensions within a population. The qualitative survey research method is generally considered appropriate for gathering broad-base practice information. It has been used in IS and mentoring studies and examples are:

- The study titled “Directions for organization and management of university learning: Implications from a qualitative survey of student e-learning” (McGovern & Gray, 2005).

- A requirements engineering study that uses a web-based qualitative survey research approach on the common practices, approaches, and techniques of the software development industry (Neill & Laplante, 2003).
- The study titled “Mentoring: a strategy for change in teacher technology education” (J. R. Ward, West, & Isaak, 2002)

Web-based online survey technology is generally considered a recent phenomena (Wright, 2005). However, electronic media such as email have been used as survey data gathering tools since the 1980s by organizational researchers (Couper, Blair, & Triplett, 1999). The World Wide Web has been increasingly used as a medium of choice for survey research (J. White, Carey, & Dailey, 2001). Web-based survey instruments are generally selected and used based on their many inherent advantages over other approaches (such as email, or post). They include good cost-benefit ratio, time efficiency, quality of responses, human error reduction, broader distribution, higher response rate, a smaller turnaround time-window and the ease of follow-up (Hayslett & Wildemuth, 2004; McCoy & Marks Jr, 2001; Turner & Turner, 1999). In addition, the administration of web-based instruments is streamlined with respect to survey distribution, collection and analysis (S. Crawford, McCabe, & Pope, 2005; Solomon, 2001). Web-based instruments are expected to be well received in this study, as the participants are IS professionals.

3.4.1.2 Survey Planning and Data Gathering

As discussed, the design of the survey instrument was exploratory in nature and intended to gather data relevant to the adoption of mentoring practice across the IS project management process. The survey questions were framed along the broad dimensions of: rationale for adoption of mentoring; characteristics of adoption of mentoring; perceived benefits; barriers/obstacles; and recommendations for intending adopters. The following areas were covered:

- Nature of the IS project and stage of the IS project with respect to the five PMBOK process groups.
- Project mentor attributes (from project manager's perspective)
- Practice patterns and levels of project management mentoring.
- Incentives/dis-incentives of project management mentoring.
- Barriers to project management mentoring.
- Challenges in practice and beliefs of project management mentoring.
- Management's perceptions and support.
- IS project manager (as the mentee) and mentor relationships.

Figure 3.2 is an overview of the logical flow of the survey questions (an enlarged diagram can be viewed in Appendix 3).

There were 36 questions in the survey, which were constructed to determine broad adoption patterns and characteristics (they are listed in Appendix 3). The survey consisted of a mix of open-ended and closed-ended questions, with the former allowing free text input. The closed-ended questions were one of the several types below:

- simple branching type of question with a 'yes' or 'no' answer,
- multiple choice type of question with one or many mandatory selection(s),
- multiple-choice type of question with an option for the participants to insert personalised inputs and complete Likert multi-point scales where they are asked to select a preferred option on a scale of 'Strongly Agree', 'Agree', 'Neither', 'Disagree' or 'Strongly Disagree'.

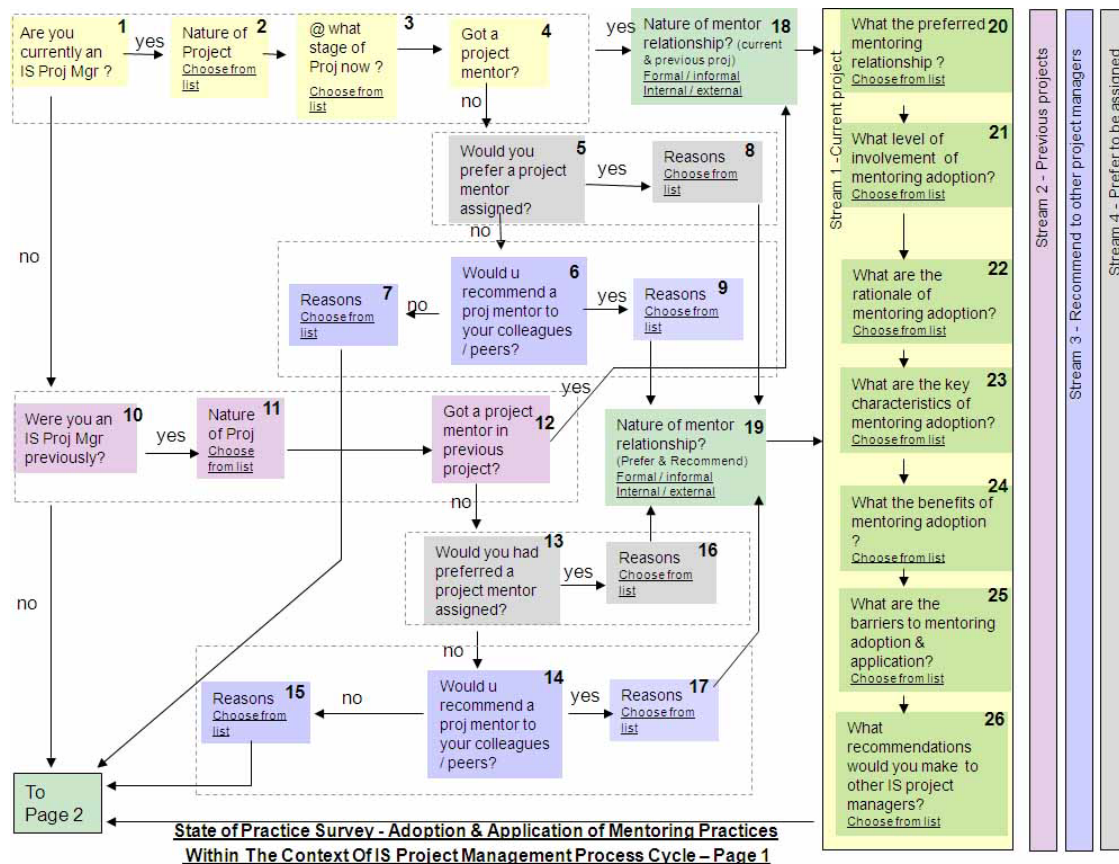


Figure 3.2 Logical Flow of Survey Questions

Project-related information was not solicited; such information may have been commercially sensitive information and held no value for this study.

To fine-tune the survey questionnaires, pre-testing was carried out by running through the survey. To ensure clarity of the questionnaires and survey instructions, feedback and suggestions were solicited. In anticipation of the busy and tight schedules of the participating IS project managers, the survey was designed to take approximately 20 minutes to complete.

Furthermore, to meet the attributes of dependability, credibility and transferability – which are considered yardsticks of trustworthiness in survey research (Lincoln & Guba, 1985) – the following proactive steps were taken:

- Access passwords to the survey URL for each of the participants were planned and implemented. This was to address the potential lack of security

and the inherently unrestricted access in the World Wide Web (S. D. Crawford, Couper, & Lamias, 2001).

- Pre-survey notifications, reminder emails and telephone follow-up during the data gathering process were planned and carried out. This was to mitigate the potential limiting factor of low response rate (Witmer, Colman, & Katzman, 1999).
- The survey was designed to facilitate ease of use. For example, colours, graphics and prompts were used for presentation enhancement (S. D. Crawford et al., 2001).
- A backup regime of at least three copies of the survey data was instituted. This was to address the potential risk of lost data.

An evaluation of possible web-based survey software/solutions was conducted and two were shortlisted: Survey Monkey (www.surveymonkey.com) and QuestionPro (www.questionpro.com). Survey requirements included the ability to stream and interface the collected survey data with built-in reporting capability, and flexible survey authoring functionalities with a focus on security functionalities and online survey services (Carter-Pokras, McClellan, & Zambrana, 2006; Wright, 2005). Further requirements included the ability to use colours and graphics to enhance presentation and the ability to provide data gathering consistency features such as the use of radio buttons to allow only one response and check boxes to allow multiple responses. Ultimately, QuestionPro was selected, based on its flexible functionalities of data creation, distribution and analysis. QuestionPro provided the researcher with a QuestionPro Student Research Sponsorship (<http://www.questionpro.com/student-research/>) for a period of six months starting June 8, 2009. The researcher used the QuestionPro survey-authoring tool to code the survey front-end interface.

Written consent was solicited from the participating IS project managers prior to the start of the survey data gathering process. A URL was created for participants to access the survey questions and access passwords were configured. This was to ensure that only the IS project managers who had consented to the survey were able to access the URL. Each of the participants was then emailed with the survey

instructions, URL and password. To enable ease of use, the survey URL was hyperlinked in the email message. Each of the participants was then followed-up by email and telephone to help ensure a good response rate. On completion of the survey, each participant was emailed a thank-you note.

In addition, a backup plan that involved using the telephone to solicit survey data was instituted. This plan allows for the contingency of unforeseen circumstances that might impede the data collection process. About one month into the data collection process, there was a fire at the office of QuestionPro in Fisher Plaza, Seattle, USA. The survey process was interrupted for a few hours but the conduct of the survey was not adversely impacted.

3.4.1.3 Survey Data Analysis

After the survey data had been gathered, it was analyzed and presented in an aggregated format. The collected survey data of both the open and closed questions were categorized along the mentioned dimensions (in Section 3.4.1.2). For example, responses to questions with the Likert multi-point scales of 'Strongly Agree', 'Agree', 'Neither', 'Disagree' or 'Strongly Disagree' were aggregated. The QuestionPro built-in reporting capabilities together with the functionalities of Microsoft Office Excel were utilized to aggregate and categorize the collected survey data. In addition, Microsoft Office Excel was used to process the raw survey data into charts such as histograms and bars. These charts were used to examine and analyze the landscape of mentoring adoption in IS projects (for examples, see Figure 4.1 and Figure 4.3).

3.4.2 Narrative Interview Approach using Long Interview Technique

3.4.2.1 Literature Overview

The key focus of the research approach taken in this study is to examine and document the behavioural phenomenon of practising IS project managers with respect to mentoring adoption in IS projects. The examination involves the factual description of the IS project managers' perceptions, including their viewpoints, thoughts, intentions and experiences.

Narrative or story-based interview techniques are widely used in IS and mentoring studies (Choudrie & Dwivedi, 2005). Examples include the documentation and examination of IS designers' experience over the design process (Boland & Day, 1989); the requirements analysis study of ERP implementation (Alvarez & Urla, 2002); the identification of career impacts to IS professionals (Tan & Hunter, 2003); the study of information systems failure (Bartis & Mitev, 2008).

The Merriam-Webster Online Dictionary defines narrative as 'the representation in art of an event or story; also: an example of such a representation'. Narratives are generally considered representations or descriptions of a sequence of events (Scholes, 1981). The narratives of IS project managers gathered for this study are representations of their respective lived-through experiences of mentoring across the IS project management process, from project initiation to closure. Sarbin (1986) considered narratives as descriptions of how accounts of actions and actions are organized – elements such as facts, rationale and time may be included. The narrated elements and how they are narrated together form the focus of narratives. Narratives are considered retrospective representations of human experience (Clandinin, 2006; Polkinghorne, 1988).

In the context of the present study, narratives can be seen as 'how protagonists interpret things' (Bruner, 1991). Polkinghorne (1988) described a narrative as the process of creating a unit end-product: a story with an accompanying plot and theme that act as the internal logic of the story. Narratives can be in the form of a written or spoken presentation. Clandinin (2006) quoted a professor of English, Thomas King of the University of Guelph: 'once a story is told, it cannot be called

back. Once told, it is loose in the world. So you have to be careful with the stories that you tell' (King, 2003). Clandinin (2006) also noted that inquiry by narrative interview is a very old practice.

Inquiry by narrative interview focuses both on what happened and on the meaning behind what an individual makes of what happened. Normally, it involves a narrator and an audience. It is an approach that facilitates the understanding of what and how individuals make meaning of their experiences; and it is generally qualitative in nature (Lieblich & Tuval-Mashiach, 1998). It is widely used in anthropology (Bateson, 1994), education (Connelly & Clandinin, 1990), the social sciences (Lieblich & Tuval-Mashiach, 1998), medicine (Bleakley, 2005), studies of community (Huber & Whelan, 2001), cross-cultural studies (Andrews, 2006), and IS (Boland & Day, 1989; Tan & Hunter, 2003). While there are numerous definitions for inquiry by narrative interview, Connelly and Clandinin's (2006) comments are most appropriate to the context of this study:

'People shape their daily lives by stories of who they and others are and as they interpret their past in terms of these stories. Story, in the current idiom, is a portal through which a person enters the world and by which their experience of the world is interpreted and made personally meaningful. Viewed this way, narrative is the phenomenon studied in inquiry'.

Lieblich and Tuval-Mashiach (1998) considered this research method appropriate for investigations of real-life experience. Connelly and Clandinin (2006) meanwhile noted that investigations of this nature involve a collaborative effort on the part of researcher and participants in which the dimensions of time and place, and the environment of social interaction, are considered. For example, an individual's identity is closely tied to places and as such stories of experiences in these places abound (Marmon Silko, 1996).

Inquiry by narrative interview is not without its shortcomings. If the researcher does not have a good understanding of the participants' experiences in-depth and intense engagement may not be possible (P. Atkinson, 1997; P. Atkinson & Delamont, 2006). (The researcher's background and experience in IS project management was

outlined in Section 1.2.1.) Another shortcoming concerns the heavy time demands of the analysis process. This study overcomes this potential obstacle by the use of the NVivo software analysis tool (described in Section 3.4.3.2).

The next two sections describe the recording, analysis and interpretation of each of the narratives of the practising IS project managers with regard to the adoption of mentoring across the IS project management process.

3.4.2.2 Long Interview Technique and Data Gathering

To provide this study with a streamlined instrument of inquiry that was efficient and productive, McCracken's (1988) long-interview technique was adopted. This technique is considered a suitable and appropriate tool for investigation and exploration in IS studies (Schall, Ospina, Godsoe, & Dodge, 2004; Tan & Hunter, 2003). In line with its characteristics, the questions asked are generally generic, non-directive and introspective in nature. The technique provides a degree of structure to the interview. In this study the questions are structured along PMBOK's (2004) IS project management process and reflect the order of the five PMBOK process groups: Initiating, Planning, Executing, Monitoring and Control, and Closing.

The purpose of the interview questions was to elucidate attitudinal responses. They are open-ended in nature and semi-structured in form and were designed to encourage participants to describe their individual experiences and perceptions of mentoring adoption across the IS project management process. They are intended to capture not just participants' thoughts but also the context of those thoughts. The intention is to enable IS project managers to narrow down the essences, stories and perspectives of their respective experiences and perceptions. McCracken (1988) argued that such focused attention can facilitate articulation and narration of participants' testimonies.

Throughout the interview sessions, flexibility is maintained; participants are at liberty to discuss in any reasonable direction. This opens up potential realms of expanding possibilities. In this respect, emerging topics and themes can be uncovered. To maintain an overall framework for the study, the general direction and scope of the

interviews were guided by the structure of PMBOK's (2004) IS project management process.

To ensure consistency of areas covered and preservation of the context, similar types of questions are sometimes put forward in different ways within individual interviews or across them. Additional questions (as a result of new situations discovered from earlier interviews) were also asked of ensuing participants. All interview dialogues were recorded electronically, in mp3 format.

To conform with McCracken's (1988) recommendations, a grand-tour technique was used in each in-depth interview session. Carlon and McCaslin (2003) found that interviews that are scaffolded with grand-tour-type questions produce richer interpretation during the subsequent interview analysis process. Each participant was encouraged to describe their perceptions and experiences with questions such as:

- Describe what comes to your mind on the subject of mentoring in the IS project management process.
- Please reflect upon your IS project management experiences with respect to the adoption of mentoring.
- Describe how the adoption of mentoring affects (or contributes) to IS project success.

To further reveal participants' perceptions and experiences, additional questions that were specific in nature were asked. For example, regarding their perceptions of IS project success, each participant was asked questions such as:

- Describe the contributing critical factors to IS project success.
- Describe the issues and resulting benefits in the adoption of mentoring.

To allow flow of discussion thread to greater detail, the 'floating prompt' technique was used (Hunter, 2007; McCracken, 1988). This conforms with McCracken's (1988) recommendations; such laddering-type techniques may involve a series of questions that facilitate further elaboration on participants' comments (Hunter, 2007). Examples of 'floating prompt' questions that were used are:

- 'Would you please describe in more detail what you said?'
- 'What else comes to mind?'
- 'How does it come to mind?'

Twenty-one IS project manager interviews were conducted (details are given in Section 3.5 below). This number is consistent with the suggestions of McCracken (1988) and Strauss and Corbin (1998); and normally 10 to 12 participants will suffice. McCracken (1988) and Greene (1994) asserted that working with fewer people allows greater depth within a larger context and meaningful understanding of the complexity of the mentoring phenomenon across the IS project management process can be better achieved. Elements of the emerging patterns and themes were assessed as the interviews progressed. The halting of the (entire) interview process was guided by a saturation test – when no new or significant patterns and themes are emerging, saturation has been reached (McCracken, 1988). Saturation was achieved after the sixteenth participant but the researcher decided to continue with the remaining five interviews as their consents had already been obtained. This research takes the stance of qualitative research scholars such as Kvale (1996) i.e. 'the more interviews, the more scientific'.

This study is cognizant of the concerns of error, bias and validity that may arise in qualitative research (Norris, 1997). McCracken's (1988) long-interview technique supports open, unbiased investigation – the documentation of the participants' interpretations of their experiences is performed in an unbiased manner. In addition, the nature of open-ended questions allows participants to determine their response and to provide their own elaboration. Trustworthiness is considered essential in qualitative research (Guba & Lincoln, 1989) and this study has taken careful steps in this direction, including avoiding preconceptions, keeping an open mind, and interpreting the data in ways that are true to the participants' intentions.

All the ethical requirements of AUT University were met and the interviews were conducted in full compliance with the approved AUTECH procedures and guidelines (see Section 3.6 below).

Next follows the description of the analysis process of the collected interview recordings informed by the practicing IS project managers.

3.4.2.3 Interview Data Analysis

The purpose of the analysis of the interview narratives was to reveal the extent of mentoring practice adoption support amongst the participants and to establish whether mentoring increases the effectiveness of IS project implementation. What aspects of the IS project management process are learned? How does mentoring contribute to IS project success rates and problem-solving enhancement? It was expected that answers to these and the study's five research questions would begin to emerge from the data analysis.

Qualitative data analysis generally proceeds by way of data examination, comparison and contrast, and interpretation and discernment. Via this process, which is non-linear in nature, special characteristics, patterns and themes can be revealed (Holsti, 1968). By using this kind of inductive analysis, 'the patterns, themes, and categories of analysis come from the data; they emerge out of the data rather than being imposed on them prior to data collection and analysis' (Patton, 1980). As a result, inferences can be made by the researcher in a systematic manner (Holsti, 1968). Seidel (1998) noted that the foundation of qualitative data analysis is essentially simple, but the process of doing qualitative data analysis can be complex (Dye, Schatz, Rosenberg, & Coleman, 2000; Seidel, 1998).

Qualitative data analysis is generally a three-part process and can be likened to a symphony with three movements (Seidel, 1998). Figure 3.3 illustrates the three-part process of noticing, collecting and thinking. Noticing of the data refers to observation making – in this study this was achieved by electronic capturing or recording of the interviews. Collecting the data includes the breaking down of interview data into discrete portions and categorizing these – in this study this involved the categorization of mentoring support across the IS project management process. The data portions are then examined for themes and patterns with respect to mentoring phenomena – this constitutes the thinking part of the process. The process is iterative and progressive, recursive and holographic; of which it is a continuous

cycle i.e. each step can be back tracked to the previous step and each step in the cyclic process contains the entire process (Seidel, 1998).

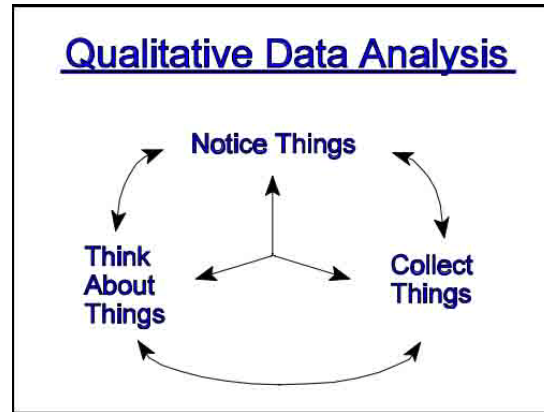


Figure 3.3 The Qualitative Data Analysis Process (Seidel, 1998)

Qualitative data analysis is about words, not numbers. Miles and Huberman (1994) observed that in this kind of analysis: *'numbers tend to get ignored. After all, the hallmark of qualitative research is that it goes beyond how much there is of something to tell us about its essential qualities. However there is a lot of counting going on when judgments of qualities are being made. When we identify a theme or pattern, we are isolating something that happens a number of times and consistently happens in a specific way. The moment we say something is 'important' or 'significant' or 'recurrent', we have achieved that estimate in part by making counts, comparisons and weights'* (p. 215).

There are three general approaches to qualitative data analysis (Mason, 1996) and they differ in their focus. The 'literal' approach focuses on the grammatical structure and the use of language. The 'interpretive' approach focuses on making out the meaning and sense of the participants' narratives or stories. Lastly, the 'reflexive' approach focuses on the researcher and his or her contribution to the analytic process. The approach adopted by this study is generally that of a combination of both 'interpretive' and 'reflexive'. This research study is cognizant of the existence of numerous qualitative data analysis methodologies, such as those recommended by

Weber (1990); Miles and Huberman (1994); Coffey and Atkinson (1996); Manson (1996); Atkinson (2002) Ratcliff (2002).

Qualitative data analysis is not without its 'problems'. As noted above, in contrast to quantitative data analysis, the conclusions of qualitative data analysis are typically expressed in words rather than numbers. The ambiguities of words and difficulties in achieving objective comparison are not uncommon problems. Accordingly, Miles and Huberman (1994) cautioned on jumping to 'hasty, partial, unfounded conclusions'.

3.4.2.3.1 Interview Data Analysis Method of Miles and Huberman (1994)

The recommendations of Miles and Huberman (1994) served as a guide for the overall framework of the interview data analysis method used in this study. Gleaned from IS literature, this framework has been adopted and used successfully by many IS researchers including Ferneley and Sobreperez (2006) and Albrechtsen (2007). As an interpretive qualitative framework, it provides the necessary support to enable reliable and valid inferences to be made in the data analysis process. In addition, the recommendations of Miles and Huberman (1994) are transparent and systematic.

Miles and Huberman's (1994) data analysis method consists of three stages: data reduction, data display, and conclusion drawing/verification. Figure 3.4 presents a diagrammatic representation of the three stages and the following three sections explain them in turn.

Broadly, this analytic continuum takes the analysis flow from the raw data of the transcribed interviews to descriptive statements and finally to interpretations (Miles & Huberman, 1994; Strauss & Corbin, 1998). The data analysis is continual in nature. As noted above it is iterative, recursive and holographic (Seidel, 1998). It is also a 'method of constant comparison' (Glaser & Strauss, 1967). This iterative analytic process can result in the establishment of patterns and themes as each unit

of the raw data goes through a systematic comparison with all the previous units of data (Miles & Huberman, 1994).

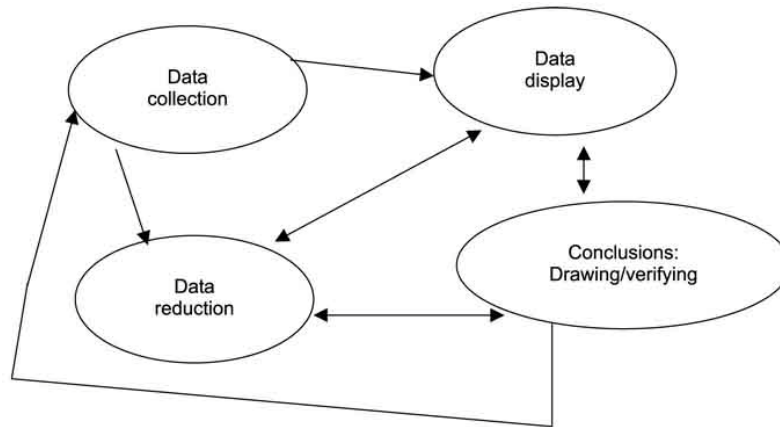


Figure 3.4 Data Analysis Method of Miles and Hubermann (1994)

3.4.2.3.2 Data Reduction

Data reduction is the process of simplifying and transforming the data (Miles & Huberman, 1994). It is a process (and procedure) of indexing, categorisation, abstraction, comparison, corroboration, characterisation by dimension, integration, iteration, refutation and interpretation. In other words, this process sharpens and sorts, focuses and refocuses, discards and organizes the transcribed textual interview data until a point where a definitive concluding categorization can be expressed and established. Outcomes of this process can be patterns and themes pertaining to the adoption of mentoring practice across the IS project management process. Progressively, the overall process can subsume lower level patterns and themes to higher level ones. As a result, relevant interpretations, meanings and contexts can be drawn out and the reduced (or condensed) data better understood – the intelligibility of the issues at hand is also improved (Coffey & Atkinson, 1996). To maintain methodological rigour, the reliable coding procedures of the software tool NVivo (QSR, 2011) were used (Section 3.4.3.2 below describes the use of NVivo).

3.4.2.3.3 Data Display

The next stage of the Miles and Huberman (1994) data analysis method is data display. In this stage of the analysis, the data displayed is in the form of an extended text. Besides using this form to provide a new perspective on the embedded data, data displays allow for extrapolation. Miles and Huberman (1994) described this extrapolation as the beginning of systematic pattern and interrelationship discernment. This stage provides for ‘an organized, compressed assembly of information that permits conclusion drawing’. Patterns and themes of a higher order can be discovered in this stage and the emergence of additional patterns/themes is likely. Miles and Huberman (1994) underscored that

‘better displays are a major avenue to valid qualitative analysis. All displays are designed to assemble and organize information in an immediately accessible, compact form; so that the analyst can see what is happening and either draw justified conclusions or move on to the next-step analysis which the display suggests may be useful. You know what you display’.

3.4.2.3.4 Conclusion Drawing / Verification

This is the final stage of the Miles and Huberman (1994) data analysis method. Conclusion drawing and verification are linked. Conclusion drawing involves drawing out the meanings of the analyzed data by taking a step back. At the same time, it also involves the assessment of the possible implications for the research questions at hand. Verification involves revisiting the data in order to verify the emerging conclusions. In this connection, Miles and Huberman (1994) emphasized that ‘the meanings emerging from the data have to be tested for their plausibility, their sturdiness, their “confirmability” – that is, their validity’. Broadly, validity means that the conclusions drawn from the transcribed interview data are able to withstand the tests of credibility and defensibility with respect to alternative conclusions.

This stage of the analysis moves to higher levels of abstraction as the differences and commonalities of the patterns and themes are isolated and identified. Conclusions are developed in an iterative fashion and the manifestation of new or

even larger patterns and themes may emerge. The generation of meanings from the manifested elements of the patterns and themes is the next step. Miles and Huberman (1994) suggested a range of tactics to achieve this, including noting patterns and themes, clustering, comparing/contrasting, subsuming particulars into the general, and factoring. To add to the interpretation process of these manifested elements, relationships are examined by observing and documenting flows, possible configurations, regularities, patterns, explanations and metaphors (Miles & Huberman, 1994).

3.4.3 Analysis of Interview Narratives

3.4.3.1 Steps in Interview Narratives Data Analysis

Transcribing the raw audio narratives (in mp3 format) was the first step of the data analysis. Transcribed interview narratives are interpretations; the process involves textual construction from an oral form (Kvale, 1996). To preserve the naturalness of the transcript, non-verbal behaviours such as ums, repetition and pauses were noted in the transcription process. Wengraf (2001) and MacLean et al. (2004) showed that non-verbal behaviours are central to the transcription process. In this way, the validity, veracity and reliability of the transcribed interview data was ensured. To preserve morphologic naturalness, word forms and punctuation were inserted in the transcriptions (Mergenthaler & Stinson, 1992). Textual transcripts are generally considered original texts and new constructions (N. K. Denzin, 1995). To enable familiarity with the data, the recorded audio narratives of each participant were transcribed verbatim with repeated listenings (Mergenthaler & Stinson, 1992).

The researcher transcribed the audio interview narratives. This was to capitalize on his firsthand knowledge advantage and to leverage his intimacy with the subject area. His knowledge of the theoretical perspectives that underpin the research design facilitated the discovery of underlying patterns and themes. Miles and Huberman (1994) noted that the transcription process can be considered the first reduction step. The downside of the transcription being done solely by the researcher is that it is a time-consuming process. Overall, however, the process was

useful and profitable, and provided an opportunity for the researcher to ‘feel’ the interview narratives in a more intimate way.

Coding of the transcribed interview narratives was accomplished using NVivo 8, a specialized software tool (QSR, 2011) (described in Section 3.4.3.2 below). The objective of the coding process is to ensure that emerging patterns and themes are managed effectively. The identified patterns and themes are coded using the ‘nodes’ functionality of NVivo 8. Transcribed interview narratives are categorized using common attributes such as keywords; context; internal consistency such as opinion shifts; intensity of comments; specificities; trends; and themes.

As stated, the data analysis process of the transcribed interview narratives used the framework of Miles and Huberman (1994). This technique draws out the relevant interpretations, meanings and contexts in the data. In addition, the identified patterns and themes are revisited and refined; amalgamation or the emergence of new patterns, themes and categories can occur. Re-categorization of the transcribed interview narratives data together can occur as the overall picture becomes more coherent. The following are the key data analysis steps taken:

1. Familiarization of the whole interview narrative of each participant by ‘walking around the data’. This was accomplished by listening to the entire recording and also reading the text transcripts until a point of full comprehension. Several re-listenings and re-readings were conducted. The key emphasis of this step was to look for meaning in the data.
2. Examination of the data by identifying the categories and sub-categories. Themes and patterns, and also issues, were identified along with the possible common or new meanings. Also identified in the process were corresponding sub-categories. This step involved the interpretation of what was being said in a way that was true to what the participant meant.
3. Recording of the themes and patterns, and also issues, by reading the transcribed textual interview data paragraph by paragraph and sentence by sentence. The ‘tree node’ and ‘free node’ features of NVivo 8 were used. Nodes are either created or amended by the process of keeping, discarding

- or rearranging. This list of themes and patterns, and issues, is constantly compiled and recompiled. Themes and patterns, and issues, were also analyzed for possible relationships. This process is repeated until a point of 'going no further' is reached, i.e. no more categorizations are possible.
4. The above three steps were repeated on the next interview until the point where the categorizations were no longer changing as a result of new data coming in. A constant iterative comparison with the previous participant's interview data and data analysis was carried out.

Figure 3.5 represents these steps diagrammatically.

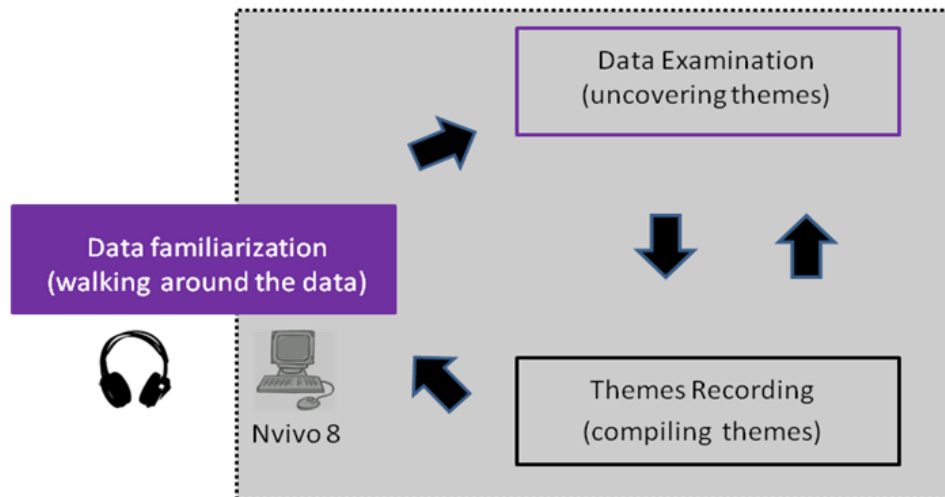


Figure 3.5 Key Interview Narratives Data Analysis Steps

An analysis of the findings interspersed with relevant verbatim extracts from the interviews with the participating IS project managers is presented in Chapters 4 and 5 of this thesis. Fundamentally, the patterns and themes that emerged from the interview narratives are a reflection of the practising IS project managers' perspectives – as mentees learning from more experienced individuals. Chapter 6 discusses these emerging themes and links them to the extant literature and the descriptive model of IS project management mentoring described in Chapter 2.

3.4.3.2 Use of NVivo in Interview Data Analysis

The complexity of the qualitative data analysis process was noted earlier in the chapter (Dye et al., 2000; Seidel, 1998) and this study utilized the NVivo 8 (QSR, 2011) specialised software to manage the large amount of interview data involved. This study is cognizant of the potentially time-consuming data analysis process and as such, a sufficient amount of time was budgeted in the data analysis processes. Numerous steps were involved in the data analysis process; and they include recording, coding, searching, condensing and linking the data.

Nvivo assists in the interrogation of the data and the revelation of the deep structures of the interview data (Bazeley, 2007; Richards, 1999; Welsh, 2002). Nvivo is not an uncommon tool in qualitative research studies. It has been used by many IS researchers and it enables researchers to achieve deep understanding of the data. For example, Nvivo was used in a study entitled 'An experience management system for a software engineering research organization' by Basili et al. (2002). The search and coding functionalities were used in the facilitation of trend identification. Another example was a study entitled 'A quantitative and qualitative analysis of factors affecting software processes' by Rainer and Hall (2003). Textual transcripts were analyzed using Nvivo.

NVivo is considered an appropriate tool for the analysis of textual interview transcripts (Bazeley, 2007; Richards, 1999). NVivo not only provides capabilities in the maintenance of transferability and authenticity of social inquiry (R. Smyth, 2008), but it has the potential to increase the capability for the data to inform the research (Richards, 1999).

Nvivo enhanced the analysis of the interview transcripts and in this regard, features such as memos, tracking and modelling were used (R. Smyth, 2008). The nodes functionality was used to bring together threads of data⁷. The nodes' multiple relationships functionality was used to establish links between nodes; this was helpful in mind mapping the data. To this end, the use of NVivo added the factors

⁷ They are the identified patterns and themes; of which they are discrete portions of interview narratives.

of dependability and robustness to the transcribed interview narratives data analysis process of this study. It was useful in assisting the thinking process (Seidel, 1998); where underlying hidden data structures, patterns and themes in the interview narratives data were managed effectively (Peters & Wester, 2007). Figure 3.6 shows a screenshot of the interview narratives data analysis and an enlarged screenshot can be found in Appendix 9.

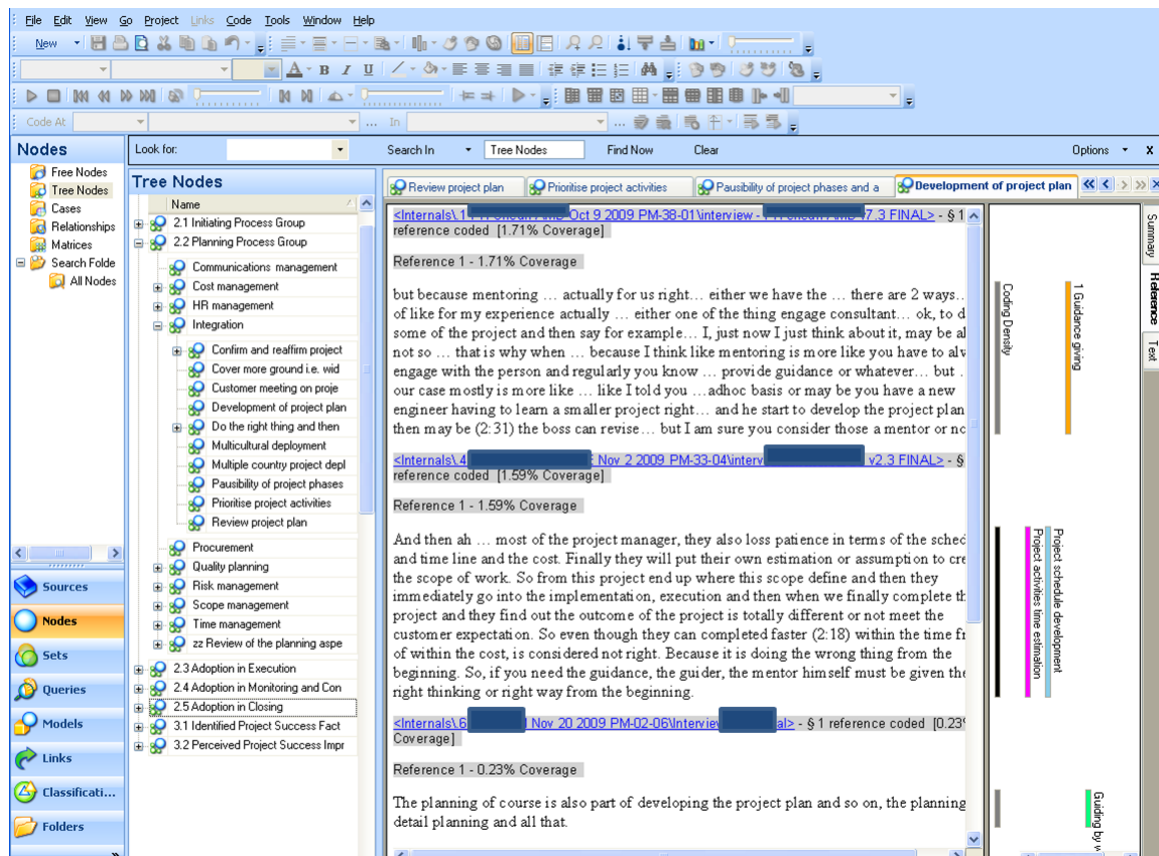


Figure 3.6 Screenshot of NVivo 8 during data analysis of the transcribed interview narratives

This study is cognizant of the fact that NVivo is only an analysis tool. It is not a substitute for the effort and thinking of the researcher in the actual analysis process. Properly used, NVivo can make data more credible, authentic, confirmable and dependable (Bazeley, 2007; Peters & Wester, 2007; Richards, 1999). Nvivo has contributed to the enhancement of internal validity in this study through better and

effective management of the coding process. The complexity of NVivo can be seen to constrain the analysis is its complexity as the learning curve can be long. However, based the experience of this study; NVivo's complexity is more like a benefit in disguise because its data analysis management functionalities are excellent.

3.4.3.3 Rigour of Interview Data Analysis

To provide significance to the interpretation of the transcribed interview narratives, this study is cognizant of the need to establish rigour in the interview narrative data analysis (Mays & Pope, 1995; Samkin & Schneider, 2008). In this respect, a number of key hermeneutic principles were employed in the identification, recognition, construction, deconstruction, reconstruction and textualization of themes and patterns in the interview narrative corpus. The recommendations of Love (1992) were modified (as indicated by italic text) to suit the context of this study.

- Repetition within and across interviews. Ideas, beliefs, concerns, and issues that *the participating IS project managers* discuss repeatedly throughout the interview or/and are brought up at least once in an interview and are then again noted in other interviews are considered significant.
- Levels and nature of affect. This includes emotion that is evident through nonverbal cues such as a sudden rise in vocal volume, change in facial expressions and other bodily movements all noted concomitantly with particular content lend significance to that content or theme.
- Historical explanations, descriptions, and interpretations. Stories of the past that explain and justify present behaviors and meanings are considered significant.
- Explicit and implicit interpretations. These require connections between thoughts and activities and meanings ascribed to them whether they be obvious and direct or implied and metaphoric. These interpretations are considered significant.
- Serendipity. Behaviors and expressions of the *participating IS project managers* that are different from what was expected based upon the reading

and experience *of the researcher*. These unexpected surprises are significant since they allow the research to recognize ideas, which have not yet been published.

3.5 The Research Participants

The research participants in this study were selected from 87 multinational corporations (MNCs). A list of MNCs was extracted from the Multimedia Super Corridor (MSC) Malaysia website on July 2, 2009 (MSC, 2009). The MNCs were World Class MSC status companies, some of which were either operating as local subsidiaries or regional offices. In addition, some MNCs were operating as global offices.

This study is cognizant of the operational procedures and processes of MNCs. Generally, there is a strong inclination towards a standardized set of operational procedures and processes. Important key functions such as IS operation and services tend to be under the overall influence of the parent head office (Chung, Gibbons, & Schoch, 2006). Global homogenization of IS policies and work activities is not uncommon (Meadows, 1996).

The conduct of this research within the Malaysian context appears to have little influence on the result of this study. Acculturation in MNCs is a possible contributing factor (Selmer & de Leon, 2002); corporate organisational culture has been known to dominate the local culture. Other contributing factors that negate possible influence of the Malaysian context are based on some key observations of this study. They include; mixed nationalities and ethnicities makeup of the participating IS project managers, participating IS project managers have worked in other global offices (such as United States and Europe) prior to their relocation to Malaysia, rollout of projects are primarily regional (such as the immediate Asia Pacific region) and global (such as to include United States and Europe) in nature, and are not restricted to Malaysia only.

Twenty-six of the 87 MNCs participated in the survey data collection (Phase 1). The listed industry categories of these MNCs and the numbers of participants in each category are shown in Table 3.1. The participating IS project managers are listed in

Appendix 2. A total of 46 IS project management practitioners suggested by the (management of the) participating MNCs completed the survey questionnaires. The surveys were completed over a period of 12 weeks from the third week of June to the first week of September 2009 (as recorded automatically by QuestionPro). Each participant took an average of about 19 minutes to complete the survey. At the time of the survey, 27 of the participants described themselves as practising IS project managers, i.e. they took the lead role in project management. Fifteen described themselves as having taken the lead role in project management in previous projects. Four participants did not describe themselves as having taken or currently taking the lead role in project management. The remaining five participants had no prior or current experience of mentoring adoption. These last two groups therefore did not complete the section of the survey designed to gather IS project managers' experiences of mentoring adoption (i.e. questions 20, 21, 23, 24, 25 and 26). This explains why responses to the survey questions were aggregated as being from either 46 or 37 participants.

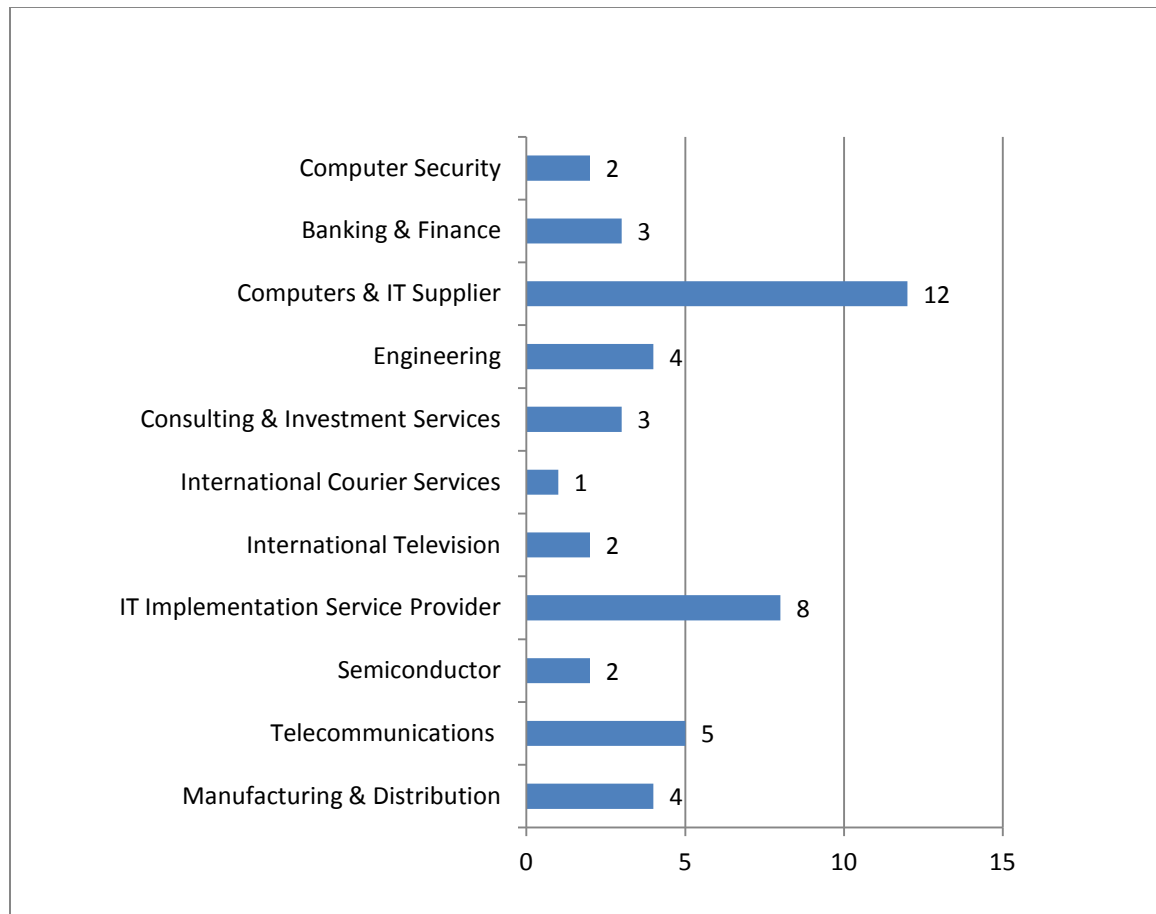


Figure 3.7 Categories of Participating MNCs (with number of participating IS project managers indicated)

Eighteen MNCs participated in the interview data collection (Phase 2). As noted earlier in this chapter, a total of 21 practising IS project managers completed the interview sessions. The participating IS project managers are listed in Appendix 2. The interviews were conducted over a period of 17 weeks, i.e. from the second week of October 2009 to the fifth week of January 2010. Each participant was interviewed for about 2 hours on average in one single session. All the participants considered themselves as taking the lead role in project management in either their current (i.e. at that time of the interview session) or previous IS projects.

3.6 AUTECH Ethics Application and Approval

This research involves human participants in the form of practising IS project managers. To comply with the Research Ethics and Practice procedures and guidelines as promulgated by AUT Ethics Committee (AUTECH), ethical approval was applied for and received on June 11, 2009 (Ethics Application Number 09/116). A copy of the AUTECH approval memorandum appears in Appendix 1.

The fieldwork of the two phases of this research study was completed in full compliance with the Research Ethics and Practice procedures and guidelines. The written consent of each participant was obtained prior to the commencement of each phase. All other required AUTECH Research Ethics and Practice procedures and guidelines were observed during the fieldwork.

3.7 Process of Theorizing

Theory is “a plausible or scientifically acceptable general principle or body of principles offered to explain phenomena”. This is amongst one of the many definitions of theory in the Merriam-Webster Online dictionary (<http://www.merriam-webster.com/dictionary/theory>).

In Gregor’s (2006) examination of the structural nature of theory in IS, theories were defined ‘as abstract entities that aim to describe, explain and enhance understanding of the world and, in some cases, to provide predictions of what will happen in the future and to give a basis for intervention and action’. In the interpretivist paradigm, understanding the lived experience of actors – in this study IS project managers – can lead to the development of a theoretical framework (Schwandt, 1994). Nilsen (2005) also noted theory development with respect to the nature of qualitative research: everyday experiences are converted into theoretical knowledge through the interpretations and explanations of researchers which brings about the translation of empirical data into theories.

The principal focus of this study is the examination and documentation of mentoring practice adoption support across and within the IS project management process. This is in the context of IS project success improvement. The research process

involved obtaining insights and understanding from the collated and analyzed interview narratives of practising IS project managers; where their respective experiences and perceptions served to inform this study. It is anticipated that analysis of the findings vis-à-vis the descriptive model of IS project management mentoring can serve to inform and elucidate the process of theorizing in this study. In this regard, the aim is to establish a theory for explaining (Gregor, 2002, 2006) the support of mentoring practice adoption across the IS project management process.

The studies of Gregor (2002, 2006) noted five interrelated theory types that are considered relevant to IS: theory for analysing (theory type I), theory for explaining (theory type II), theory for predicting (theory type III), theory for explaining and predicting (theory type IV), theory for design and action (theory type V). Gregor's (2006) table titled 'A Taxonomy of Theory Types in IS Research' appears in Appendix 8. A review of the attributes of theory type II (theory for explaining) vis-à-vis the key characteristics of this study revealed its appropriateness in this context. Müller's (2010) paper titled 'A Process for Strategic Positioning in IT Management' also supported the appropriateness of theory type II for explaining this study's theorizing process. Explanations of the 'what', 'how', 'why', 'when' and 'where' of the phenomenon of mentoring adoption across the IS project management process contribute to knowledge and satisfy the objective of 'bringing about an altered understanding of how things are or why they are as they are' (Gregor, 2006).

It is anticipated that this examination and explanation of the nature and extent of the adoption of mentoring across the IS project management process will facilitate the building of sound, cumulative and practical bodies of theory in IS.

3.8 Research Assumptions

Inquiry by narrative interview involves the collection of interview narratives and practising IS project managers are the main actors in this study. To elicit attitudinal responses from the actors, semi-structured questions that were open-ended in nature were used. The first assumption of this study is that the actors' responses are truly reflective of their respective project experiences. This assumption also applies

to those who participated in the survey. The second assumption is that the research instruments used in both phases are valid and reliable; to some extent is testable, via answer consistency.

3.9 Summary of the Chapter

The two-part multiple-method research approach used in the data gathering and analysis process was discussed in the context of yielding sound and robust research results. The intention of this research is to examine the extent to which the adoption of mentoring practice is present in the supporting of IS project managers across the IS project management process. The respective research methods – qualitative survey and inquiry by narrative interview - were then discussed and the use of NVivo 8 in the data analysis process and management of the research evidence was also described. The next two chapters present the analysis of the study findings. Chapter 4 is focused on understanding mentoring adoption. It reports on the landscape of mentoring adoption across the IS project management process and is primarily informed through the survey process. Chapter 5 is focused on examining mentoring adoption. It reports on the analysis of the interview narratives on the nature and extent of mentoring adoption; through which the efficaciousness in the support of IS project managers across the IS project management process is considered.

CHAPTER 4 ANALYSIS OF FINDINGS (PART 1) - UNDERSTANDING MENTORING ADOPTION

4.1 Outline of the Chapter

This chapter reports the landscape of mentoring adoption across the IS project management process. It is essentially an assessment of the state of mentoring practice i.e. the 'whats' and 'whys' of mentoring adoption. This chapter presents an analysis of the findings of Phase 1 (web-based survey) and also, though to lesser extent, those of Phase 2 (long interviews). The two main sections of this chapter address the first two research questions respectively. Section 4.2 provides evidence relating to the answers to the first research question: 'What are the perceptions of IS project managers towards the adoption of mentoring practice?' It consists of five subsections. The first four address: attitude and mentoring knowledge of IS project managers, IS project managers' understanding of mentoring, adoption characteristics, and resistance to adoption. Recommendations in the form of advice for those intending to adopt mentoring across the IS project management process are presented in the last subsection. Section 4.3 then describes the "whys" of mentoring practice as perceived by IS project managers. This section provides evidence relating to the answers to the second research question: 'Why are mentoring practices being adopted by IS project managers?' It has three subsections and they address the rationale, motivation and benefits of mentoring adoption across the IS project management process. Lastly, Section 4.4 presents a summary of the chapter.

4.2 Mentoring Practice Adoption – the 'Whats'

Overall, the results of the survey analysis reflected a generally positive attitude towards mentoring. This positive landscape of mentoring practice informed by the practising IS project managers was due to several reasons. Included amongst the possible reasons were not only that of a generally knowledgeable group of project managers towards mentoring but also they are well aware of the benefits accrued to

mentoring. The general perception was that mentoring was an effective means to develop one's potential. This overall positive attitude was affirmed in the recommendations the participating IS project managers offered to those intending to adopt mentoring and was likewise noted in the analysis of the interview narratives.

The following four subsections present the perceptions of practising IS project managers concerning the adoption of mentoring practice across the IS project management process. They are; attitude and mentoring knowledge of IS project managers, IS project managers' understanding of mentoring, adoption characteristics, resistance to adoption, and recommendations for those intending to adopt mentoring.

4.2.1 Attitude and Mentoring Knowledge of IS Project Managers

The general attitude of the participating IS project managers towards mentoring was positive. The tabulation of the responses in Figure 4.1 shows that no negativity was evident in the responses to the question 'What is your general attitude towards mentoring?' - none of the participants had any kind of negative attitude towards. However, 9 out of the 46⁸ participants had a neutral stance towards mentoring. The remaining 37 participants (about 80%) ranked themselves as having a positive (21 out of 46) or very positive (16 out of 46) attitude towards mentoring. Generally, the participants appeared positive towards mentoring; and this may also be said of their attitude towards the adoption of mentoring in a project environment.

The number of participating IS project managers that considered themselves as having a poor knowledge on the subject of mentoring is small (4 out of the 46⁹ participants). Similarly, shown in Figure 4.2 the number of participating IS project managers that considered themselves as having an excellent knowledge on the subject of mentoring is also small (3 out of 46). As for the indication of having no knowledge on the subject of mentoring, it was very small (1 out of 46). Overall, the majority of the participating IS project managers (38 out of 46) .i.e. more than 80% rated themselves as having reasonable knowledge on the subject of mentoring. The

⁸ Note: this question was coded to allow for only one selection of the choices for each participant.

⁹ Note: this question was coded to allow for only one selection of the choices for each participant

breakdown of the 38 participating IS project managers is 15 and 23, and respectively each indicates a very good and moderate knowledge. Note: due to a scripting error in the survey coding, the choice of 'good' was not inserted; this error had no impact on the survey results and findings. Overall, it can be said that most of the participating IS project managers are knowledgeable about mentoring.

In response to the question on the source of information regarding their mentoring knowledge, 'University or institution of higher learning' attracted only five votes of the total of 131¹⁰ votes received. Figure 4.3 shows the breakdown of the selection votes received for each of the sources of information. 'Personal experience' attracted the most selection votes (40 out of 131). This is followed by 'Observing others in my work unit' (25 out of 131), 'Discussion with peers' (24 out of 131) and 'Reading about it' (23 out of 131). This suggests the importance of self-exploration and anecdotal knowledge in the participants' knowledge of mentoring, which together (the top four) accounted for over 85% of the total. This may be suggestive of a high self-interest and also alludes to a high sense of awareness towards the positives of mentoring relationship. In contrast, few acquired mentoring knowledge through the 'Internet' (12 selection votes) and very few participants acquired mentoring knowledge (5 selection votes) during their university education. Two free format responses were received in response to the survey question. They were:

- *'in-house training courses and materials'* and
- *'thought it is a good idea'*.

The first response of "*in-house training*" indicates a possible likelihood that organizations recognized the importance and relevance of mentoring to their IS project managers. The second response may have not provided a clear answer to the question but nevertheless it was a positive indication towards mentoring adoption rather than a negative one.

¹⁰ Note: this question 'What are your sources of information of mentoring knowledge?' was coded to allow for multiple selections of choices. This question was also coded to allow for free-format response.

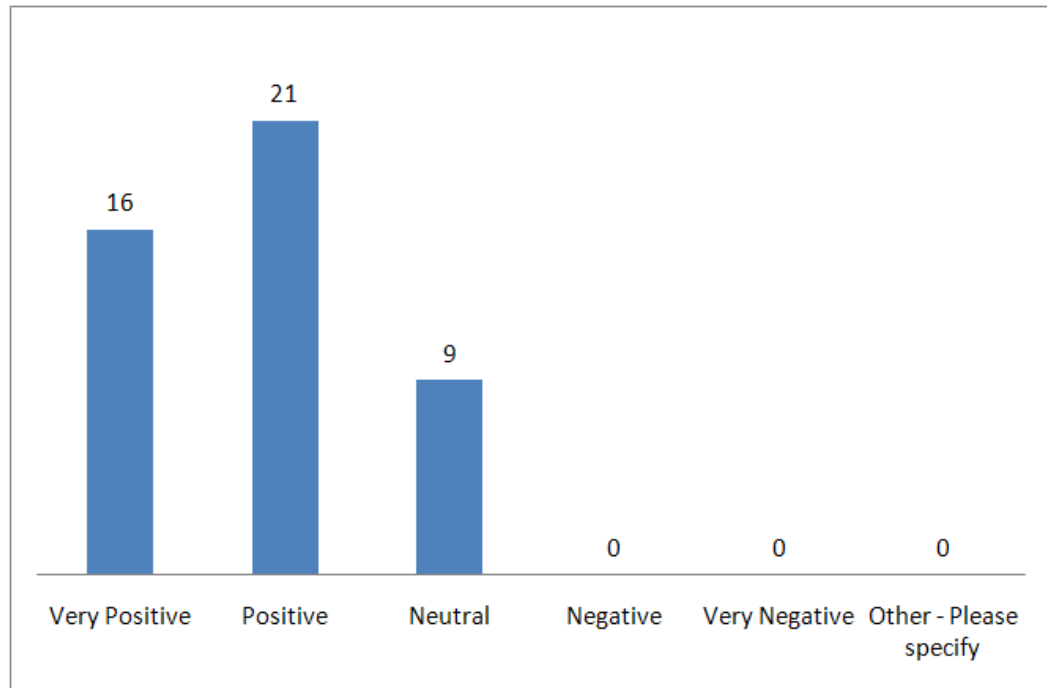


Figure 4.1 General Attitudes towards Mentoring

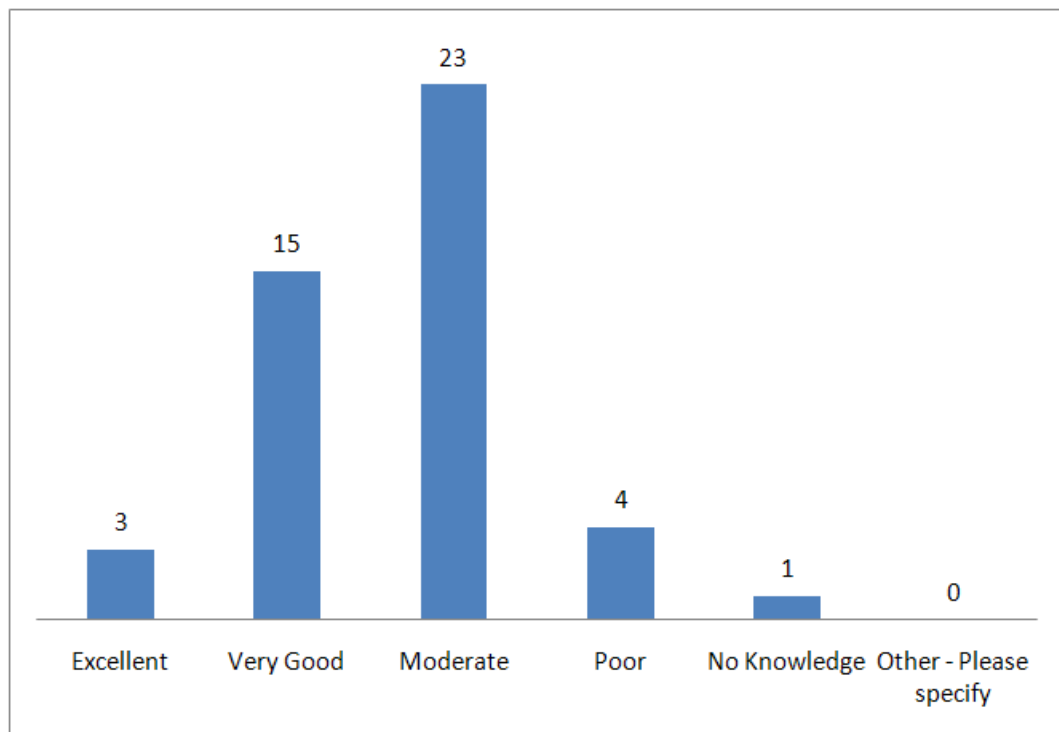


Figure 4.2 Knowledge of Mentoring - IS Project Manager Self-rating

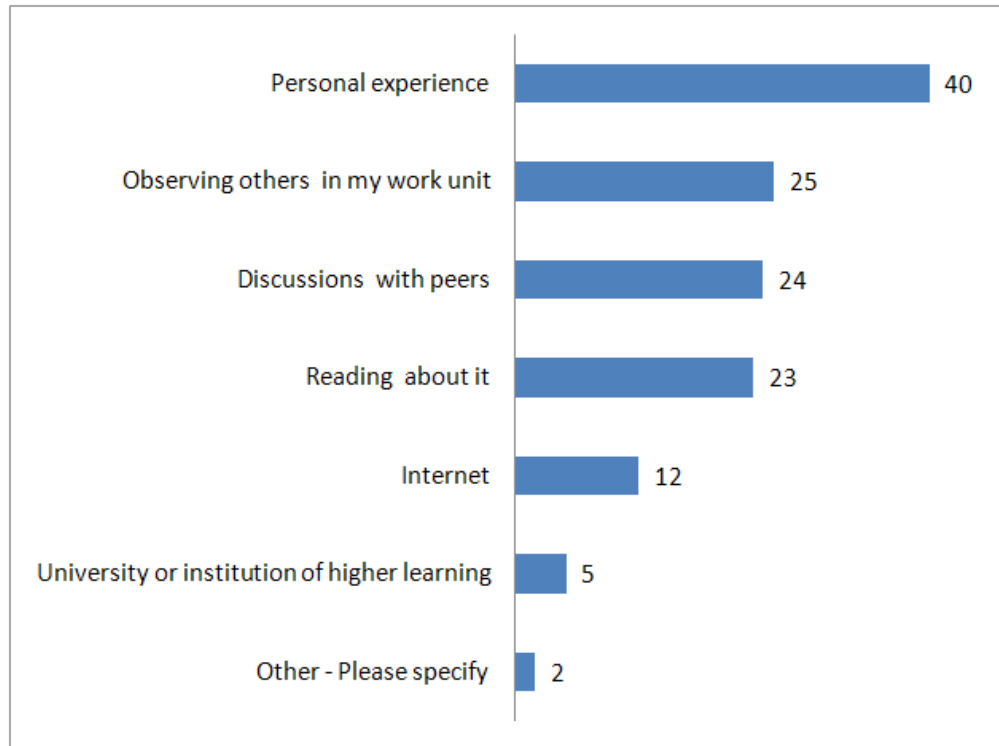


Figure 4.3 Mentoring Knowledge - Sources of Information

4.2.2 IS Project Managers' Understanding of Mentoring

The responses to the question on the understanding of mentoring adoption across the IS project management process were dominated by two perceptions. The first was that mentoring was an effective method for the general improvement of IS project managers and the second was that mentoring is better adopted using a spontaneous approach. These options each received 32 and 24 selection votes respectively out of the 71¹¹ selection votes. In contrast, the remaining options selected are illustrated in Figure 4.4 and they each received 5 or fewer selection votes. The implications were that mentoring is not as effective when one's immediate superior is involved and the yardstick of mentoring may not necessarily be based on whether IS project managers are of 'high potential' or otherwise. Three free-format responses to this open-ended survey question were received. They were:

¹¹ Note: this question was coded to allow for multiple selections of choices. This question was also coded to allow for free-format response.

- *‘Mentoring cramps the style of the IS project manager’,*
- *‘Develops not only hard skills but more importantly the soft skills as well’* and
- *‘Mentoring is for the successful completion of a complicated, high-end project’.*

The second free-format response appears to be consistent with the analysis of interview narratives¹². The first response seems (somewhat) negative, as it appears that mentoring can possibly constrain an individual’s style and approaches towards the management of projects. The third response seems (somewhat) positive, as it appears to suggest that mentoring can possibly contribute towards IS project success improvement.

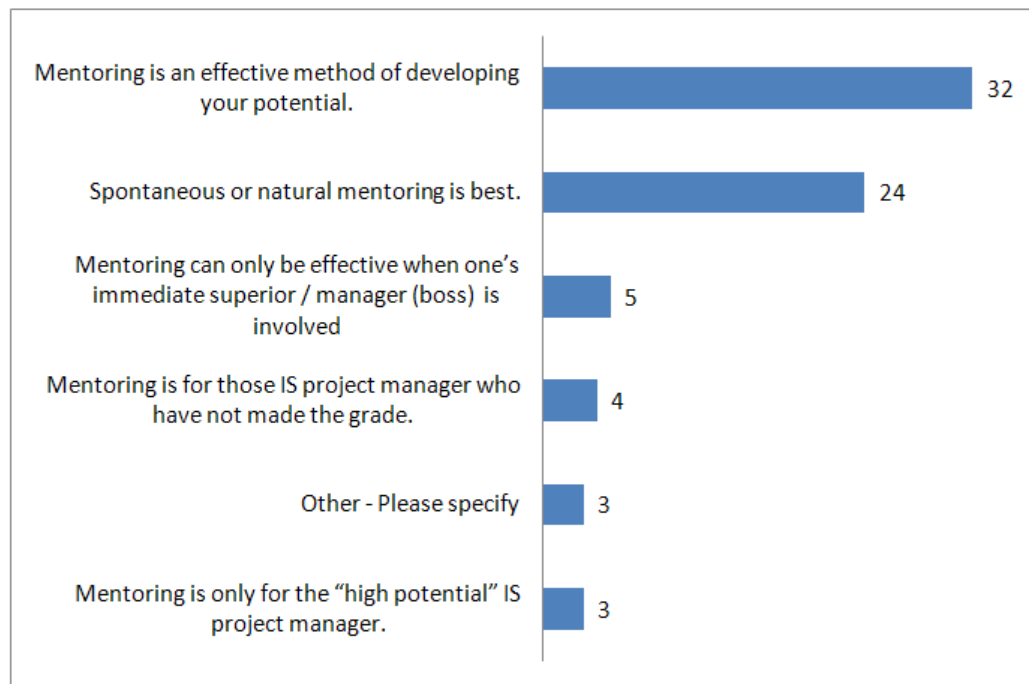


Figure 4.4 General Perceptions of Mentoring

¹² Presented and discussed in Chapter 5. Section 5.3.6 notes that learning by IS project managers tends more towards soft skills.

4.2.3 Adoption Characteristics

Thirteen adoption characteristics were made available to survey participants who were asked to complete a Likert scale¹³ from 'Strongly Disagree' to 'Strongly Agree'. Figure 4.5 shows the participating IS project managers' responses to these mentoring characteristics categorized by Disagree¹⁴, Neither and Agree¹⁵, and then each ranked by Agree category. The most agreed-with mentoring characteristic was that of 'a trusted and confident adoption relationship' (35 out of 37¹⁶ participants) and that is about 94%. Seven of the 35 responded with 'Strongly Agree'. Broadly, this indicated a desire for certainty on the part of the IS project managers.

The next three most agreed-with characteristics were:

- An informal and on an as required basis
- A learning-to-do (i.e. apprenticeship) approach
- Driven by business domain knowledge

These characteristics were agreed with by a minimum of 31 (out of 37) participants. The mentor and mentee being the same gender did not seem to be significant in the adoption process – this characteristic was agreed with by only one (out of 37) participant. In fact, 22 (out of 37) participants disagreed with this option, with 14 (out of 37) indicating neutrality.

The remaining eight adoption characteristics received mixed responses; they are listed below in the order of level of agreement:

- A learning-to-be approach
- Driven by technical knowledge
- Regarded as exemplary

¹³ The Likert scale used in survey question was a 5-point scale of 'Strongly Agree', 'Agree', 'Neither', 'Disagree' and 'Strongly Disagree' (see Section 3.4.1.2).

¹⁴ This Disagree category on Figure 4.5 is the sum of both the 'Disagree' and 'Strongly Disagree' responses of the survey's Likert scale. This applies to the discussion of all Likert scale-type questions in this chapter.

¹⁵ This Agree category on Figure 4.5 is the sum of both the 'Agree' and 'Strongly Agree' responses of the survey's Likert scale. This applies to the discussion of all Likert scale-type questions in this chapter.

¹⁶ Please refer to Section 3.5 for explanation of the number 37.

- A learning to-see approach
- A formal and organized approach
- Devil's advocate approach
- Empathize with IS project manager
- A hand-holding approach

Overall, the four most agreed-with mentoring adoption characteristics reflected learning by observation of more experienced individuals and the importance of technical knowledge. In contrast, the four least agreed-with mentoring adoption characteristics reflected that of a formal and organized approach with elements of project mentors playing the role of a devil's advocate. It also includes elements of empathy and a handholding approach.

Adoption characteristics of learning from a more experienced individual were reflected in the analysis of the interview narratives. For example, IS project manager PM-18-03 noted that a '*... trust relationship is there*', it '*... sort of speed up or alleviate the speed of gaining the experience because an experienced mentor could exactly pinpoint where the problem is ... what to watch out for*'. Furthermore, '*... you spend less time questioning each other. Just get on to the facts, get on to the experience if you do it this way, this is the implication ... so then it becomes much more effective and also learning what works*'. PM-24-20 agreed:

'... it is very reassuring, it gives you that kind of confidence la, hey, I can take on this project as long you back me up (laughter). So it enables you to think that, hey ... even though sometimes you feel that this project is beyond your means or expertise, hey ... my boss or my mentor just say that ... no problem la, I think you can do it. So, it gives that confidence to say that ... ya ... ya ... let us do it, let us try it out'.

PM-11-02 underscored that '*... it can ... ya ... may be, it is true, may be to boost up your confident*' and PM-38-01 agreed.

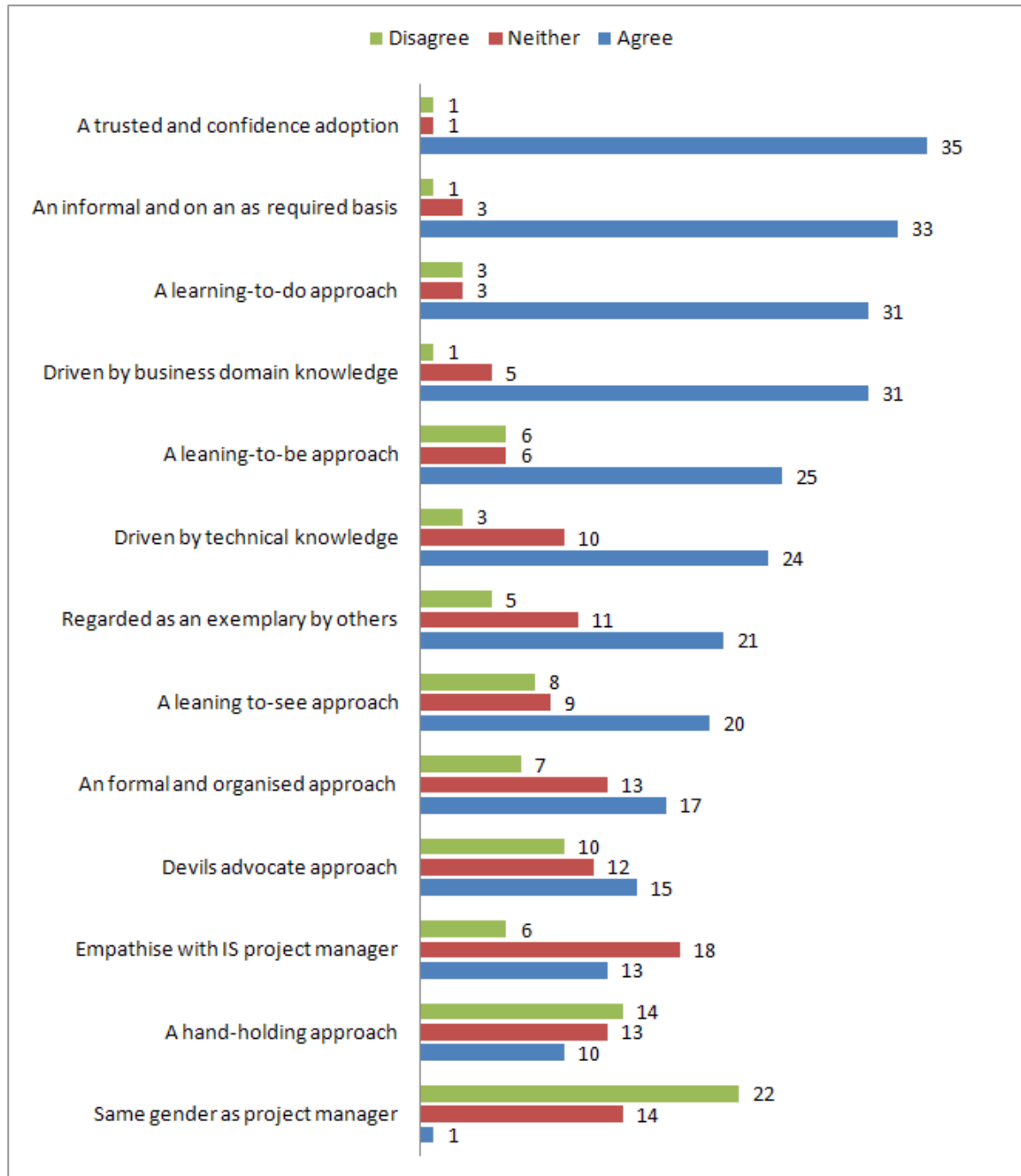


Figure 4.5 Mentoring Adoption Characteristics
 (Note: The figures for 'Agree' above are the sum of the 'Agree' and 'Strongly Agree' survey responses; the figures for 'Disagree' above are the sum of the 'Disagree' and 'Strongly Disagree' survey responses.)

Meetings and discussions between project managers and mentors were generally informal in nature. The triggers were either project managers' requests or the need to address project issues. For example, PM-44-18 stated:

'... we have an informal discussion on weekly basis. We have informal discussion on a daily basis. So at every end of day, we actually sit down, may be with a couple of drinks, coffee or tea, you know. Just to share the progress of the project, to share the coming event and how we actually can do much better. These are the three things that is always in our mind. Where we are? What we are going to do and how to make it better?'

PM-24-20 commented:

'... on the learning aspect, they also spent a lot of time informally chatting with you. I think, that was another thing, you know. So, these great mentors when they are free, they start sitting by your cubicles and start talking about anything and everything else'.

On the topic of triggers, PM-05-16 noted:

'... it is as and when required, then we are ... then we can trigger a mentor ... ahh... chip in to give suggestion or to help out if there is any issues. I think if project runs smoothly, I don't think mentor is necessary to be involved unless there are risk being trigger, that is where mentor can come into.'

4.2.4 Resistance to Adoption

When the participants were asked to rate the barriers they faced in mentoring adoption on the Likert scale¹⁷, the top most agreed-with¹⁸ options were non-availability of experienced project managers (as mentors) and lack of time. These two barriers were agreed-with by 28 and 27 (out of 37¹⁹) participants respectively.

¹⁷ The Likert scale used in survey question was a 5-point scale of 'Strongly Agree', 'Agree', 'Neither', 'Disagree' and 'Strongly Disagree' (see Section 3.4.1.2).

¹⁸ This Agree category on Figure 4.6 is the sum of both the 'Agree' and 'Strongly Agree' responses of the survey's Likert scale. This applies to the discussion of all Likert scale-type questions in this chapter.

¹⁹ Please refer to Section 3.5 for explanation of the number 37.

Seven of the 28 responded with 'Strongly Agree'²⁰ to the lack of suitable experienced project managers being a barrier while six (of the 27) responded similarly to lack of time being a barrier. Both of these barriers were alluded to during the interviews:

- *'... from a mentor's standpoint, usually mentors are busy people. So, mentor needs to make that mental and time commitment to make mentoring happen. And that is usually the challenge.'* (PM-29-19).
- *'... it is hard to get mentor as I said just now there is no incentive for people to remain in technology area to the extend they can become real effective mentors ... ah ... that is not a lot of the opportunities'* (PM-01-21).

Figure 4.6 ranks the barriers to mentoring adoption as perceived by the participating IS project managers from most agreed-with to least agreed-with.

The next four barriers listed in Figure 4.6 were agreed with by between 19 and 23 (out of 37 participants) respectively. They are:

- Other project responsibilities interfering with mentoring
- Lack of incentives to adopt mentoring
- Lack of information in the determination of mentoring adoption
- Lack of understanding or perspective of mentoring

The next eight barriers listed in Figure 4.6 were agreed with by between 12 and 16 participants. Amongst them are:

- Fearful of potential personality conflict
- Budgetary considerations
- Lack of support & encouragement from immediate supervisor/manager (boss)
- Mentoring increases overall project cost

The two least agreed with barriers were 'Management not supportive of mentoring approach' and 'Don't know if it's right for me'. Nine and eight (out of 37 participants) agreed with these respectively.

²⁰ This is with reference to the Likert scale of 'Strongly Agree', 'Agree', 'Neither', 'Disagree' and 'Strongly Disagree' used in survey question (see Section 3.4.1.2).

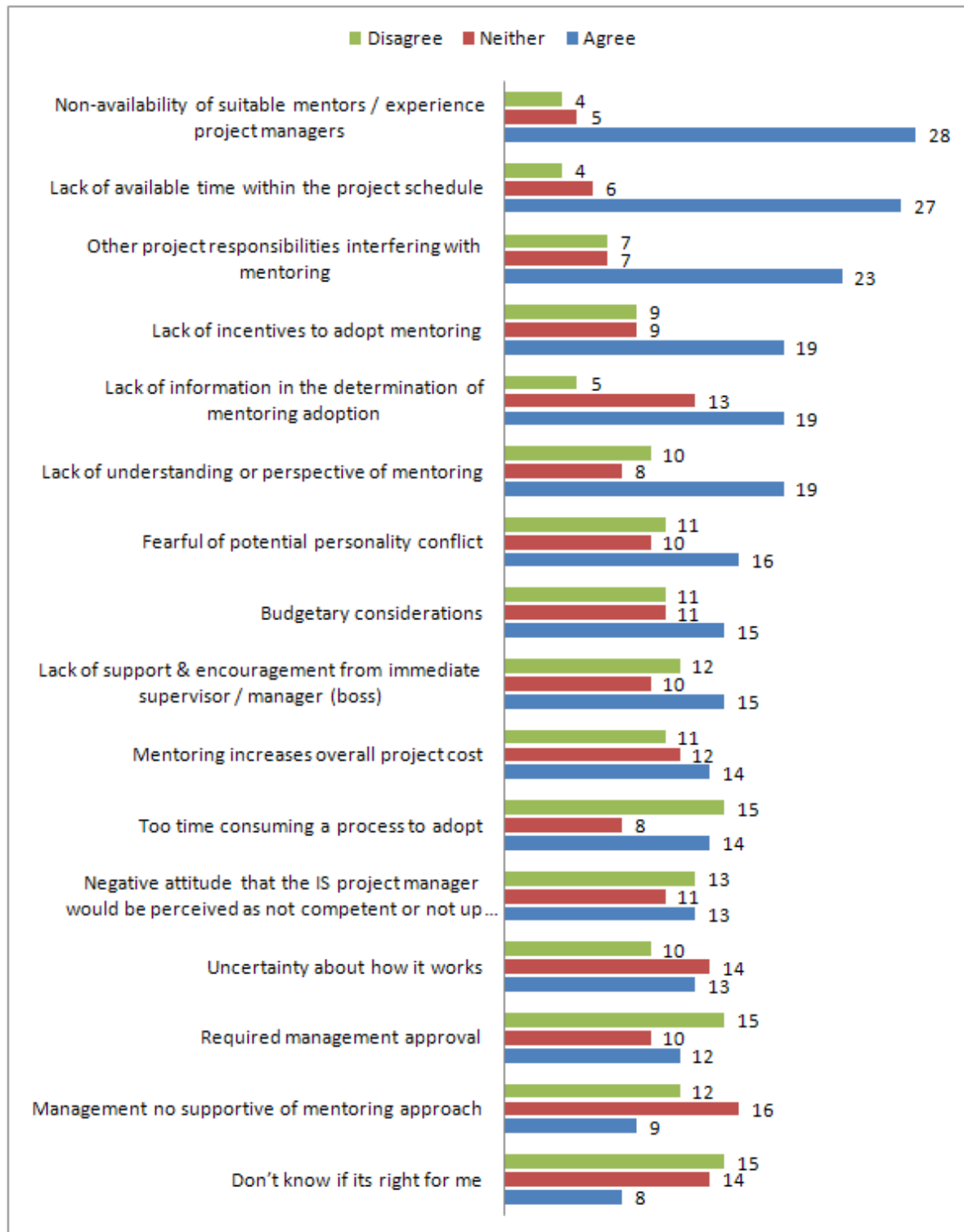


Figure 4.6 Barriers to Mentoring Adoption
 (Note: The figures for 'Agree' above are the sum of the 'Agree' and 'Strongly Agree' survey responses; the figures for 'Disagree' above are the sum of the 'Disagree' and 'Strongly Disagree' survey responses.)

4.2.5 Advice to Those Intending to Adopt Mentoring

Participants were asked to indicate on a Likert scale²¹ their agreement with various recommendations to IS project managers who were planning to adopt mentoring as a supporting mechanism (see Figure 4.7). Overall, the results showed that participants encouraged adoption. The recommendation 'Mentoring to be encouraged and be adopted on a need basis' was agreed²² with by 34 out of the 37²³ participants and 9 of these responded with 'Strongly Agree'. In contrast, the recommendation 'Mentoring must not be adopted at all' was agreed with by only two participants, 1 of whom responded with 'Strongly Agree'. The next three most agreed-with recommendations underscored the positive sentiment towards encouraging adoption, with a focus on soliciting support from more experienced in-house individuals on a need basis and adopting mentoring for selected IS project management processes instead of the entire process.

The next five choices of recommendations selected by participants were 'mixed bags', but again the inclination seemed to be more towards adoption than not.

When the practising IS project managers were asked whether they would recommend having a project mentor to their colleagues/peers, almost 12% (i.e. 5 of 42 participants²⁴) said they would not. The two reasons selected were that 'It takes too much project time' and 'Management is not supportive'. In addition, two participants provided their own responses.²⁵

- 'Every individual should be able to learn from their mistakes. Having a mentor all the time would be like spoon-feeding.'

²¹ The Likert scale used in survey question was a 5-point scale of 'Strongly Agree', 'Agree', 'Neither', 'Disagree' and 'Strongly Disagree' (see Section 3.4.1.2).

²² This Agree category on Figure 4.7 is the sum of both the 'Agree' and 'Strongly Agree' responses of the survey's Likert scale. This applies to the discussion of all Likert scale-type questions in this chapter.

²³ Please refer to Section 3.5 for explanation of the number 37.

²⁴ Four of the 27 participating IS project managers who at the time of the survey were taking lead roles in project management elected to not recommend any form of mentoring adoption to their colleagues and peers. Likewise, a similar pattern was noted of the 15 participating IS project managers who had previously taken lead roles in project management – only 1 of them did not recommend any form of mentoring.

²⁵ This survey question provided an open-ended space for by the participants' responses.

- 'Mentoring slow down the project. They should have sufficient knowledge in own area.'

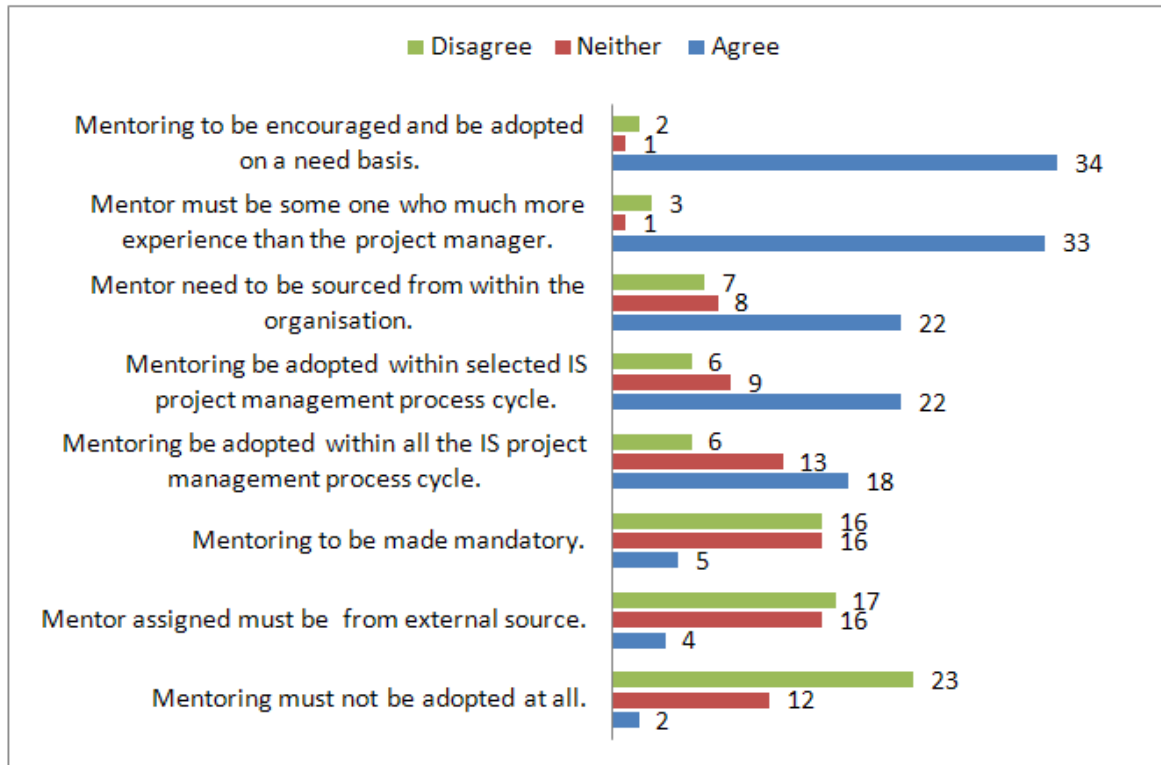


Figure 4.7 Advice to Those Intending to Adopt Mentoring

Note: The figures for 'Agree' above are the sum of the 'Agree' and 'Strongly Agree' survey responses; the figures for 'Disagree' above are the sum of the 'Disagree' and 'Strongly Disagree' survey responses.

To summarize Section 4.2, the participating IS project managers were found to have an overall positive attitude towards the adoption of mentoring across and within the IS project management process. Mentoring adoption was broadly perceived by project managers as an effective mechanism for better management of IS projects. Barriers such as the non-availability of suitably experienced IS project managers as mentors and lack of available time over the duration of projects appear to be major concerns with respect to mentoring adoption. The next section of this chapter presents the analysis of findings on the 'whys' of mentoring adoption

as perceived by practising IS project managers. Its focus is on the rationales, motivations and benefits of mentoring adoption, which are informed by the analysis of the survey and interview data.

4.3 Mentoring Practice Adoption – the ‘Whys’

Overall, the survey data analysis shows that the key motivations for mentoring adoption are project success, connectivity to a network of experienced individuals, camaraderie, and the accrued benefits of mentoring. Amongst the benefits, participants identified accessibility to expertise and knowledge gain. The context of the mentoring relationship is that of a free and open exchange of knowledge and experience driven by the guidance, support and encouragement of more experienced individuals over the duration of the IS project.

The next three subsections present the findings of both survey data and the relevant sections of the interview narratives, each reinforcing and supporting the other. The first subsection reports on the reasons for the adoption of mentoring as primarily informed by practising IS project managers in the survey. Whereas, the second subsection, as an extension to the first, reports on the key motivating elements towards the adoption of mentoring across the IS project management process informed through the interviews. The third subsection reports on the benefits delivered through mentoring adoption in IS projects as primarily informed by practising IS project managers in the survey.

4.3.1 Rationale

The 15 predetermined rationales for mentoring adoption have been ranked in the order of most agreed²⁶ with to least agreed with in Figure 4.8. All of the 37²⁷ participating IS project managers agreed that the availability of a free and open exchange of knowledge and experience was a reason for adoption. Only two (out of 37) participants agreed that the fulfilment of statutory requirements was a reason;

²⁶ This Agree category on Figure 4.8 is the sum of both the ‘Agree’ and ‘Strongly Agree’ responses of the survey’s Likert scale. This applies to the discussion of all Likert scale-type questions in this chapter.

²⁷ Please refer to Section 3.5 for explanation of the number 37.

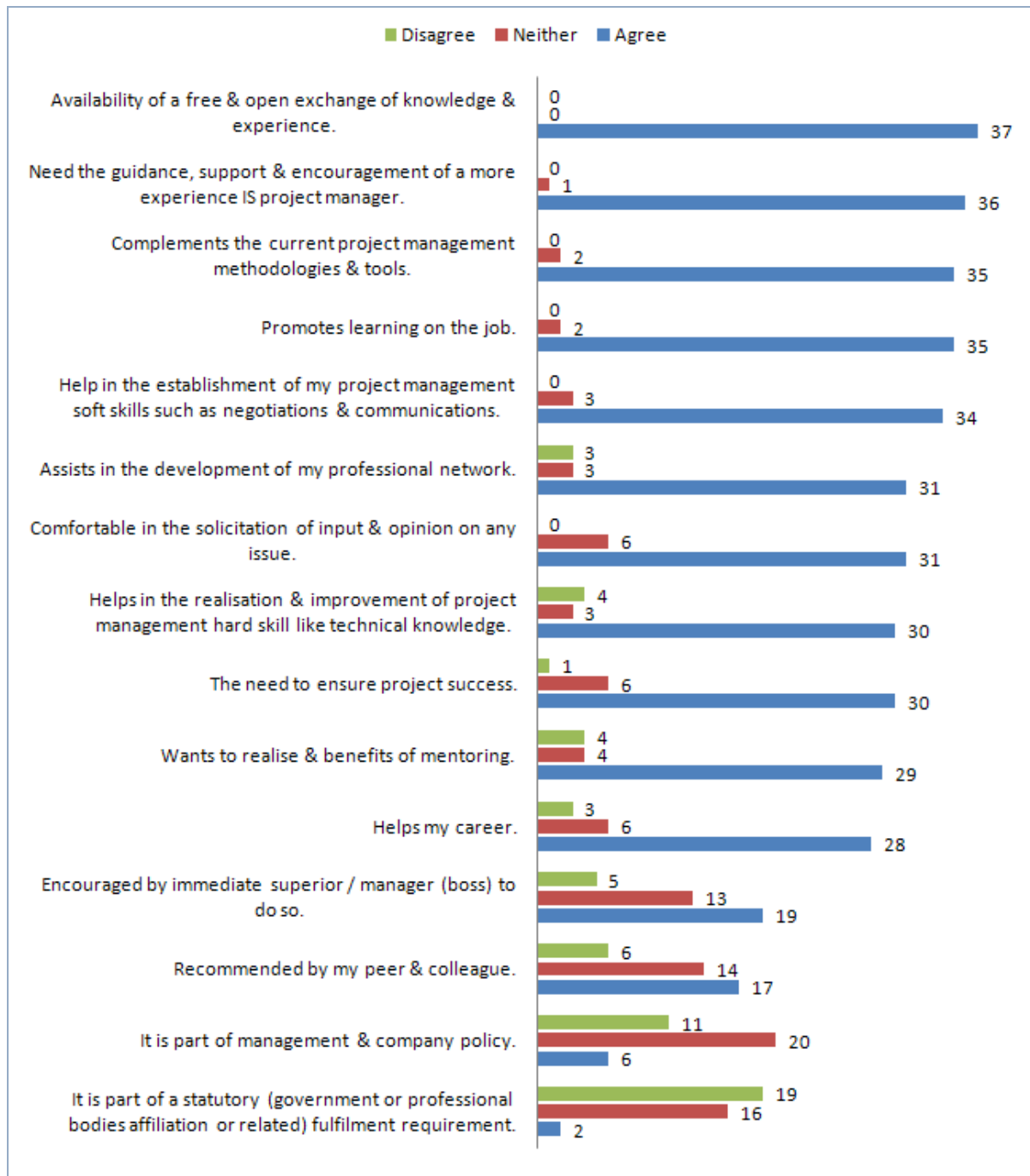


Figure 4.8 Rationale of Mentoring Adoption

Note: The figures for 'Agree' above are the sum of the 'Agree' and 'Strongly Agree' survey responses; the figures for 'Disagree' above are the sum of the 'Disagree' and 'Strongly Disagree' survey responses.

19 disagreed and 16 were neutral. Similar results were obtained with regard to the 'It is part of management & company policy' rationale: six agreed, 11 disagreed and 20 were neutral. These findings suggest that mentoring practice adoption in IS projects is rarely due to a need to comply with internal company policies or to fulfil statutory requirements.

The rationales 'Encouraged by my immediate superior/manager (boss) to do so' and 'Recommended by my peer & colleague' received a mixed response from the participants. The responses to these rationales were more positive than negative, however: the number of those who agreed was three times the number who disagreed on average. In contrast, the number of those who agreed with the rationale 'Helps my career' was significantly larger than the number of those who disagreed. This trend is true of the remaining nine adoption rationales. Each attracted the agreement of between 30 to 36 participants. Two common denominators of these highly agreed with rationales are desire for personal self-improvement and project success.

Findings of the interviews generally appear to be congruent with the survey findings; in particular there is a degree of consistency across the top five ranked rationales in the survey. The top rationale (ranked by the survey participants' agreement) of the 'availability of a free and open exchange of knowledge and experience' is supported and reinforced by the following examples:

- *'... a mentor doesn't have the kind of guideline, oh ... to be a mentor ... a) find a mentee, b) do this do this. They don't have. So, how a person defines mentoring somebody right, seriously it is up to somebody how to define it. There is not hard and fast rules about it' (PM-06-11).*
- *'... freewill as in ... if you ah ... it is back to the human behaviour la. If you do things, if you do some things willing, not as forced with wholeheartedly, it is being done better' (PM-08-05).*
- *'... and having said that if there is a free and frank relationship between them, at the end of the project they should have you know kind of build up a good*

relationship and sometimes in my experience it continues beyond that project' (PM-32-07).

The next four rationales (ranked by the survey participants' agreement) are supported by the following examples from the interviews:

Need the guidance, support & encouragement of a more experience IS project manager.	<ul style="list-style-type: none"> • <i>'... you may have someone that actually that you think you can actually get advice from them. So, I think it is the support' (PM-20-14).</i> • <i>'... to give guidance to a project' (PM-05-16).</i>
Complements the current project management methodologies & tools.	<ul style="list-style-type: none"> • <i>'... to fast track that building the bridge, building the rapport and helping the project manager to avoid some pitfalls, it will be one of the best vehicles' (PM-02-06).</i> • <i>'... it is just makes things easier, it is just like a pathway, it is just like I already took a bulldozer and went through the jungle already and that is it, right. Now you just to put flowers and stuff only. Because the pathway is already there for you' (PM-06-11).</i>
Promotes learning on the job.	<ul style="list-style-type: none"> • <i>'... people can give you input and you know to save your time. Right. Don't always knock on the wall. Then you learn it' (PM-11-02).</i> • <i>'... your learning process comes from ahh ... the more experienced colleagues or supervisors' (PM-13-15).</i> • <i>'... you gather more experience without having to live through it' (PM-32-07).</i>
Help in the establishment of my project management soft skills such as negotiations & communications.	<ul style="list-style-type: none"> • <i>'... a lot of things are ... could be values, could be soft skills, could be expectations, communications skills' (PM-29-19).</i> • <i>'... to build up soft skills' (PM-17-10).</i>

4.3.2 Motivation

As an extension to Subsection 4.3.1, the analysis of the interview narratives identified four key elements that seemed to have motivated IS project managers towards the adoption of mentoring across the IS project management process, and these are shown in Figure 4.9.

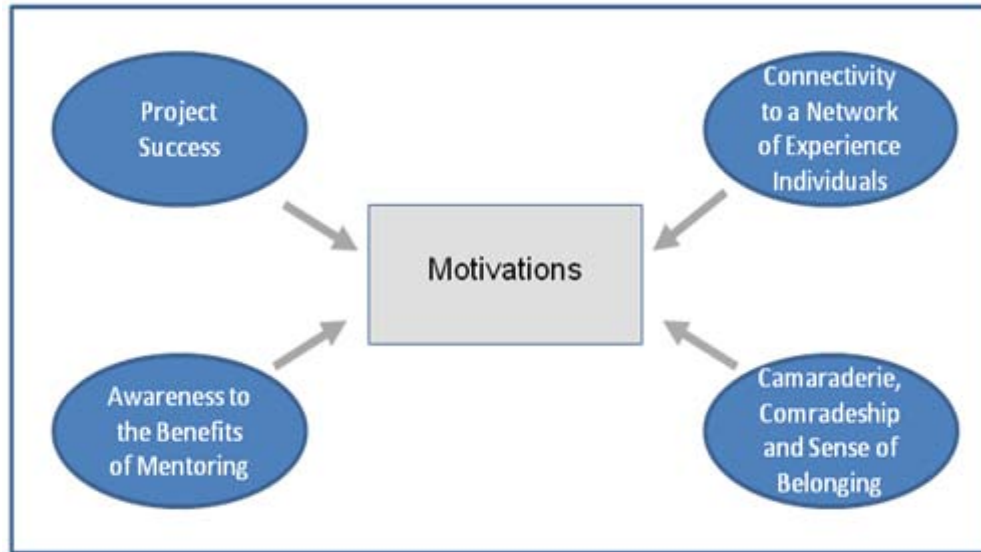


Figure 4.9 Motivations for IS Project Management Mentoring Adoption

4.3.2.1 Project Success

The improvement of project success rates was a key motivation of IS project management mentoring adoption. For example, PM-06-11 noted that *'... ahh... I will definitely hope for the success of the project'*. In addition, PM-44-18 and PM-05-16 alluded to the inducement of project success with the respective statements *'... actually help you to expertise the problem-solving'* and *'... confidence is there because of the involvement from the mentor, mentor based on his past experience ... so directly the success rate will be higher'*.

4.3.2.2 Connectivity to a Network of Experienced Individuals

Connectivity to a network of experienced project managers through mentors was one of the motives for the adoption of mentoring identified by the participants. Project mentors act as 'bridge builders' and the experiences and expertise of other experienced project managers may be tapped and leveraged. For example, PM-06-11 noted that project mentors could

'... be somebody who you can actually rely on or depend on to help you along with the project or implementation provided we are all in same systems community. Yes, so, how the mentor would help in this sense would be introduce you to maybe somebody in the community or maybe to actually pushed you into the activity of the community even though he don't know anything about it. So, he can actually just say, there is a community if such a system. And then, why don't you just become a member of it and then from there you can start to build your bridges'.

Furthermore, linkages to a wider circle of experiences and expertise can be possible. PM-33-04 said the following in this connection:

'... ah ... yes if the mentor he himself is experience and active involve in those of guidance us to do the job. I think he himself will be a leader of the community and from there as a people who never come across this kind of project before. And when we refer to the mentor and mentor can easier bring us into the community. So it can build a bridge a between the fresh people to the people who has the experience within the community itself. So it is, I believe the mentor can be the simple word is that become a bridge builder to link us to the people who has the experience ... so, if I have a guidance, just like a teacher. The teacher will say ah ... this is my student [name omitted] ... you know ... and now he has something, can you guide or he refer to some other teacher or other experience people, can you give some idea, some tips to PM-33-04. Then, I mean it more easy to get the response from the community. I think this is my personal experience'.

4.3.2.3 Awareness of the Benefits of Mentoring Practice

Realization of the potential benefits and positives of mentoring relationships seem to have triggered interest in the adoption of mentoring amongst the participants. For example, the benefits accrued by participants from previous mentoring relationships provided more reasons for them to adopt mentoring in subsequent projects. PM-41-09 alluded to this in the following statement:

'... because of the relationship that is already there ... it actually helps us to build a network ... let say I have one mentor at ... who is now in China. And even though this person is actually not in IT, not in project management, but because of now ... we say ... the world is more globalized ... there may be times where, we may have some dealings with China and it opens up the network. Because of the relationship, you build with the mentor that is currently in China. Actually, it give an opening to actually reach out to people that is in that organization'.

PM-08-05 was also conscious of this: *'... you have a better friendship or better relationship with the person'*. Meanwhile, PM-24-20 affirmed this motivation for first-time project managers in the following way:

'... you get guidance from teachers and then when come to the working world, you start off fresh, you know nothing, you know, so you are always there hoping that somebody will guide you along. Help you ... put you on the right track'.

4.3.2.4 Camaraderie and Sense of Belonging

Another key motivation for mentoring adoption identified from the analysis of the interview narratives was camaraderie. According to PM-18-03:

'... sense of belonging in the community is also key because it's important to know that you have the support when you need it, you know where to reach out for when you needed help'.

In this, an ambience of comradeship and friendship (after the project) is developed. The following exemplifies the experiences of PM-24-20:

'... just take for example, one of the mentors who has already migrated out of the country and ah ... what happens, we still regularly keep touch. So basically we talk things outside of work already, but it doesn't matter, but it still has that kind of relationship with your mentors. It goes beyond work, you know ... so, even if I decide to call him on a favour, I think ... you know related to work or skills, I don't think there is a problem la. He will be

definitely be there to help me ... la. It is not an issue ... la'.

As a result, mentoring enables deeper relationships and develops mutual trust and friendship. As PM-41-09 observed, *'... definitely, the mentoring process actually does ... deepen the relationship'*. The testimony of PM-24-20 underscored this: *'... yes, exactly, so basically, I know I can rely on these people to give me the kind of help that I need, whatever I do. And I think vice-versa also ... la. They will treat me as friend, so, if they need to return any favour, not an issue ... la'.*

The special bond of the mentee/mentor dyad was noted by PM-13-15: *'... a bond of a mentor is actually deeper than just a normal colleague because the mentor however the person is the person who helps you gets your footing so to speak in the company'*. A sense of a common interest shared by the project managers and their mentors was evident; the relationship can develop to the point where mentors take an interest in the professional well-being of project managers. PM-41-09 stated: *'... I would say the mentoring process enables that bond'*. This sense of esprit de corps can be a motivation factor for project managers to adopt mentoring in subsequent projects. In this regard, PM-41-09 suggested that *'... mentoring is actually ... we are also talking about relationship, building rapport, having a stake in the other person's growth'*.

A sense of belonging was also suggested as a motivational element in mentoring adoption. PM-44-18 explained that mentoring promotes *'... the sense of belonging in your organization'*.

4.3.3 Benefits

When the participants were asked about the benefits that mentoring adoption delivers to IS projects, the two most agreed-with²⁸ options were access to expertise and knowledge gain (35 of 37²⁹ participants, in both cases). Of these, 10 responded with 'Strongly Agree' with respect to access to expertise and 11 responded the

²⁸ This Agree category on Figure 4.10 is the sum of both the 'Agree' and 'Strongly Agree' responses of the survey's Likert scale. This applies to the discussion of all Likert scale-type questions in this chapter.

²⁹ Please refer to Section 3.5 for explanation of the number 37.

same way to knowledge gain. The benefits are ranked in order of most agreed with to least agreed with in Figure 4.10.

Seven benefits were agreed with by between 31 and 34 (out of 37 participants each):

- Enable and provide feedback, reflection & introspection of the project
- Better anticipation of project risk
- Better resolution of project issues
- Contribute to project knowledge base of the organization
- Increase my confidence as a project manager
- Increase probability of project success
- Development of project interpersonal & communication skills

Five benefits were agreed with by between 26 and 29 (out of 37 participants each):

- An expanded knowledge of career path & options
- Avoid learning by the trial & error method
- Better management of project resources
- Improved overall risk of the project management
- Better management of project stakeholders & executive sponsors

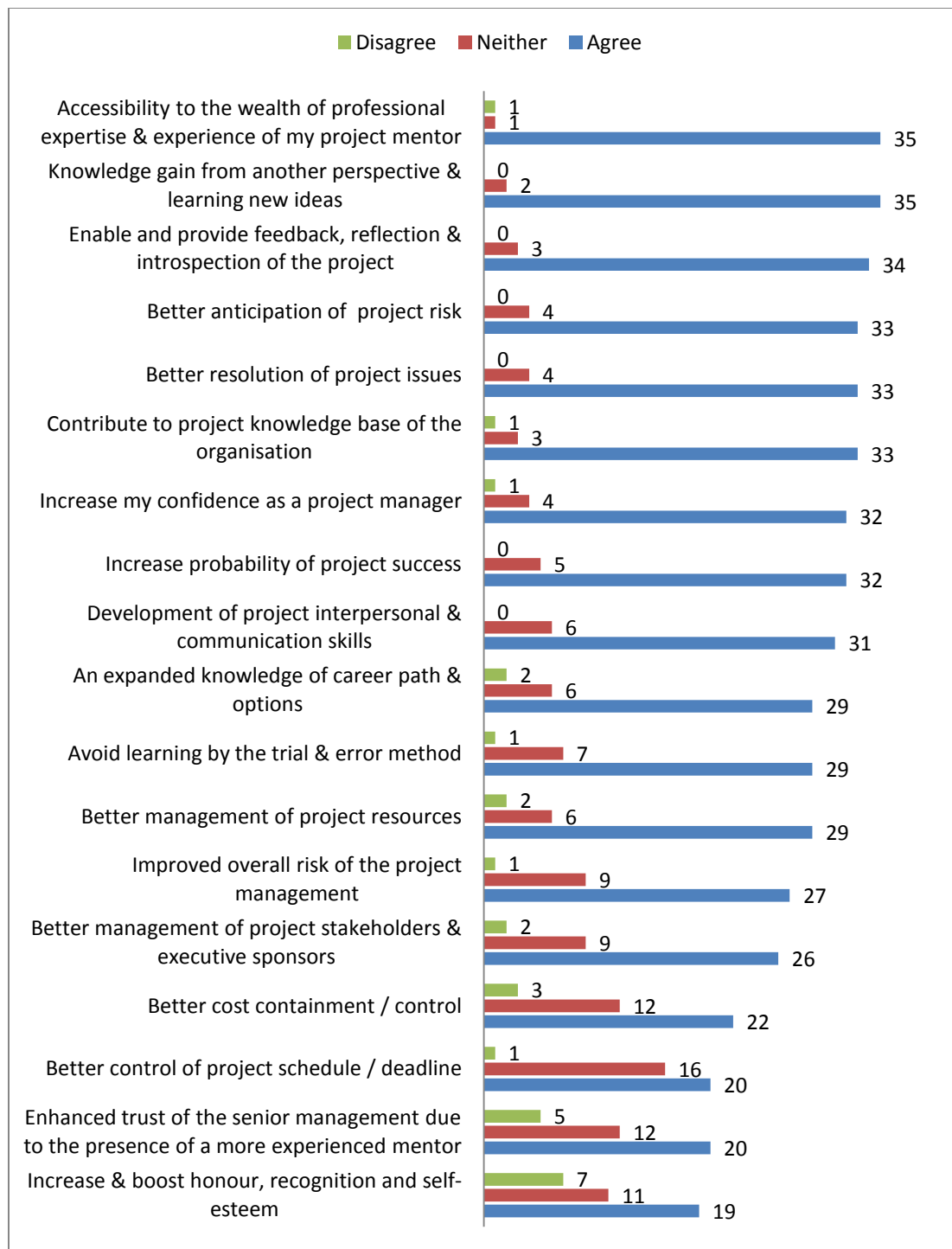


Figure 4.10 Benefits of Mentoring Adoption

Note: The figures for 'Agree' above are the sum of the 'Agree' and 'Strongly Agree' survey responses; the figures for 'Disagree' above are the sum of the 'Disagree' and 'Strongly Disagree' survey responses.

Four benefits were agreed with by between 19 and 22 (out of 37 participants each):

- Better cost containment/control
- Better control of project schedule/deadline
- Enhanced trust of senior management due to the presence of a more experienced mentor
- Increase & boost honour, recognition and self-esteem

The last two benefits in the above list were the most disagreed with – by 5 and 7 (out of 37) participants respectively.

Overall, it is clear that the participants' feedback from the survey was very positive and there seemed to be a great awareness towards of the benefits of mentoring adoption. Similar dispositions were also informed through the interview process. There appears to be a high sense of awareness of the benefits accrued through mentoring adoption. Below are a broad cross-section of this awareness.

- *'... avoid some pitfalls of project management'* (PM-02-06).
- *'... if the experience person able to guide you, you are able to save your time that ... ah ... you don't have to do the wrong way that you don't have to repeat ... customer is confident on you, of course , the quality'* (PM-20-14)
- *'... I was quite happy it was able to provide me the extra hand as well as the insight of how to go about addressing the problem'* (PM-18-03)
- *'... your mentor will actually help you to bridge that connection ... your mentor might know another person who knows this person, you see. Because, in world , I think even though it's IT, it not only the systems that needs to be connected, the people needs to connected and networked'* (PM-06-11).
- *'... Ya, actually it is a very long term benefit ... I think it is a long term relationship, it is not a one time relationship. I think of course it is positive for me'* (PM-20-14).
- *'... prevent us to go through those unnecessary steps and also reduce our mistake, increase our efficiency'* (PM-33-04).

- *'... definitely, because both the mentors and mentee are employee of the organisation. As the employee bond together get the results ...ah...get a better results...I think the organization has much to gain'* (PM-41-09).
- *'... you have the human capital where they bring value to a company meaning from their experience at the grassroots level, and bringing in that experience to that company, only then the company matures from there'* (PM-25-17).
- *'... with mentoring process we can achieve to let say to lower down the cost'* (PM-11-02).
- *'... I have already build a ahhh ... a relationship in my case via mentoring and via that mentor helping into a relationship and then I have roots here'* (PM-13-15).
- *'... because an experienced mentor could exactly pinpoint where the problem is , what to watch out for ,if you were to take certain steps'* (PM-18-03).

4.4 Summary of the Chapter

This chapter revealed that IS project managers have a positive outlook on mentoring adoption and that they are very aware of the advantages of mentoring. Overall, the responses affirmed that mentoring was an effective means of developing one's potential in the context of improving project success rates. Indeed, the motivation of project success was amongst the key rationales for the adoption of mentoring practice across the IS project management process. Other motivations cited were the need to establish connectivity amongst a network of experienced individuals; the need for a sense of camaraderie; and the desire for the accrued benefits of mentoring. Expertise accessibility and knowledge gain were identified as the top benefits associated with mentoring adoption. In summary, the desire for a free and open exchange of knowledge and experience was one of the key rationales of mentoring adoption, together with the need for guidance, support and encouragement from a more experienced individual over the duration of an IS project.

The next chapter continues with the analysis of the collated interview data and addresses the three remaining research questions.

CHAPTER 5 ANALYSIS OF FINDINGS (PART 2) - EXAMINING MENTORING ADOPTION

5.1 Outline of the Chapter

This chapter reports on the analysis of the interview narratives collected in Phase 2 of this research study. It outlines the aspects of IS project management learned through mentoring practices across the IS project management process. An examination of learning characteristics is also conducted. As outlined in previous chapters, mentoring support in this study is analysed in the context of IS project success improvement. The chapter has three main sections. Section 5.2 presents the analysis of the aspects of the IS project management process learned through mentoring. The IS project managers' perceptions of what they learned are grouped according to the five PMBOK process groups: Initiating, Planning, Executing, Monitoring and Controlling, and Closing. This section provides evidence to the answers of research question 3: 'What aspects of IS project management process have been learned through the mentoring practice?'

Section 5.3 then analyses the learning characteristics identified across and within the IS project management process. This section provides evidence relating to the answers to research question 4: 'How are learning characterized by IS project managers in the adoption of mentoring practice?' The learning characteristics discussed include: a discerning attitude; an exchange process; 'double the speed'; leveraging of experience; multifaceted learning; and soft-skill focused.

Section 5.4 analyses the consequences of mentoring adoption in the context of project success-rate improvement; project effectiveness; availability of advice and support; cognitive skills for problem-solving; interaction-skill improvement; lessons learnt; and project-overrun prevention. This section presents evidence pertaining to the answers to research question 5: 'What contributions towards IS project success are perceived by IS project managers in the adoption of mentoring practice?' Finally, Section 5.5 presents a summary of the chapter.

5.2 Aspects of IS Project Management Learned

5.2.1 Across the Initiating Process Group

The Initiating process group facilitates formal authorization of the new project (PMI, 2004). The key project management processes are Develop Project Charter and Develop Preliminary Project Scope Statement. Figure 5.1 shows the knowledge areas and key processes of this process group. The Develop Project Charter process begins when the project receives the project owners' approval. Formal project organization then begins with the project manager guiding the project team towards meeting the mandated objectives. This process normally involves the development and delivery of contracts, statements of work, product scope description and the project strategic plan. Tools and techniques applied in the production of these deliverables may involve inputs of expert judgement from various sources. The Develop Preliminary Project Scope Statement process involves the documentation of the defined project boundaries and characteristics. This is in addition to the documentation of the acceptance and scope control methods.

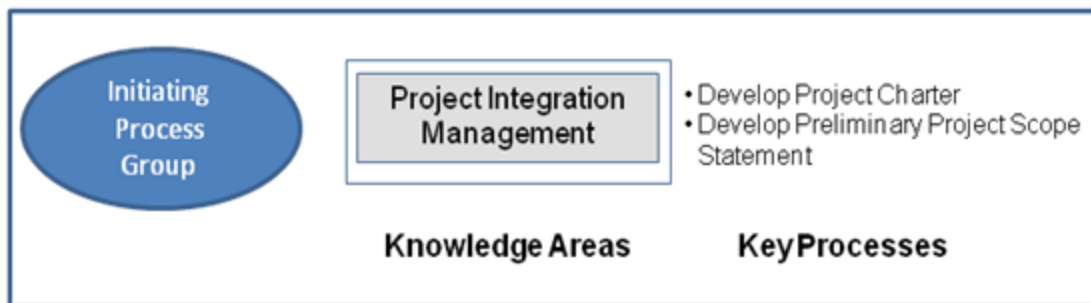


Figure 5.1 Key Project Management Processes of the Initiating Process Group (PMI, 2004)

An active mentoring relationship to IS project managers during this early stage of the project is considered very important. Making a good first impression on project owners (such as key stakeholders and users) appears to be one of the key focuses of project managers. Participant PM-32-07 made this observation and relationship

building was considered important in the cultivation of good connections with project owners during this early stage of the project.

PM-08-05 stated that initial project management activities such as the definition and estimation of initial project scoping parameters were critical as they are needed to be well defined. Project parameters such as resources and timing have to match production of deliverables. Learning from more experienced individuals facilitates the conduct of these initial project management processes. Four key aspects of the IS project management process that project managers considered themselves to have learned emerge from the interview narratives and these are shown in Figure 5.2. The following subsections respectively describe these aspects, which are related to the development and production of the project charter, a key deliverable of this process group.

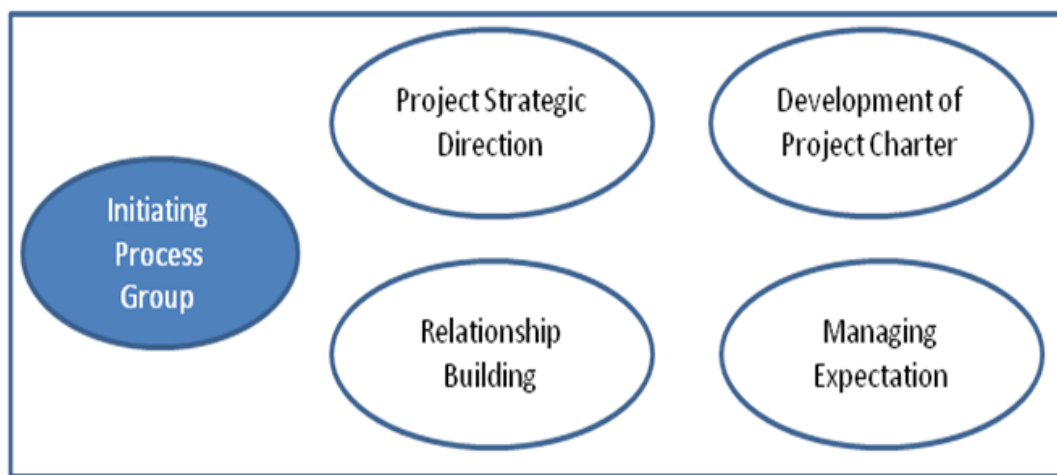


Figure 5.2 Key Aspects Learned Across the Initiating Process Group (PMI, 2004)

5.2.1.1 Project Strategic Direction

Getting things done at the beginning of the project requires clear strategic direction and learning from project mentors was a logical option for PM-33-04, because

'... he can know whether we follow the actual exact direction we have been setting from the beginning ... he also help us to do the checking ... he give a

guidance so we don't do the wrong thing from the beginning'.

PM-11-02 noted two benefits in this respect: the minimizing of unnecessary steps on the part of project managers and an increase in the confidence of project managers. Being guided with clear strategic direction was identified as significant at this early stage of the project. Such guidance was considered as

'... crucial because, we need to have first, I think the high level planning. You have to highlight the key activities. Because under each key activities, there will be very minor sub activities inside. So, once you prepare the high level and try to ... sometimes we have work backwards. And sometime we don't see clearly what are missing inside, so we need another person to tell you ... ok you miss this one ... we will miss out actually'.

5.2.1.2 Relationship Building

The importance of relationship building with project owners at this early stage of the project was crucial. For example, PM-02-06 felt that project managers could learn much from more experienced individuals about aspects of relationship building with project owners. PM-32-07 commented on the importance of relationship building:

'... you are talking about planning, you talking about goal setting, you are talking about the project management plan, what is the scope of the project, how we are going to achieve things. If we don't make a good impression them then we end up the project is lost'.

In this connection, PM-41-09 noted the importance of identifying key project stakeholders and that project managers could tap the experiences of mentors in this area. Such identification aids the 'completeness' of the project scope and project managers can then leverage the existing goodwill (if any) that the mentors have with the identified stakeholders. The following testimony of PM-06-11 exemplified this aspect vis-à-vis the buy-in processes involved:

'... it is during the preparation of the planning stage when you start to actually gather your project structure, the people you need. And you also manage the expectation of the people who you are going to work with. Yes, that will be

the most helpful. Sometimes, you know the same people, the same regional people, the same users who are working on the project; it is just a different country. And, the mentor would have already had the experience dealing with these people. He might actually tell you, that ... oh ...the people is actually is more inclined to this, so you might want to ...actually when you are emailing him or talking to you, focus more on this subject. Ya, or he will actually, help you with the buy in and everything. Or this person is this way, this way, or if he says he wants this way, that means this is how he wants it to be'.

5.2.1.3 Managing Expectation

Project mentors are like teachers: they provide advice and guidance to project managers. PM-33-04 said that project managers could learn from project mentors even at this early stage of the project. The need to understand the requirements and to manage the expectations (and perceptions) of project owners was underscored. In this connection, PM-02-06 asserted that project management was largely about managing project owners' expectations. Furthermore, when expectations are ill managed project success can be impeded. Managing project owners' expectations involves being sensitive to their requirements. PM-02-06 observed that doing so can be the start of a journey towards improved project-owner satisfaction. Learning from more experienced individuals in this area was considered helpful:

'... experienced project manager, a mentor, will tell you this customer seems to be more focused on this aspect of the project rather than all this ... maybe you should focus a bit more on that part first. To satisfy that customers need first ... maybe they are in a rush to get some things done first they are not so interested in the paperwork part of it first'.

PM-02-06's following comments exemplified the importance of managing expectations:

'... project management is all about managing the customers' expectations about making them feel comfortable with you, and that you're able to take them through that journey all the way to the end of the project successfully. They have to feel comfortable with you; they have got to feel that it's

somebody that can understand them, who will first of all not confrontational, easy to get along with, reliable, things like that ... so it's a human thing. Project manager is not about following all the controls and processes closely just to satisfy some auditor'.

Managing expectations and relationship building (discussed above) were seen as applicable to project team members as they were to project owners. This was alluded to by PM-18-03:

'... as I move on to after the team is being formed to really getting the team to sort of align their vision and their goals with respect to the project is even more crucial to actually have the mentor guidance ... because giving them the sense of enthusiasm, right objective and goals, right responsibilities ... is also very key. Because you can have the more enthusiastic team joining the project but when you tell them the goals and you assign the responsibilities which kind of not very much align with what the respective team members would like to do ... and gain all the project, then you may actually lose their enthusiasm along the way . So that is very important'.

5.2.1.4 Development of Project Charter

Project mentors play a critical role during the initial scoping process. This was underscored by PM-02-06, who stated that when a *'... project is well defined then it becomes that blueprint for us to move ahead, right? So that is on the initiating part.'* PM-17-10 concurred and added that this was not only a learning opportunity but also a chance to capitalize on the experiences of more experienced project managers. In this regard, PM-11-02 noted the advantages of project charter being reviewed by project mentors. PM-17-01 emphasized the utmost importance of preliminary project scope development; it must be precise and well defined or the repercussions could be severe in terms of project success being undermined:

'... so, naturally, there are a lot things comes thru experience and sometimes things also happen when you start working on a project. Then you actually realize, ok, you do the project scoping part in the first few phase. Then you actually realize, these are the actual client expectations. And you have to

manage those client expectation as well. And that is another place, that I actually realize ... ah ... mentoring is very ... very important. Because when you do project scoping, right, you are technically defining your project at that one instance. If your scoping between you and your client is not crystal clear, then you have actually signed a death warrant'.

One aspect of scoping is consideration of the unique requirements of the project. For example, regional or worldwide projects may have different sets of requirements to local projects. As such, a broad understanding of the issues is important and seeking the assistance of more experienced individuals can be advantageous to the development and production of critical deliverables. PM-38-01 alluded to this in the following comment:

'... you may need to have some mentor to help ... in which areas, or how you handle a project, let say you want to deploy something to a country ...right ... the new things and the changes ...right. So... so you may need some mentor to help you la ... to take through that area'.

PM-38-01 also noted that projects need to start on the right footing. PM-32-07 suggested that at this preliminary foundational stage of the project, frequent meetings with project mentors are essential. This was especially the case for project managers with limited or no experience.

5.2.2 Across the Planning Process Group

The key project management processes in this process group includes Develop Project Management Plan, Scope Planning and Create Work Breakdown Structure. These are processes of the Project Integration and Project Scope management knowledge areas. The key processes for the Project Time and Cost management knowledge areas are Activity Definition, Resource and Duration Estimating, Cost Estimating and Cost Budgeting respectively (PMI, 2004). Figure 5.3 shows all the key project management processes under the Planning process group, which is divided into nine knowledge areas.

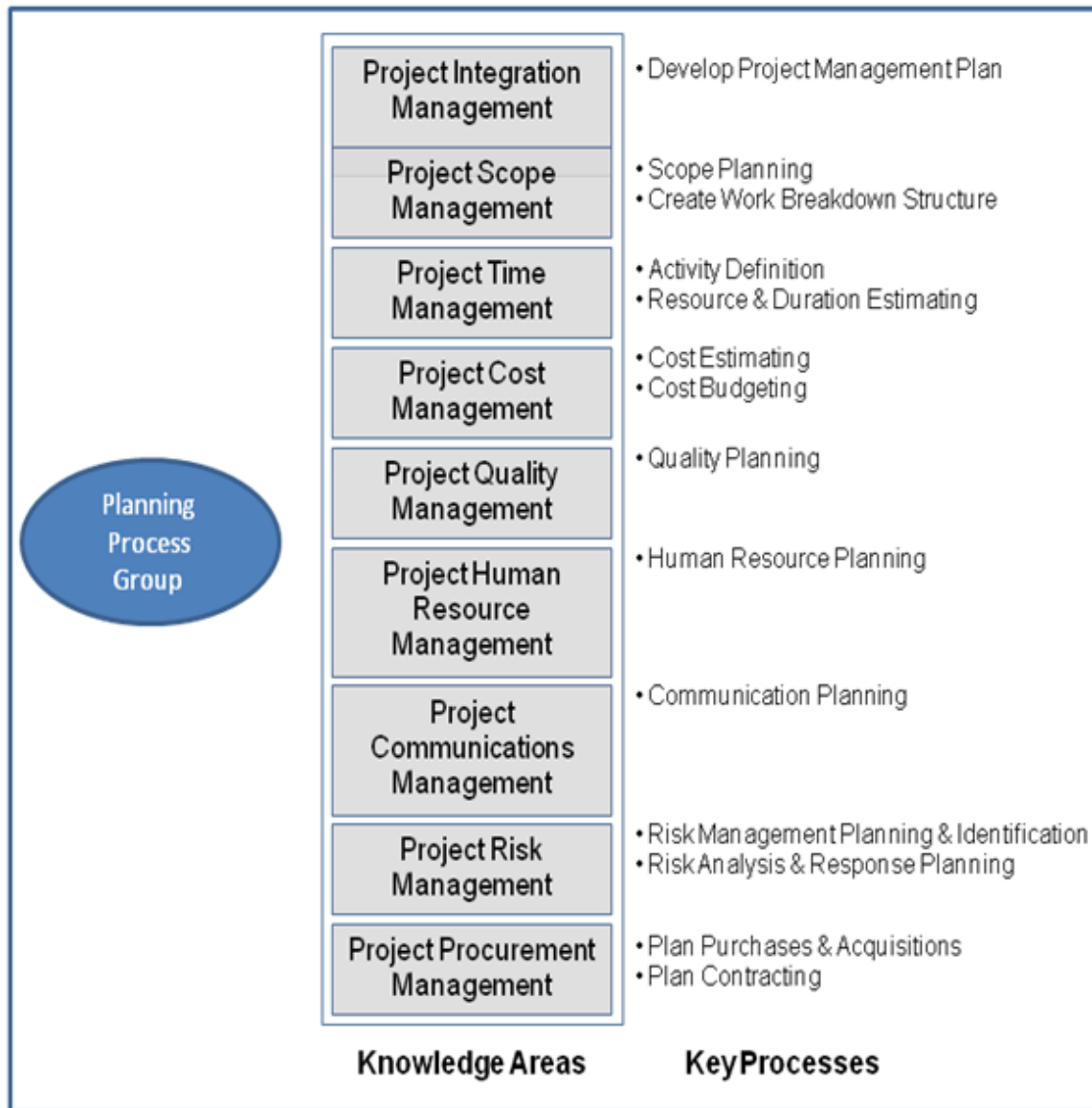


Figure 5.3 Key Processes of the Planning Process Group (PMI, 2004)

The first knowledge area, Project Integration Management, is primarily concerned with the development of the project management plan, which is a key output of the Planning process group. The development of this plan can involve the definition, preparation, integration and coordination of some or all of the subsidiary plans (see below). As a key deliverable, the project management plan provides the project with a blueprint for moving forward in the achievement of mandated objectives and fulfilment of project scope. Modifications of this plan can occur over the duration of

the project and any alterations need the approval of project owners. The process normally involves the development and delivery of the subsidiary plans such as project scope, schedule, staffing, project risk, quality, and risk management plans. It may also include a resource calendar, schedule baseline and risk register, amongst others. Expert judgement may apply to the tools and techniques used in the production of the subsidiary plans (PMI, 2004).

5.2.2.1 Mentoring: A High Level of Importance

The participants considered an active mentoring relationship at the Planning process group crucial – more so than in the other four process groups. For example, PM-08-05, PM-42-13 and PM-06-11 all underscored this in their respective statements below.

- *'... it is planning ... which you need mentoring... you would ... because when you planned a project that is the most crucial part before a project starts'.*
- *'... if you start the correct planning, then your project will sail through much better, otherwise you won't ... you start the wrong foot in terms of planning. Then you may have to re-plan again ... you may have to work again. So it's important that planning stage is ... must have somebody who is experienced and they can share their past experience basing on this project that the staff is doing and so therefore whether there is any similarities that they can actually look at other new things that to be added for them to review'.*
- *'... I would say that mentoring process would be helpful throughout the whole planning right up to the end of the whole project management cycle. But, where it is actually most effective, if let say you make the right judgment and ...there are a lot of variables and conditions set in. ok, it is during the preparation of the planning stage when you start to actually gather your project structure, the people you need. And you also manage the expectation of the people who you are going to work with. Yes, that will be the most helpful. Sometimes, you know the same people, the same regional people, the same users who are working on the project; it is just a different country. And, the mentor would have already had the experience dealing with these*

people. He might actually tell you, that ... oh ...the people is actually is more inclined to this, so you might want to ...actually when you are emailing him or talking to you, focus more on this subject. Ya, or he will actually, help you with the buy in and everything. Or this person is this way, this way, or if he say he wants this way, that means this is how he wants it to be'.

In addition, PM-06-02 observed that

'... this is where you lay the foundation, where you define the tone of the project and the way things are going to go forward. If that part is not there, the foundation of the house is not strong then the house will collapse, and the mentor is there to help build that foundation'.

Participants felt that experiences of project mentors can (and need to) be leveraged to benefit project managers at this stage of the project. As such, learning from project mentors was considered one of the best options for moving forward. For example, in the area of project activities and resource planning, PM33-04 observed that it is helpful '... if the mentor who have really gone through the same thing before and then he can give a more precise estimation'. This observation was agreed with by PM-32-07. It was further noted that a project mentor not only provides a '... guide with his lessons learned, with his experience of how to deal with such large projects'; he also plays an influential role because his credibility can add greater validity to project managers' conduct. For example, in project meetings with 'C level' staff³⁰ and project sponsors, the presence of project mentors was considered very useful as , project managers were able to learn from more experienced individuals.

Project management plans were considered critical to IS projects, with PM-44-18 stating that '... it is very important that you plan your project well'. PM-25-17 agreed with this, while PM-44-18 opined that expert judgement based on experience was helpful in the development of this deliverable: '... so initial stage you can really see and overview where the project is going to go. Plan it to your best estimate based on experience'. PM-05-16 underscored the importance of mentoring in this area:

³⁰ They are senior executives of an organization; of which their titles start with Chief. Examples are: Chief Executive Officer (CEO), Chief Operations Officer (COO), Chief Financial Officer (CFO) and Chief Information Officer (CIO).

'... mentoring can be helpful during planning because he can bring his knowledge ... his past experience ... ahh ... the barriers that he encounter... and passing down those information to project manager, and this project manager can think how to minimize it and ... how to do it better compare to previous time. That is why it will be help if mentoring able to involve in planning stage'.

In comparison to the other four process groups, the analysis of the narratives relating to the Planning process group revealed a high level of importance being placed on an active mentoring relationship at this stage of the project. For example, PM-41-09 noted that the mentoring relationship played a 'bigger part' in the Planning process group. PM-44-18 asserted that '... it is very important that you plan your project well ... 80% effort you put it and then you execute only 20% based on my experience'. Overall, participants felt that planning was a critical factor for project success.

The analysis revealed clear evidence of learning by project managers through interactions with project mentors. Contributions and inputs of project mentors assisted in the completion of key deliverables such as the project management plan, and participants' testimonies of learning were conspicuous. A case in point is the following comment by PM-14-08:

'...creating a work packages...there are situations where the prioritization of the work packages are actually very important. Those time...ah...just say...you know...you should have done Y first before you do B, so if the project mentor can actually shed some light to tell you why you should have done Y first instead of B, then ...you know... that will help you to learn and in future projects be able to guide yourself'.

Learning from and leveraging project mentors' experience by soliciting inputs was likened to laying a better foundation by PM-05-16 and was also noted by PM-25-17. Project managers were thus able to learn the constraining elements of project resource allocation and cost considerations.

The analysis of the interview narratives showed that project managers considered they learned two key aspects of the IS project management process: communication and the development of the project management plan, a key deliverable. Within the primary aspect of the development of the project management plan, four secondary aspects were identified. Figure 5.4 represents these aspects diagrammatically and they are discussed in the following subsections..



Figure 5.4 Key Aspects Learned Across the Planning Process Group

While project managers benefit from the advice and guidance received during the development of the key deliverables such as the project management plan, the review process also provides another opportunity to learn. In this connection, the following statement of PM-24-20 can be considered as a representative:

‘... so planning process is more critical because you are coming out with the time frame and your Gantt chart. So basically that could be a lot of task that

need to plan. So what happen, you can draft out based on your previous experience and this like that, certain check list. But in particular to any project, there could something that is unique that you don't see or neither is the project team. So by having a mentor to review the whole checklist with you and going through, walk through the planning process with you that would actually helps to actually to make sure that the action plan or the Gantt chart is more complete. Basically, you have two experience people working on the Gantt chart, inclusive from the user side, you know, that you come out with a more complete planning. So don't leave out areas that you might have missed otherwise'.

5.2.2.2 Communications

Broadly, communications was considered to be of high importance and significance over the duration of the project. Analysis of the interview narratives revealed many allusions to aspects of communications, primarily in the context of project success. Some of the key aspects of communications identified were management and skills of communications, negotiations, buy-ins, relationship building, and managing expectations. The following statements exemplify the key observations in this area and they emphasize on the importance of communication:

- '... communication, very, very critical' (PM-17-10).
- '... so, in the IT field, we are providing services, it is about communication that. So, more often than not, we do a lot of work for a customer which we tend not to communicate or which we tend not to talk about. So, in a meeting, when the customer will typically come to us and say I want this, I want this and usually it is more than what is given in the contract for. So, the art is to refuse them without making them feel bad, without making them feel you know, ignored or without making them that you just don't want to give them any importance' (PM-32-07).
- '... so that is when you do the planning and a lot of consideration, like for example you resources, the timing, so all these are taken into consideration

when you plan ... and it is to and ... negotiation with your customer, so that is the part is where it is very very crucial ... ya ya yep' (PM-08-5).

The following statements emphasize impact of mentoring:

- '... so we talk about conducting a meeting, when you are conducting a meeting for a CFO level of a C-level individual, it is an entirely different strategic game. So, that's where we project manager often talk valuable advice from project directors or our mentors. Because they have been doing that possibility for many ... many years in the past when they themselves were project managers' (PM-32-07).
- '... when we talk about communication process in a ... in term of mentoring. To me a communication process is more than just what is listed out in the communication plan. In order to manage a stakeholder expectation ... you know ... to get their buy in ... we don't always communicate formally ... there are ... sometimes that we may do a indirect communication to the stakeholders. There is where the experience of the mentor on how to handle this aspect of stakeholders and understands the needs of the stakeholders...the needs of the stakeholders play a part' (PM-41-09).
- '... ok, on this friendship, I think mentoring is unlike ... like what I said about the differences between training and mentoring. So basically, it is not an instructional type of thing, so mentoring goes beyond that, it is sort of establishing some kind relationship with your mentee. So basically, the relationship may transcend professional capacity, so you are actually establishing some kind of binding with your mentors, you know. So basically that is the kind of friendship that goes along, that actually goes throughout that relationship, so basically becomes informal type of things. It becomes very casual and you know, you feel that you approach him or her easily without having going a formal kind of arrangement. So, that what I mean that friendship part makes the communication easier' (PM-24-20).

The mentoring process was important to project managers with respect to the guidance and advice provided by their mentors in the area of communication

planning. PM-41-09 and PM-20-14 respectively commented:

- *'... in terms of communication planning again, I think a mentor does play a big part to help out the project manager to plan out the communication process well enough. Like how frequent a project meeting need to be ... you know ... what are the communication that needs to go out to ensure the necessary stakeholder are involved throughout the whole project life cycle ... the frequencies, the involvement, the scope of the communication'.*
- *'... ah ... hmm ... I would think that is more on the communication with the customer that I think I would hope that I look forward from my management able to guide me more on that. So ... because it is like for initial process, planning of the process group, I would think that this part I do not involve ... I don't have much experience, so I might not that comfortable if you know suddenly if just assigned to involve that kind of task for that hmmm ... '.*

In general, mentoring adoption facilitated the learning of aspects of communications from more experienced individuals in this stage of the project. This was noted by PM-41-09 and PM-20-14, and PM-05-16 affirmed that project managers could learn the various aspects of communications from the more experienced individuals:

'... ok ... learning in terms of customer communications ... to me learning part I think is how we managing this customer. How well we talk, how should we talk to this customer whether ... then we can foresee ... what is the expectation from this particular customer... this are the areas we can learned ... maybe we can learn from the mentor then subsequently when we are dealing ... deal back with the same customer. Then this project manager will know how to manage this customer'.

5.2.2.3 Development of Project Management Plan

Project managers learned about this aspect through a review process by project mentors. Learning took place on the part of project managers when mentors provided assistance in the form of advice and guidance. The following statements exemplify this:

- *'... I think, I say it in too few words la. What I mean is actually, that is an ongoing process. It is not before or after. It is actually throughout the process la. But because of practicality, so sometimes, you can't wait to have your mentor sit in front of you every moment of the process la. So what happens in reality, you try to prepare something first, from you own experience and if you happen to meet with your mentor and anything like that. Of course, you straight away, try to take the opportunity to clarify. It is not practical to have someone sitting beside you all the time la. So basically, we have to take that into account so the process will probably work this way like, you try to prepare some kind of draft and you think that it is the best that after that you go and check with your mentor, hey ... does this look complete or not. Before that, sometimes you have the opportunities to meet him informally. So, you will try to bounce off him, hey ... I am about to do this ... what do you think? You know ... there is not a pre or post thing, you know. So it is an ongoing process. So you take the opportunity as best as you can. So, to expect somebody to sit beside you and hold your hands, I think, it is a bit too much'* (PM-24-20).
- *'... ya ... that is why I am saying the mentor is like ... may be at the ... may be for example ahh ... for example when you say you are coming out with the project plan right ... right for example ... may be then you work out the project plan first ... then maybe you can take advices from this mentor'* (PM-38-01)
- *'... every time we always have certain check points, even when we develop plans with the customer, we present it, the mentor is always there with me to make sure that, he looks through it first before we present it to the customer'* (PM-02-06).
- *'... ya... I think project plan is one of the critical thing... can involved the ... the first think when you want to start up a project right ... so I think this mentor can help in ... then I would say the mentor can help in reviewing your project plan and giving you advise'* (PM-38-01).
- *'... whatever we want to propose, even the planning the project plan, or even*

the any way of working that we want to propose the customer, he will run through it first with me, make sure that it meets the customers' needs and expectations. So he's there to review that with me first then only we present (PM-02-06).

In addition, the timing of these points of review was generally the decision of project managers. When they required assistance, the advice and guidance of their mentors were solicited. , the following are three examples.

- *'... mentoring is actually comes in when the person or this project manager thinks that they had a difficulty'* (PM-20-24).
- *'... it is as and when required, then we are ... then we can trigger a mentor ... ahh... chip in to give suggestion or to help out if there is any issues. I think if project runs smoothly, I don't think mentor is necessary to be involved unless there are risk being trigger, that is where mentor can come into'* (PM-05-16).
- *'... an overkill, if you want somebody to be sitting by your side all the time and telling you or helping you what you need to do ... everyone, so everybody has their own work to do. So, you can't expect ahh ... somebody to be holding your hands'* (PM-20-24).

Based on the analysis of the interview narratives, three secondary aspects of Development of Project Management Plan were identified (see Figure 5.4):

- 'Big Picture' of the plan,
- Project scope, schedule, staffing and costing, and
- Development of risk management plan.

The next three sections present these three secondary aspects' analysis of findings.

5.2.2.3.1 'Big Picture' of the Plan

The project management plan is considered the blueprint for the project (PMI, 2004). Setting out clear strategic directions and tactical actions offers clarity to the development of the overall project management plan. Such an overall strategic schema outline provides better support for the achievement of mandated project objectives. This was alluded to by PM-33-04 who felt that project managers needed

to start the project on the right footing by ‘... do[ing] the right thing and then do[ing] the thing right’. Otherwise, in the subsequent executing phase, the effectiveness of project activities can be compromised and this can impact negatively on project success. It is further noted that project managers ‘... *need the guidance ... must be given the right thinking or right way from the beginning*’. Consequentially, this process of providing guidance and advice alludes to learning. PM-42-13 concurred. It was further noted such learning opportunities that were facilitated through leveraging project mentors’ experiences were considered beneficial to project managers. The following statement alluded to this:

‘... if you start the correct planning, then your project will sail through much better, otherwise you won’t, you start the wrong foot in terms of planning, then you may have to re-plan again’.

PM-38-01 concurred: ‘... *ya ... I think project plan is one of the critical thing ... can involved the ... the first thing when you want to start up a project right ... so I think this mentor can help in ... then I would say the mentor can help in reviewing your project plan and giving you advice*’. The process of soliciting guidance and advice from a more experienced individual involved ‘checkpoints’ for PM-02-06: ‘... every time we always have certain check points’.

Access to relevant prior experiences of the mentors by project managers can enhance the overall development of the project management plan. This prepares project managers with a ‘big picture’ map of the project plan and enables early anticipation/preparation of responses to project challenges and eventualities. In addition, such a repository of accumulated project knowledge can provide better perspectives to project managers. PM-11-02 regarded this as invaluable input to the production of the project plan. In this respect, PM-14-08 noted the opportunity of being able to ‘access to the knowledge beforehand’. The following statements of both PM-08-05 and PM-16-08 respectively underscore this finding:

- ‘... *the word anticipation itself is actually, I think would have implied that you need experience so that you could anticipate. So, that if you are just...if you have no experience then you probably be like the headless chicken...ah...no*

direction. So, anticipation in terms of the experience of the mentor ... you know ...the mentor can tell you to look out for things. That is the anticipation that you learn from ah...from the project itself.

- *'... you know on planning stage you would have already foresee, when you talk to the customer you would have already foresee, what are the issue and risk which you might face'.*

5.2.2.3.2 Project Scope, Schedule, and Staffing and Costing

This aspect involves the elements of scope, work effort, time, cost and resources and their impact on the overall development of the project management plan. The key project management processes are of the knowledge areas of Project Scope, Project Time, Project Human Resource and Project Cost (PMI, 2004). Figure 5.2 shows the key processes in these respective knowledge areas. The Scope Planning and Create Work Breakdown Structure processes contribute to the development of the Project Scope Management plan, which is primarily the description of the project scope with a detailed scope statement. It also includes the definition and development of the work breakdown structure which is a hierarchical decomposition of the work required of the project to achieve project objectives. The Resource Estimation process involves the determination of resources and the quantum of resources required for the completion of the defined project activities. Duration Estimation is the process of estimating the duration required for each of the defined project activities. The Human Resource Planning process involves the identification and documentation of roles and responsibilities; the reporting relationships are also included. The Cost Estimation process involves approximation of the cost of the resources needed to complete the scheduled project activities. Lastly, the Cost Budgeting process establishes the project cost baseline (PMI, 2004).

The application of tools and techniques to the above described project management processes provides better estimations of the time, cost and resource elements but solicitation of expert knowledge and judgement is expected (PMI, 2004).

The practising IS project managers in this study, for example PM-17-10 and PM-05-16, showed evidence of learning about the aspects of project scope, schedule,

staffing and cost from their mentors. PM-17-10 observed that an ill-defined scope can be disastrous to the project. In addition, managing client expectations well was noted as important to the overall development of project plan. PM-05-16 exemplified the support gained from mentoring with the following statement:

'... requirements scoping or adding requirements, that is why mentoring ... that this particular person has experience the he can give his thoughts... it could be based on customer requirements he has done it previously then he can give his opinion ... this should do step 1, 2, 3 instead of 4, 5, 6. these are the inputs ahh ... given by the mentor , then this mentor person can give a more precise timeline or this customization or maybe it will take how long, then what are the resources eh... key resources required ... I think this person is able to highlight. Even he can foresee what are the potential problems. So these are areas we can minimize it ... if let say we plan ahead'.

The advice and guidance provided by more experienced individuals reinforced learning on the part of project managers. To this end, PM-08-05 cited an example of the need to complete work such as estimation activity; of which this was mentioned as learning on the job. This learning not only benefited the current project but also it would be an advantage to subsequent projects. The following two statements by PM-08-05 exemplify this learning aspect:

- *'... not all the time you get exposed to a project where you do end-to-end that means from initiation to close, sometimes you are just pushed to executing , but you need to get all the information of your planning and initiation from the people who did it, they will pass it to you. So if you were to do like from end-to-end, so you get to learn, like this kind of skills'.*
- *'... so next time when you actually bump into another project which is similar, then you already know how to do your calculation because you have learned from the first...ah ... first exposure that you had ... ya'.*

The next three subsections present the three elements of scope, schedule, and staffing and costing.

5.2.2.3.2.1 Scope

Inputs based on experience that were provided by mentors to scoping areas of the project management plan were important. PM-38-01 and PM-41-09 considered such inputs and recommendations provided by project mentors as credible and assuring; they were considered crucial to the preparation of this key deliverable. Project managers not only received valuable information that was essential to the deliverable's production but also were able to learn the aspect of scoping from their mentors. The following testimony of PM-25-17 alludes to the importance of mentoring support by way of underscoring the significance of scoping:

'... for me personally I would say in my projects when I manage, I put a lot of importance in the scope at the initial part to get that agreed with customer thoroughly saying 'this is what exactly we're going to do' because the moment you lose your specification, what is your objective and what is the scope of work you want to deliver, if you lose that, that's it, the project basically is endless.'

5.2.2.3.2.2 Schedule

Inputs of time to project activities are also important. As discussed in Section 2.2.5, completion within schedule is one of the key project success criteria. The overall project schedule is generally a function of the duration of the defined project activities. The support provided by mentoring enabled the IS project managers to learn the finer aspects of scheduling. At the same time, the development of the project management plan receives assistance from individuals who are more experienced. Inputs related to scheduling are considered to be of great importance and PM-17-10 affirmed this. The following comments show the importance of mentor support for the scheduling aspects of the project plan:

- *'... this mentor person can give a more precise timeline or this customization or maybe it will take how long, then what are the resources eh... key resources required ... I think this person is able to highlight. Even he can foresee what the potential problems are' (PM-05-16).*

- *'... the timeline whether is it sufficient or he [his mentor] may say based on the application your ... this timeline is too long or not' (PM-38-01).*
- *'... and then ah ... most of the project manager, they also loss patience in terms of the schedule and time line and the cost. Finally they will put their own estimation or assumption to create the scope of work. So from this project end up where this scope define and then they immediately go into the implementation, execution and then when we finally complete the project and they find out the outcome of the project is totally different or not meet the customer expectation. So even though they can completed faster within the time frame of within the cost, is considered not right. Because it is doing the wrong thing from the beginning. So, if you need the guidance, the guider, the mentor himself must be given the right thinking or right way from the beginning' (PM-33-04).*

5.2.2.3.2.3 Staffing and Costing

Project managers also learned the aspects of staffing and costing by leveraging the experience of their mentors. Experiences were shared by mentors and learned from by project managers, who benefited from the mentors' overall knowledge about the effective planning of projects. The following statements illustrate this finding:

- *'... because he's being experienced project manager able to tell, this activity is not necessary to be this long, through my experience, can shorten it, or don't actually have to incur the costs with so many headcounts for this part of the project, can get one good guy and you can do that' (PM-02-06 re: resource estimation).*
- *'... look at what is the budget, how many people you need, resource management, from resource management, from project chart, the project requirements, basically gathering in that sense more details' (PM-42-13 re: headcount estimation for overall project management plan).*
- *'... so in terms of mentoring, it will be good in a sense. That ... let say this mentor in the project that he has already delivered before, a similar one, he*

can advise you on ok ... this resource, this skill, this is how much you need to estimate and then when you do your estimation, then you sort like think of ... let say for example we talk about IS. You know, when you implement a solution you need think of the hardware, you need to think of the license, you need to think of the software, so all these are like taken into consideration kind of thing ... ya ... ya. So mentoring plays a role, in a sense that they are experience before, they have done this similar project, so that they can actually tell you, ok, these are the areas that you need to estimate and don't miss it out kind of thing' (PM-08-05 re: resource estimation).

Furthermore, inputs from more experienced individuals can be helpful in addressing limited resource-availability situations. For example, PM-14-08 noted the need to manage project resources and also trade-offs. Such inputs and knowledge not only provided answers to the immediate project situations faced by project managers but also facilitated learning on the part of the project managers. Inputs and knowledge from mentors can accelerate the pace of learning for project managers; PM-38-01 noted his project mentor's prior knowledge resources from previous similar regional or worldwide projects within the organization. Further to this, the guidance of project mentors in the prioritization of 'human resources, time or cost' elements was noted by PM-14-08.

5.2.2.3.3 Development of Risk Management Plan

The key risk-related project management processes are principally Risk Management Planning, Risk Identification, Risk Analysis and Risk Response Planning (PMI, 2004). Figure 5.3 shows these processes in relation to the other processes within the Planning process group.

The process of Risk Management Planning involves the mapping of an overall approach towards aversion, circumvention or elimination of risk. Fundamentally, it is a co-ordinated tactical approach towards handling project risk. The Risk Identification process primarily involves the singling out of a list of possible risks that may impede the progress and success of the project. Prioritization of the identified

list of possible risks is based on the respective impact to the project and the likelihood of occurrence. The process of Risk Analysis involves the assessment, examination and determination of risk. Lastly, the Risk Response Planning process involves the development of appropriate and necessary actions towards handling a prioritized list of identified risks. It may include strategies of responses with corresponding cost, time and resources requirements. Utilizations of tools and techniques together with solicitation of expert knowledge and judgement are not uncommon in these processes.

5.2.2.3.3.1 Risk Management: A High Level of Importance

Managing project risk was considered an important function towards effective project management by participants PM-14-08, PM-44-18 and PM-02-06. For example, PM-14-08 considered project risk management as one of the important areas where project mentors can contribute. Failed projects not only blemish careers of project managers, they can also bring disrepute to their respective organizations: *'... if you fail your company will probably get bad media'* (PM-14-08).

IS projects are not considered risk-free – in fact PM-02-06 asserted that project risk was inevitable. As such, elements of risk cannot be dismissed in projects and risk needs to be managed.

'... every project manager needs to be able to define the risk of the project and able to plan the mitigation for that. An experienced project manager will be able to do it by him or herself. A new one, especially will need a mentor there, because can't picture the risks, have not gone through that whole process before, of going through an entire project from start to finish. Risk actually looking so far ahead, you say all right, along the way this can happen because I have gone through before, I know it can happen so let us have a mitigation plan for it. So a new project manager really needs a mentor in the risk management part of the project'.

Generally, effective risk management provided timely and appropriate mitigations of project risks. This was seen as a central prerequisite for project success improvement. In this context, PM-44-18 asserted the need for active mentoring

relationships where project managers could learn much from the more experienced individuals:

'... our current practice is we come out with the project plan by our self, like for example, we define the scope of work, breakdown all the scope in detail, how much time we need, how much budget we need to get it done. And of course, what are the risks. I think the mentor plays an important role in evaluating the risk i.e. risks management. For example, to ascertain whether there is a high risk in project delivery on time as it may be too dependent on the customer. The mentor may reduce or mitigate the risk by increasing the project budget, allocate more resources. May be increase to 6 months from 3 months. So, we need to solicit advice from the mentor in the risk management. In terms of development of project plans and work scope, this is normal project management task and can be undertaken by the project manager. As for risk management, the mentor can be involved in the analysis of risk mitigation. As I mentioned, some of the junior project manager lacks certain experience and mentor can help them by providing opinions and options. And how to complete these tasks without any huge impact on the project'.

The analysis of the interview narratives suggested the development of a risk management plan was a key aspect learned by project managers. This key aspect presented next is in two parts, the first part of Identification and Anticipation of Risk, and the second part of Risk Analysis and Response Planning.

5.2.2.3.3.1.1 Identification and Anticipation of Risks

Project activities related to risk planning are important for project effectiveness and this was noted by PM-44-18. Project managers not only received assistance and guidance from more experienced individuals in addressing the immediate situation but also accessed their wealth of knowledge and repositories of experience. In this regard, PM-14-08 noted that this 'meta knowledge' of risks was invaluable to project managers in the development of the risk management plan because

'... the project manager is just too focus on the job and lack of knowledge to

... to be able to identify all risk as in risk related to the project. It is not only risk of the project ... you know ... project manager doesn't have enough overview of the other projects or of the company'.

The necessity of mentoring support was also cited by PM-30-12 and PM-14-08.

Risks can be expected in projects. As such, PM-08-05 noted that it was primarily a matter of 'foreseeing' risks factors by identifying them. In this respect, PM-14-08 noted that the key word was 'anticipation': '... the mentor can tell you to look out for things. That is the anticipation that you learn from ah ... from the project itself.'

Project managers learned through seeking assessment from project mentors. PM-02-06, for example, observed '... he's [his mentor] able to give his feedback. I mean, risk yes, very important, risk management'. The following comment by PM-08-05 underscores this:

'... Oh ... for example like the example I have given you, installation is onto production, so you don't have a UAT environment, so the mentor ... you see sometimes ahh ... sometimes when we are in the circle might be able to see ... oh ... this can be a potential problem or this can be a potential issue or risk. So, mentors of course they are more experience, they can pick that up immediately ... you know when they read the contract, they might be able to read it out immediately rather than they have the planning. You know ... they are experience enough ... ya'.

5.2.2.3.3.1.2 Risk Analysis and Response Planning

Appropriate responses to the known and identified risks during this stage of the project were important to the development of the risk management plan. In this context, PM-02-06, PM-44-18 and PM-38-01 remarked on the learning on the part of project managers through the offering of guidance and advice:

- *'... risk actually looking so far ahead, you say alright, along the way this can happen because I've gone through before, I know it can happen so let's have a mitigation plan for it. So a new project manager really needs a mentor in the risk management part of the project' (PM-02-06).*

- *'... the mentor may reduce the risk by increasing the project budget, allocate more ... more resources. May be increase to 6 months from 3 months. So, we need to solicit advice from the mentor in the risk management. In terms of development of project plans and work scope ... risk management, the mentor can be involved in the analysis of risk mitigation. As I mentioned, some of the junior project manager lacks certain experience and mentor can help them by providing opinions and options. And how to complete these tasks without any huge impact on the project' (PM-44-18).*
- *'... mentor can help in looking at what are risk factors. What are the possible ... that it may come out along the way that ... that he may pick up some issues that you may not foresee now. So you may need to allocate certain percent of time ... to at least ... you know to ... you know that this timeslot ... may be you want to allocate extra 20% or whatever percent so at least you can ... any unforeseen issues coming out at least you can still have the time to go an you know ... settle it' (PM-38-01).*

Learning of the risk management related aspects through mentoring support was considered more efficacious than classroom-style learning. This was exemplified by PM-41-09 in the following statement:

'... Hmm ... when we talk about risk analysis ... ok ... from we learned about project management in universities is actually we talk about quantitative model where we may have a list of questions ...if based on these answers, will give a certain rating. Ok ... 1 means low risk and 5 means high risk. And then you rate on each variables...and then we provide some more ... we total up ... to ensure ... ok ... this part has got risk exposure ... this part has got less. Then of course, I think in the textbook ... ok ... if got risk exposure ... what are the things you should do. But I think, a mentor actually helps to understand on more of all this figures. For different projects a 1 may mean different things, a 2 ... for two different projects a 1 does not necessary carry the same meaning'.

5.2.3 Across the Executing Process Group

The Executing process group integrates people and other resources to carry out the project management plan for the project. The fundamental aim of this process group is to achieve project objectives and the project work activities as specified in the project management plan (PMI, 2004).

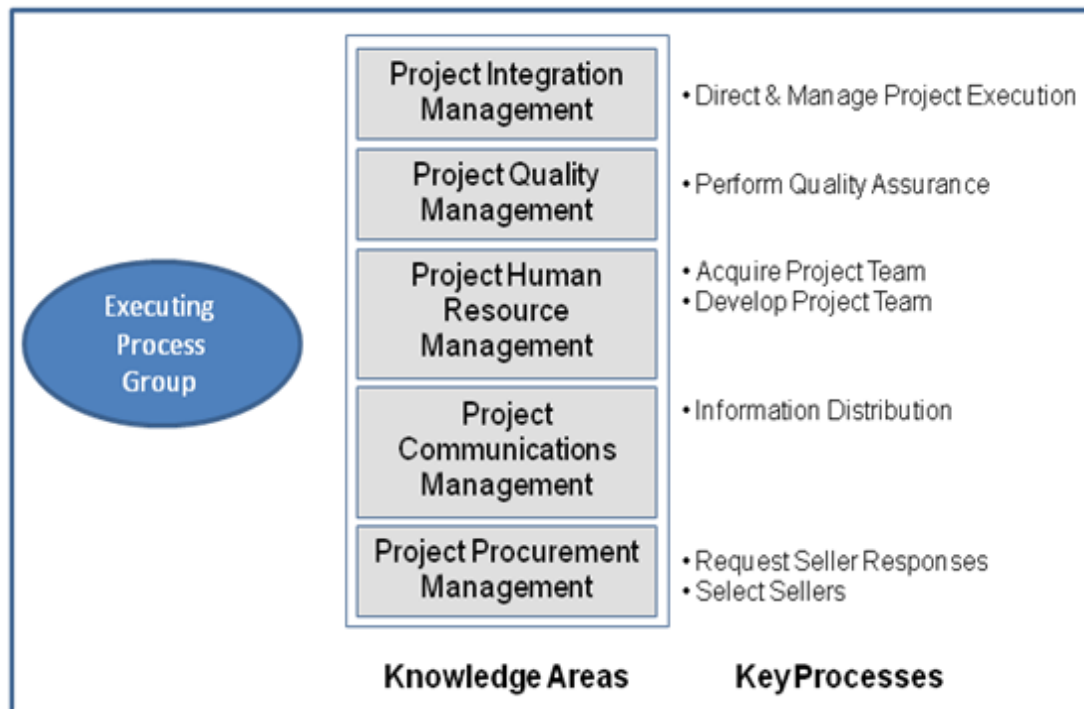


Figure 5.5 Key Processes of the Executing Process Group (PMI, 2004)

Figure 5.5 shows the key project management processes of this process group, which are: direct and manage project execution; perform quality assurance; acquire project team and develop project team; and request seller responses. The project management processes of Direct and Manage Project Execution involve the execution of planned work. Concurrent activities can be expected to be performed by project managers. Some of the key actions may include: creation and validation of project deliverables; establishment of communication channels; collation of project administrative and technical data; and implementation of planned and

improved project activities. The project management process of Perform Quality Assurance involves the application of planned quality-related activities towards the meeting of requirements. Primarily, the focus of this process is on compliance to predetermined project quality standards. Work activities may include: quality review and audit in which confirmation of approved changes, corrective actions and so on are complied, and analysis of processes using either root-cause analysis or situation analysis (PMI, 2004).

The other key knowledge areas of the Executing process group are Human Resource, Communications and Procurement Management. The Acquire Project Team process involves the sourcing of human resources for the project. It may include identification and negotiation of required project team members. Cost and availability of human resources are typical considerations to the project-staffing plan. The next process, Develop Project Team, involves activities directed towards team member improvement. Areas of improvement include skills, team camaraderie and cohesiveness. Lastly, the processes of Request Seller Responses and Select Sellers deal with procurement-related project activities. Independent estimation, contract negotiation and expert judgement are some of the tools and techniques used to assist in the performance of the abovementioned processes (PMI, 2004).

An active mentoring relationship was generally regarded as being not that crucial during this stage of the project. This was due to nature of the project activities. For example, PM-11-02 noted that project managers are supposed to be 'on the ground' during this stage, taking charge of the execution of the planned project activities. Performance of follow-up actions was also part of these activities. As such, PM-02-06 and PM-14-08 noted that project mentors were not expected to be active during this stage. Indeed, it was emphasized that active mentoring during this stage of the project was minimal compared to the Initiating, Planning, and Monitoring and Controlling process groups. Based on the analysis of the interview narratives, four key aspects of the IS project management process that were learned by project managers at this stage of the project were identified (see Figure 5.6). They are described in the following subsections.

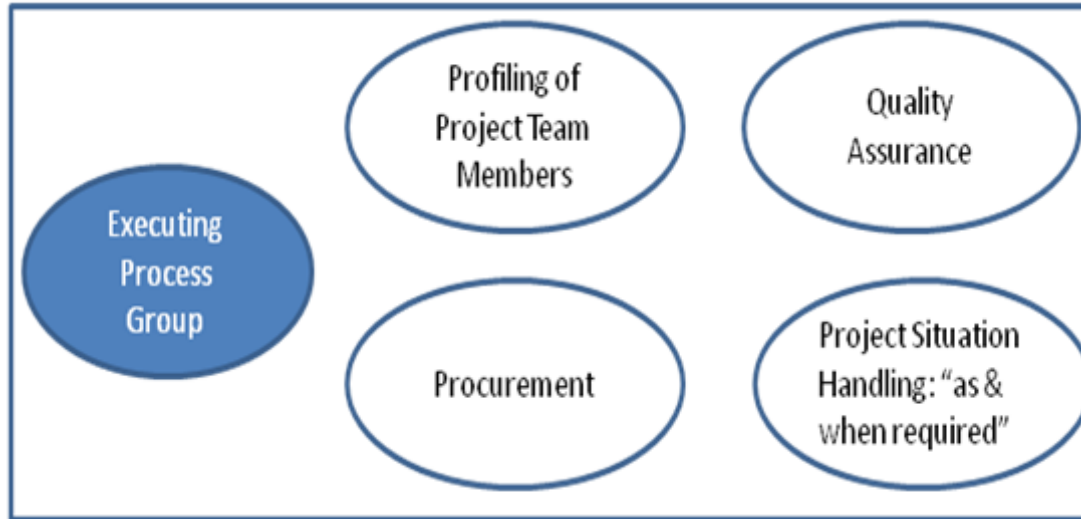


Figure 5.6 Aspect Learned Across the Executing Process Group

5.2.3.1 Profiling of Project Team Members

In the sourcing of project team members for the project, project mentors' experience can be tapped in the areas of capability and capacity profiling. Project team members may include vendors or contractors as resources to the project. For example, the learning of this aspect of IS project management can be observed in the following statement of PM-14-08:

'... in terms of ah ... ok ... during the execution process ... you know ... it is more on acquiring project team, develop project team ... those are really part of your ... you know ... how you ... ok ... for example ... acquiring project and develop project team ...those are what you do in human resource planning. I would say ... that is ... ah ... when you do your ... if I got my PMBOK correct ... during the HR planning ... you will probably be interviewing people ... you will be looking at profiles of the vendor ... the members that will be likely be in your project. Ah ... that is when ... ah ...I think it is crucial to get advice from the mentor. And ... ah ... during the execution part ... you know ... it is more like ... ah ... ya ... now you have the team members ... you get to know them ... and unfortunately if you selected the wrong member you can't just kick

them out at that time. Ah ... the ... soft skills ... yes ... probably you will need to access your mentor to handle situation during the execution phase’.

Mentors contributed advice and guidance in the management and development of project team members that were in already in place. For example, PM-14-08 exemplified the need for assistance in the shuffling of key project resources:

‘... how you juggle the limited resources that you have....during to execute...in the execution phase of the project...and monitoring and controlling process that’s when things go awry ... and ... you will need advice from your project...your mentor to correct the situation’.

5.2.3.2 Quality Assurance

Project mentors were not expected to be thoroughly involved in the conduct of project quality assurance activities but a high-level running through and quality assurance review of pertinent aspects was considered beneficial and helpful. As such, PM-33-04 considered that a high-level role in the quality review and audit activities on the part of mentors was appropriate:

‘... in the process of the execution he also doing like a monitoring quality check, so we are in the right track.’

PM-17-10 concurred, and felt that advice and guidance from mentors was available on an ‘as and when required’ basis in this area. In this connection, project managers took comfort from the fact that a more experienced individual was available should assistance be required. PM-18-03 underscored this with the assertion that

‘... it’s even more crucial to actually know when to consult with the mentor especially during the project implementation, that’s when issues unveil ... you may seek upon your mentor to provide some guidance on how to resolve some of the key issues but not for every issue that you identify.’

5.2.3.3 Project Situation Handling: ‘as and when required’

As presented above, project managers were able to learn from someone more experienced at times of most value. That is, as and when project situations arise,

the provided answers or solutions can be a great lesson in practice. In particular, project managers can learn by example when these are encountered. Such ‘as and when required’ triggers were helpful not only to resolutions of project situations on hand but provided some real life examples of alternative solutions. For example, PM-38-01 noted:

‘ ... so you may need to have some mentor to help ... in which areas, or how you handle a project, let say you want to deploy something to a country ...right ... the new things and the changes ... right. So ... so you may need some mentor to help you la ... to take through that area.’

5.2.3.4 Procurement

Prejudgement and prejudice avoidance were considered crucial in the procurement process. Leveraging of project mentors’ experience can compensate for the lack of experience and knowledge on the part of project managers. For example, the usage of plausible and correct weightings contributed to better evaluation criteria. PM-38-01 noted the importance of project mentors’ advice and guidance in this connection:

‘... if have somebody that is experience in this kind of things ... right ... of course, we can advise la ... the team and normally for our case ... right because we always based on business needs ...right. So, so... business is the one playing a important role when it comes to allocate points and then of course the mentor can advice ... you know.’

5.2.4 Across the Monitoring and Controlling Process Group

The key project management processes of the Monitoring and Controlling process group involve all knowledge areas (PMI, 2004). All the relevant processes are shown in Figure 5.7. Principally, the Monitoring and Controlling process group focuses on progress measurement and monitoring. The processes are generally corrective and preventive in nature. The former are characterized as actions normally taken upon identification of variations to the baseline project management plan, whereas the latter are actions invoked on a pre-emptive basis to prevent potential project issues (PMI, 2004).

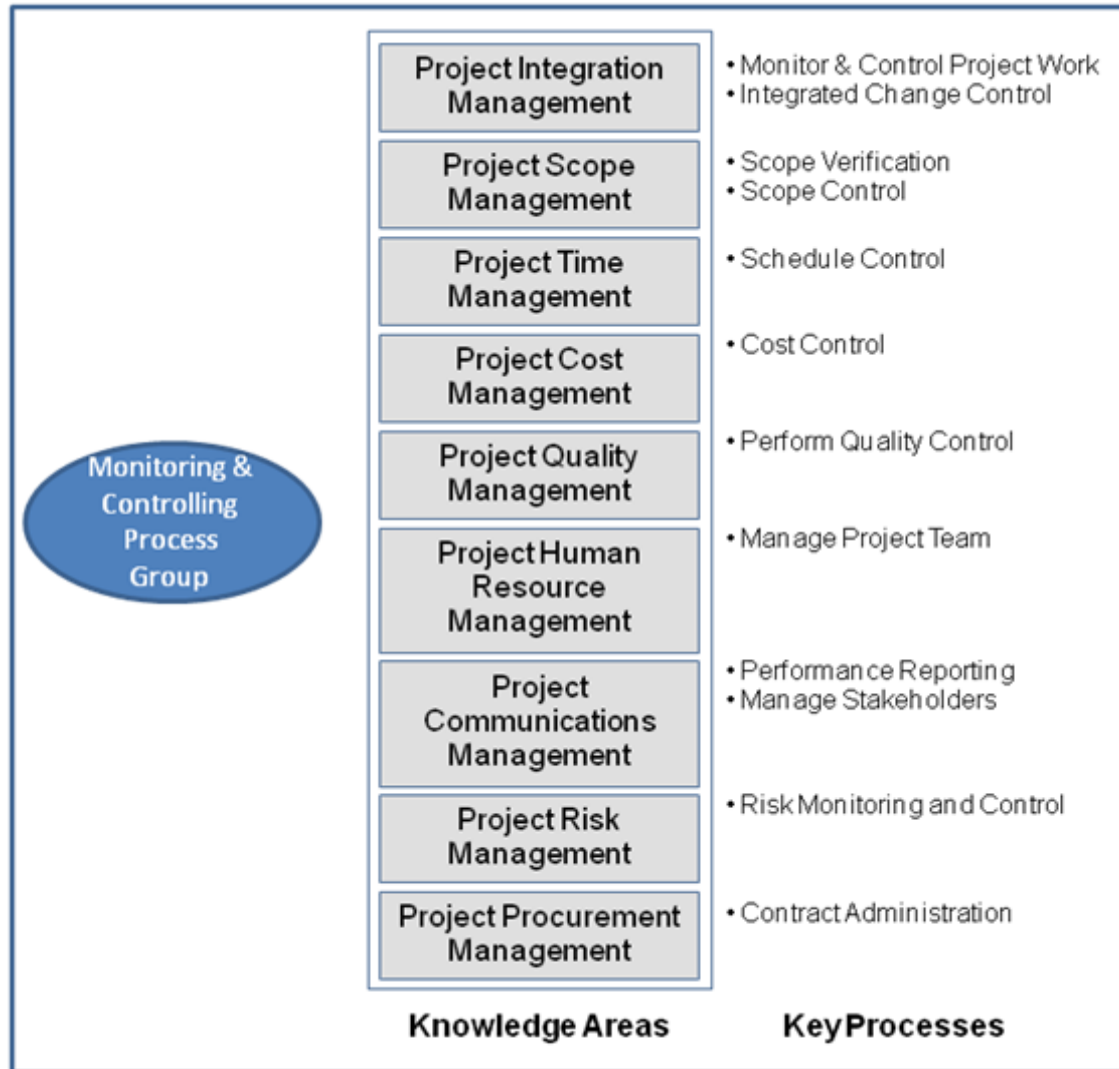


Figure 5.7 Key Processes of the Monitoring and Controlling Process Group (PMI, 2004)

In comparison to the Executing process group, there was a need for higher-intensity interactions between the mentee/mentor dyad in this group, as PM-41-09 noted.

Mentoring support in this process group was characterized by key words such as 'double check', 'follow-up and review' and 'second opinion', which are respectively illustrated in the following statements:

- *'... project manager tends to see the things that they want to see only ... every project manager would thumb their chest and say that everything is ok. Everything is going fine. So, a mentor in this sense is like a duo control,*

basically. Making sure that, hey are you sure, you are right. It is like a double check. You know, doing a reality check' (PM-24-20).

- *'... your mentor always ask you how is the progress like. Whether you have enough resources, whether you need more resources, whether you need more time, you know. How you actually ... you need money to get thing done. Or you actually ... ah ah ... I mean the help check, basically the mentoring is playing a help check role. You know, to make sure that your project is actually in good condition. You are not off track for whatever promises you have done, you know. If you are off track, what you need to do.'* (PM-24-20; also noted by PM-44-18).
- *'... need help is when they need to present something to the management of the stakeholders. And they need a second opinion'* (PM-29-19).

Keeping project owners informed of the ongoing project progress was considered crucial. Otherwise, uninformed project owners can impede project success. This was the perception of PM-44-18. It was also noted that project managers learned from more experienced individuals by way of observation and suggestions.

Overall, analysis of the interview narratives indicated that project managers learned from their respective mentors through the guidance and advice they provided. From this, two key aspects of the IS project management monitoring and control process that were learned by project managers were identified – communications and cost control (see Figure 5.8). The next two subsections describe these aspects.



Figure 5.8 Aspects Learned Across the Monitoring and Controlling Process Group

5.2.4.1 Communications

The key project management processes within the knowledge areas of Human Resource and Communications management are Manage Project Team and Manage Stakeholders. The Manage Project Team process involves the enhancement of project performance through effective deployment and management of project team members, while the Manage Stakeholders process generally involves change requests and corrective actions, and deliverables approval. It can also include variations to the project management plan. In this connection, user satisfaction and project issue resolutions are considerations. One key common thread of these processes was the element of communications. The analysis of the interview narratives revealed that interactions between project owners and team members were frequent and at times intense in nature. Face-to-face meetings and correspondences were not uncommon in the process of soliciting buy-in. For example, PM-41-09 noted that indirect or informal communications during the monitoring and control process can be very helpful:

‘... sometimes that we may do an indirect communication to the stakeholders. There is where the experience of the mentor on how to handle this aspect of stakeholders and understands the needs of the stakeholders ... the needs of the stakeholders play a part’.

Likewise, PM-14-08 stressed the importance of good communication skills on the part of the project managers in the area of team management. Examples of soft skills learned were customer interactions (by PM-02-06) and conflict handling (by PM-14-08). Aspects of communications were generally learned from the suggestions of mentors. PM-02-08 gave the example of ‘... you should try this approach or work it out in this manner’.

5.2.4.2 Cost Control

The cost control project management process handles all the project variances, both positive and negative (PMI, 2004). It can include cost overrun management, unauthorized project change prevention, and stakeholders’ proposed and approved

project changes. Tools and techniques such as earned value analysis and project management software may be used.

Aspects of cost control were considered crucial; if not conducted well, it can constrain project success. PM-18-03 testified to the usefulness of an active mentoring relationship towards effective cost control at this stage of the project:

'... so in order not to sort of blow the budget in a significant way, so we kind of solve through the mentor to do a joint investment into that piece of hardware. If I were to reflect back, without my mentor at that point of time, the budget over run would have been much more significant. But being able to connect to another project and share the investment, so the budget over run was kind of capped within 10%, so it was acceptable range to the project board'.

Mentoring support during this stage of the project supported learning and participants benefited from it. For example, PM-11-02 commented on effective cost control through refinement of the project activities schedule in the following way:

'...because from the project experience, sometimes you know that mentor meaning they have more experience than us, usually. There are so many tasks doing at the same time. Or maybe you have to run sequentially. Sometimes you don't realize that there are so many thing you can run parallel, may be. Then if you try put it this way, you know in case of sequentially and then you run it parallel. Then you can shorten the time. Then it will be helpful, you know, then it shorten the time. Then it will lower the cost'.

5.2.5 Across the Closing Process Group

The Closing process group involves the formal termination of all project activities. Project deliverables are turned over and signed off. The two project management processes of the Closing process group are Close Project and Contract Closure (PMI, 2004); Figure 5.9 illustrates the knowledge areas and key processes of this group. A closed project can be one that is completed or one that is incomplete. A Close Project process involves both administrative and contract closing procedures.

Administrative closure entails the proper closing of project records. These records are normally archived to provide lessons for future projects. The Contract Closure process entails the settlement and discharge of project contractual agreements. For example, early discharge of projects is included as part of this process and the reasons noted. This may be attributed to technical reasons, lack of competent resources, not meeting user requirements, or others.

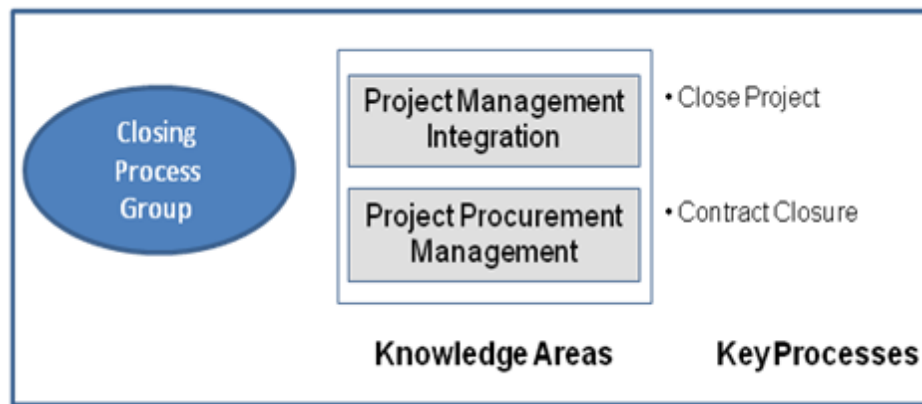


Figure 5.9 Key Processes of the Closing Process Group (PMI, 2004)

The processes at this stage of the project were considered important by participating IS project managers. For example, PM-17-10 described the difficulty of getting the 'last 10 or 15% out of the client'. Generally, this can impede project success.

The need for mentoring support at this stage of the project was minimal compared to other four process groups. However, this was conditional on well-planned, well-executed and well-monitored project management processes prior to this stage. The following statements illustrate these findings:

- *'... in terms of mentoring involvement, I would think, closing is lesser'. Similarly as per noted by PM-41-09 '... whereas for the execution process and the closing process ... ya ... definitively the human factor is still involved, but at the point of execution actually I...in my organization here people do know what to do' (PM-02-21).*
- *'... closing phase is user acceptance. Again it depends, I think ... you see if*

you did everything right, then typically you do not have a problem in closing, ok. But if you did not do it right, then you have a huge problem in mentoring and then you need a lot of mentoring at the end to help to resolve customer problems. So I ... whilst ... again as I said it is very depended, so if you didn't do the right thing initially, then yes, you surely need a lot of mentoring (laughter) to manage the customer's expectation, the challenges that the team should face in terms of delivering the project and so on and so forth. Then ya, you would probably need to... but there is more fire ... mentoring to deal with the ... the fire fighting scenario ... ya. But, if you did it right, then there is less need for that, alright' (PM-01-21).

- *'... in term of closing ... ah ... the mentor I would say, it is also not a lot. The mentor actually would step in and say the review is done properly ... value add to complete the learning process of the project manager' (PM-41-09).*

Based on the analysis of the interview narratives, there were three key aspects of the IS project management process that participants learned at this stage of the project through the advice and guidance provided by their respective mentors. Figure 5.10 shows the three aspects, which are described in the following subsections.



Figure 5.10 Aspects Learned Across the Closing Process Group

5.2.5.1 Managing Expectations

During the closing stage of a project, project managers were normally concerned with the need for a proper and formal sign-off by the project owners. PM-32-07 described effective managing of user expectations as leaving ‘... the customer in a happy frame of mind and you also got all you documents signed and dotted and checked off’. In addition, managing team expectations was also considered as crucial. In this respect, PM-06-11 commented that

‘... you need to make sure that at the end of it, right, everybody is happy. Everybody, your users, your technical experts that means your team, their team and the regional team that they are all happy. They are happy as in the project goes on successfully.’

Managing users’ or project owners’ expectations can be challenging at this stage. PM-33-04 and PM-01-21 asserted that a mentoring relationship was an avenue for project managers to seek advice and guidance. In this connection, PM-41-09 noted that project managers benefited from the assistance rendered in handling issues and could take this as ‘lessons learnt’. PM-25-17 observed that ‘lessons learnt’ can be very useful in subsequent projects. In this regard, PM-41-09 considered ‘lessons learnt’ as value added to the ongoing project manager’s learning process. PM-25-17 stated that such assistance could improve this part of the project process.

5.2.5.2 Forward Planning

The assistance provided to project managers by their project mentors can be proactive in nature. Advice and guidance comes from leveraging the experiences of the more experienced individual. For example, sign-off advice by a more experienced individual was considered crucial by PM-11-02:

‘... as I mentioned just now, the current project ... problem that we are facing is like there are certain things that are not describe in book. Let say, if they don't specify clearly early who is supposed to sign that document, so now you are in a deadlock. For some project manager, they have no experience, you know, of how to handle this situation. So the mentor, may be can give some advice ... or maybe you prepare an undertaking letter or something like that.’

Then you can just close it between you and the customer. Then once internally, they have agreed and get one person to sign you. Because once you hand over the project, meaning you don't assign people to the project anymore. But customer can continue to do their whatever discussion until they get the person to sign that document. So this is like something, some project manager do not have that experience.'

Leveraging the experiences of project mentors at critical points in projects was helpful. The mentoring relationship provided project managers with awareness of an anticipated event. PM-33-04 alluded to forward planning on the part of project manager with assistance from project mentors in the following statement:

'... this thing happen at least you already have another plan, so then we can reduce the damage. So that is why the people who give us more good mentoring will help us a lot.'

In this connection, PM-18-03, PM-30-12 and PM-30-14 noted the need to be aware of projects³¹ that have a high possibility of not being completed, that are 'doomed to fail' or even project cancellation.

5.2.5.3 Handling Urgent Project Situations

Assistance in the form of advice and guidance was also provided to project managers in a reactive way, i.e. as and when such issues arose. For example, an exit route in the form of contract closure can be needed to handle a worsening project situation. PM-30-12 described a situation when '*... you know that your project can't continue and if know that the project failed because of certain technical development or criteria, don't drown*'. PM-33-04 echoed these sentiments:

'... if you found out some project is going to fail during the monitoring process and then we must make it cut off faster we can reduce the loss in the earlier stage. And then drag until the end and become more damaging'.

In addition, PM-33-04 noted the need to avert or mitigate potential losses, likening the situation to cutting one's losses in the share market:

³¹ Based on mentors' opinions.

'... like a share market, if you find out this market ... may be you invest in the right strategy from the beginning, you know you invest this share you might get the profit. But suddenly the economic crisis, those unforeseen thing, are we going to have a exit strategy to pull out our self so we reduce the lost'.

PM-30-12 believed that project managers could leverage the experiences of project mentors in the containment of further damage on projects that are certain to fail. He added:

'... most people doesn't know that they are drowning and bleeding to death, you know what I mean, they just hang on until they drop to dead ... the bottom of the sea...oh ... I am dead. It is better that you put a life buoy somewhere and jump that life buoy and save yourself'.

PM-02-06 noted that having an ongoing mentoring relationship at this stage of project was not as necessary as it was in earlier stages. PM-33-04 supported this standpoint because *'... the mentor should have caught it somewhere along executing and monitoring already unless the mentor had let go'*. While PM-06-11 also concurred, he noted that having a mentoring relationship would be helpful if the project manager gets *'... a very honest feedback [from the mentor] on the closure and the post implementation review'*. In this connection, project managers can take 'lessons learnt' with them into subsequent projects.

5.3 Learning Characteristics

Evidence of learning abounded in the analysis of the interview narratives and six key learning characteristics were identified (see Figure 5.11). These are described in the following six subsections.

Learning was observed as a key consequence of mentoring support across the IS project management process. IS project managers not only benefited over the course of one project but also in subsequent projects. IS project managers valued these learning opportunities vis-à-vis getting answers to project problems (and avoiding others). For example, mentoring support was described as a 'mirror of reflection' by project managers. This was affirmed by PM-29-19, who noted that the

‘... mentee needs to reflect and say, ya ... ok may be I need to spend more time on this or that, all this sort of things’. ‘Tweaking’ was described as a key part of the learning process because

‘... if you learn something for the first time, chances are you will take this and follow the process and hoped that it works. If it works the first time then when you are in second situation, you try to take the same thing and follow the process. And hoped that it works. But, you solving a different problem facing different stakeholders, different customer, potentially different domain and so, you may need to tweak your approach. I think the other key word is really tweaking’.

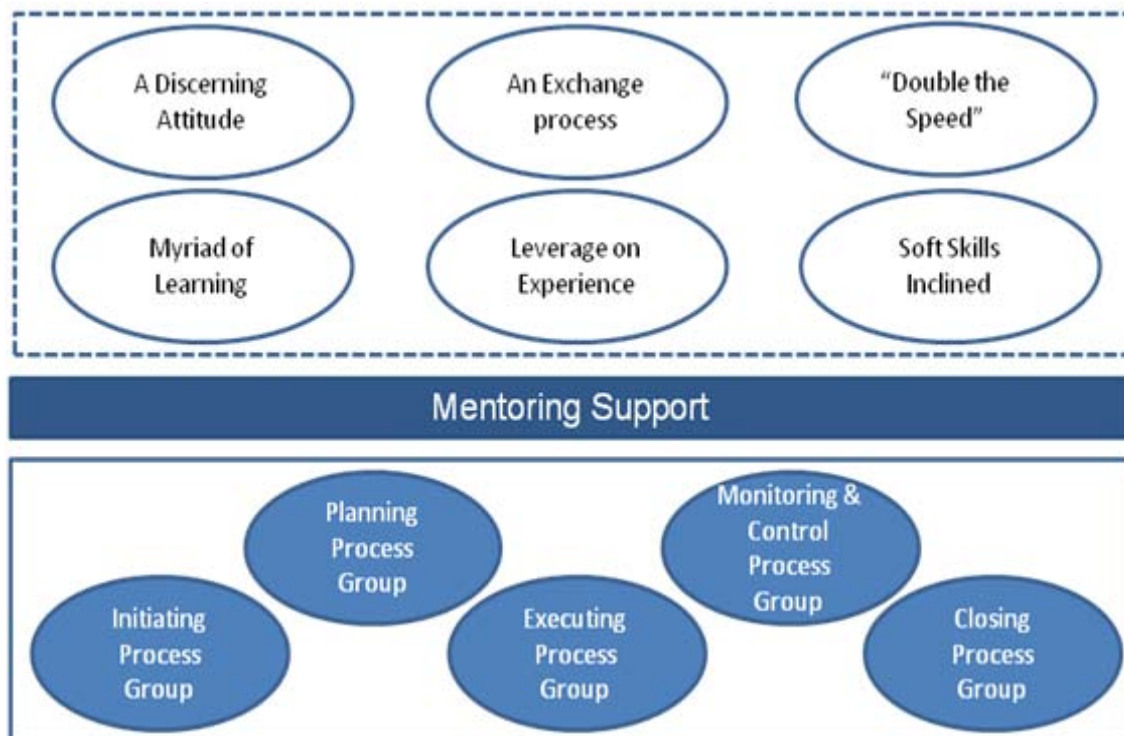


Figure 5.11 Learning Characteristics Across the IS Project Management Process

As noted above, participants valued learning opportunities in the area of solving problems or issues during the course of the project. According to PM-42-13, project

managers

'... have to meet obstacles, otherwise they don't learn, right? If they learn everything so easily it won't be a good experience for them because everything goes so smooth sailing, right? They need to meet some obstacles, some issues, some problems; some challenges where they will really, that will really make them wake up, that kind of thing, right? So I think that is part of good mentor to nurture the staff.'

More generally, mentoring provided a learning platform for the participants in this study. For example, PM-13-15, PM-05-16 and PM-32-07 respectively noted that *'mentoring is a learning process'*, *'mentoring process is actually a good platform for the learning'*, and *'... there is always a learning involved'*. The following comment by PM-05-16 was representative of participants' perceptions in this area:

'... ah ... to me mentoring is part of the learning process, because it is information sharing and information passing down the project managers ... whether it is on technology side, or whether is it on project management methodology or whether is it on communication with customer, these are the areas that information sharing or teaching or guidance from the mentor to a project manager ... ahh ... to me it is also part of the learning process ... ahh ... and whereby the project ... mentor will help based on his past experience ... giving down to the project managers.'

The analysis of interview narratives revealed that mentoring support across the IS project management process was fundamentally premised on learning, i.e. less experienced individuals learning from more experienced individuals. In addition, the general suggestion was that learning from the experiences of others could empower project managers. For instance, PM-32-07 noted that even the most experienced project managers can benefit, which PM-29-19 illustrated in the following way:

'... I mean one of the things that I know of is like, can you teach Tiger Woods how to golf? Knowing that he is already so good. The answer is yes. Tiger Woods still has a coach or someone who look at what he is doing ask the right questions so that he can tweak and improve himself. There is always

room for improvement, whether you are new to something or you are already doing for the last 20 years'.

IS projects were generally regarded as unique in their implementation approaches and characteristics. In this regard, PM-29-19 noted that 'no one size fits all'. He added '*... just because you do it one way, you do one project successfully, doesn't mean the same way works for another project. So, sometimes that gap needs to be addressed by having a mentor*'. In this connection, PM-29-19 observed that 'fine-tuning' of the aspects and processes of project implementation was required.

5.3.1 A Discerning Attitude

A discerning attitude stood out as a key characteristic of learning through mentoring support across the IS project management process. This characteristic was noted in the context of thinking and reflection on the part of project managers, i.e. critical analysis and in-depth reflection on the project situations at hand. Phrasing it differently, it is the capacity to think with deeper insight and judgement. However, if such active thinking was lacking on the part of project managers, then the mentoring process could be in all likelihood an exercise in futility. For example, PM-29-19 stated that when the project mentor

'... is the one doing all the thinking, he is just taking the instruction and executing for you. And that is the worst. Then as a mentor you got suck into a project ... and I think that is importance, from a personal development standpoint of a mentee and also from a healthy ... to maintain the project management in a healthy state. I think ... one of dangers of mentoring is that you take so much initiative that you stop the PM from thinking'.

Contrasting with this discerning attitude of active thinking and reflection is the attitude of expecting to be spoon-fed. In this regard, PM-42-13 noted that the learning process was not to be considered as '*... a spoon feed session*'. PM-42-13 described an improvising process on the part of project managers, building on the experiences of project mentors: '*... you improvised those experiences to the project managers, right, that you cannot get it from text book, that you cannot get it from anywhere, but you get it from job experience through your mentor*'.

Project managers were encouraged to be discerning and to develop the attitude of discernment. For example, PM-24-20 noted the use of prompts as triggers to project managers' learning, i.e. project mentors posing appropriate and pertinent questions. This learning characteristic was exemplified in the following statement made by PM-24-20:

'... just taking example from here, I think the initiating process is basically the scoping part. Basically there is a lot scoping, interviewing the users and things like that. I think that part, the mentoring actually comes in, I think is to review the interviewing of the initiating process. Which is the interview on the scoping, you know. So, basically, that part, the mentor plays a great part. Because they are more experience, they know what are the questions to ask, it will be good of them to actually review the checklist, so to speak ... the checklist, so that you will get a more complete picture. Sometimes you are so focused on asking a certain things that you forget about other things as well. For example, some of the projects that I do, as a project, so, I am so, so focus on the hardware part. You know the technical side. Sometimes, when talking to the mentor, he will asked you ... hey ... how about the staffing requirements, how about the skills of the users, are they able to cope with this kind of system. Then it actually prompt to think about, oh ... may be the user side may not be ready for this kind of system. So I am not sure. There you double check and double confirm. So, that is from the point of view of scoping and things like that. So it is good to have that as part of the initiating process'.

The act of providing advice and guidance can also encourage thinking on the part of project managers. It not only provided answers and resolutions to project problems – learning by way of critical thinking happened at the same time. PM-42-13 commented in this connection: *'... also at the same time sometime, still keep guiding, still keep moving pushing, you know ... to them to think'*. Furthermore, it is re-emphasized in the following testimony:

'... for us we learned from our experience. You know, we will lead them to think. So, that will help them to anticipate basically. If they can't anticipate,

then they are going to ask users ok ... [laughter]. So, they need to approach users for some of these, if they do not know what the answer is. So, the mentor will lead them to ask these questions for them to probe. I am not to give a direct answer, straight away. Because otherwise, like I say, I don't like to spoon feed, but we will use something to make them ... how would I say ... make them think on their own and if they can really think on their own. Then you know this person is really a good ... you know have some good quality in him or her. If they can't, then maybe it is good for them to speak to the user to find out more and see what the user said. And then, right after that you compare note, like what I am trying say, he will come back and said what did you gather from user?

Exercising discernment and critical thinking on the part of project managers at the encouragement of project mentors was suggested by PM-41-09 as a mechanism for exploring alternative answers and solutions:

'I think ... in this sense ... why I would say that the mentor will probe more as to why are project manager actually comes to this particular conclusion ... ok ... as to why he include this certain person as a stakeholder or why is that the project manager did not include this certain person as a stakeholder in the project ... or why this area is included in the scope or why it is not. So, a mentor will actually help to probe the project manager deeper to understand why is it and why to reach the solution?'

In-depth reflection reinforced learning and this was affirmed by PM-42-13. The following comments by PM-24-20 describe in-depth reflection in the context of project problem-solving enhancement:

'... yes, I think the reflection part is a good thing la. What happens is when you about to relate a problem to a third person, which is your mentor in this case, I think you would try to organize your thoughts in better way of expressing them in a logical way, so that other people can understand what you are facing you know, so therefore you try re-group the type of information that you need. So during the process of re-grouping and re-summarizing and

looking at the situation again, viewing the situation again. What happen during the process, you may find out that certain things that you did not see it earlier, then it becomes clear to you during the review. So, that process, I think it has helped me quite a number of times ... so from that point of view, you may be trigger you to learn more about other things.'

The ability to discern and think critically was considered crucial for effective project problem solving. In addition, PM-20-14 asserted that greater levels of critical thinking resulted in the ability to craft better solutions to project problems. In this respect, PM-13-15 likened a project mentors to 'an agent' who '... simulate[s] them how to do things, to finish the things ah ... you know ... by their ... how do I say ... intelligent for that ... or their knowledge'. This was also affirmed by PM-20-14.

'... think it through logically and see what is the impact ... not only to organization, but also to the end users in ... of budget, which is money and time-line, which is the resource, cost and everything'.

Lastly, the following two testimonies underscored the importance of a discerning attitude on the part of project managers:

- *'... you need to ensure all these are met, so that everybody is happy. Of course they are time, when you need to look and weigh your decisions, because you need to also see, if I am going this make this decision, right. Who is going to be happy and who is not? Who will be impacted more and who will be impacted less. This kind of things are not taught in Prince 2. Because Prince 2 will only teach you, these are the kind of things you need to formalize in a project and everything. It is very project based and very task based. But they don't tell you, ok if you see a form on your project manager, do step A ... no, they don't' (PM-06-11).*
- *'... for me I will ask, what you can do. I want to think first, rather that I give the solution. Actually, I know how to resolve it but I want them to go in the sense when they come to that kind of the issue, in future they can develop how to resolve it by themselves. So it is mostly, I think this come for me, mentoring ... I guess is called mentoring, I am not sure' (PM-42-13).*

5.3.2 An Exchange Process

Analysis of the interview narratives revealed that participants characterized learning as a process (i.e. as a series of actions) taken on the part of the project manager towards knowledge and skills acquisition. Learning was also characterized as a two-way process, with benefits accruing to the both parties of the mentee/mentor dyad. For example, PM-32-07 highlighted the spirit of quid pro quo, and PM-06-11 noted an element of exchange in the learning process:

'... when you exchange experiences with your mentor, because mentor is not all about giving, giving ... giving. They also need to receive. We also need to take care of the mentor's emotional bank account, because people will feel very drain. Really very drain, when they are actually giving all the time ... it gives me a dreadful feeling you know even I heard about mentor-mentee because, it is to me, it just very useless, when one part expects to receive and one party expects to give only'.

PM-18-03 described this two-way process of learning as one that was filled with 'discovery along the way by the mentee doing it themselves'. The following comments of PM-41-09 underscored the quid pro quo spirit:

'... it is actually a two way learning. Because as the mentor pass on the skills, the knowledge, the experience to the mentee, a mentor do gain something from the mentee ... you know ... even undergoing this mentoring process. The mentor has got something to gain ... it is actually better because of going thru through this mentoring and the person become a better teacher ... to teach. It is also help the person to understand people better and help the mentor to actually build his network'.

This two-way exchange of experiences created a platform to '... generate ideas from both parties' of the mentee/mentor dyad (PM-42-13). It was likened to 'two-way traffic' by PM-13-15:

'... in most effective communication ... ahhh... it is always a two way traffic, not a one way. Sometimes a mentee, first thing a mentee needs to listen, because he is new. He needs to ... after he listens then he gives his

feedback. So that the mentor knows whether he understands or not and then can corrects him if he doesn't. So ... that is actually very important and through that feedback, sometimes the mentor actually learns something. So vice versa... of course the mentee always learn something from the mentor ... but through the feedback, it actually benefit as well. So, through that two way conversation, instead of having of having one individual just passing on his skills, you have two individuals sharing their skills. So, in the end, at the end of that actual process you have two people who are better t what they do than one person doing what you told them to do. So, that is actually, that is how the learn process would work in mentoring and then it benefits everybody, inclusive of the manager who is even not part of the mentoring process. But in way he is, because he mentors the mentor. So he benefits from what the mentor learns, that depends on how good the manager is'.

Project process improvement was a key motivation observed in this two-way exchange process. PM-13-15 affirmed this and PM-41-09 noted that the project mentor '*... has got a deeper interest in ensuring the success of the person. So, to me it is actually more about learning. It is more than just learning.*' Expectation of project problem-solving enhancement was described by PM-18-03 as a key motivation of learning for project managers: '*... an experienced mentor could exactly pinpoint where the problem is, what to watch out for, if you were to take certain steps*'. This process of learning from project mentors who were usually more experienced than the project managers was likened by PM-32-07 to '*... the wise sage on the hill and you are the disciple asking the questions*'.

5.3.3 'Double the Speed'

This characteristic refers to an accelerated learning pace. PM-42-13 described it as a fast-tracking of the learning process whereby the capabilities and capacities of project managers were enhanced over shorter time durations. PM-02-06 described it in the following way:

'... if you have the right mentor, the right experience for that type of project, especially if the mentor has previous dealings with the customer, it helps a lot

if the mentor has already done some previous projects and already knows the personalities involved, able to then guide. If not also, the mentor has that skill that experience, to be able to step in and build the bridge easier for the project manager. So, yes I would say that to fast track that building the bridge, building the rapport and helping the project manager to avoid some pitfalls, it will be one of the best vehicles, I would say, in achieving that'.

When learning was guided with scaffolding suggestions and directions from more experienced individuals, project managers learned faster, i.e. the learning curve is less steep. In addition, the time-to-production of project deliverables can be shortened, as PM-18-03 affirmed. The suggestion was that the end-result was not only a hastening of learning on the part of project managers but also that the learning was focused and problem-solving directed. The following testimony of PM-18-03 underlined this:

'... sometimes mentor do share with you some of the reference point, some of the key reading materials. In my organization, we have a process methodology. But it's so huge , so sometimes the mentor will actually say , look at this particular process step within the organization project methodology ... so it becomes a very directed skill based learning ... whereby look for this reference point and pick it up from there. Because you don't have much time, you want to be guided to straight to the point to actually refer to some materials and that also saves a lot of time because instead of you searching around for, where things are, it helps a lot.'

In addition, the benefit of time-saving was identified as a result of fast-tracking by PM-02-06, while the reduction of time-to-productions of project deliverables was noted by PM-42-13. The following testimony of PM-42-13 exemplified such a positive end-result:

'... because through mentoring, what I trying to say is that they really feel that whatever you learn I past 20 over years, they learned in months that kind of things, you know'.

In this regard, PM-32-07 put it in the following way “... *you gather more experience without having to live through it*”. Lastly, the benefits of learning at a faster pace in the context of mentoring were underscored by PM-42-13:

‘... will learn how to run ... learn faster, better, quicker that kind of things and you know ... and therefore they also learn how to pick up sub-conscious mentoring. From there on, at the same time, right, so that will actually make them ... ah ... progress much in a speedy pace’.

5.3.4 Leveraging of Experience

Learning from the experience of others was a learning characteristic that increased the professional development of project managers. This characteristic contributed to improving project success rates. PM-32-07, who had worked in several IS-related projects as a professional project manager, affirmed this. Prior experiences of mentors were considered to provide improved project success rates: *‘... in most job roles ah ... the most successful people [an indication to project success] are the ones who really picked up from what the seniors are doing or what they are’* (PM-32-07). In addition, it was noted that experience-based learning was not restricted to the profession and practice of project management:

‘... so whether you are a leader or a successful project manager or a successful sales manager. There are a lot to be learned from the people who are in your field. Who are your ... may be your peers, may be one level up, your seniors, your immediate seniors. Ok, there is a lot to be learned from them’.

Experience can be good teacher, even for very competent and capable project managers; experience has its position. The following comment by PM-29-19 describes this reality:

‘... Tiger Woods still has a coach or someone who look at what he is doing ask the right questions so that he can tweak and improve himself. There is always room for improvement, whether you are new to something or you are already doing for the last 20 years’.

Analysis of the interview narratives revealed that experience was well-regarded as an asset by project managers. For example, the need of advice and guidance from more experienced individuals was emphasized by PM-32-07. He commented on the significance and contribution of experience to better project management:

'... I consider myself well ahead of the game compared to a lot of my other peers. But, yes, I have worked for it and I have won my share of debates and I won my share of accolades whether as an auditor or whether as a professional accountant or in college. But I am not the born star. So, I have made myself, I have learned through experience and I have got that'.

Learning 'through experience' in the context of mentoring was very much practice-based rather than academic, as PM-30-12 observed. PM-08-05 stated that '... of course mentoring is just not like ah ... is not a theory thingy, I feel that it more on a practical thingy'. Furthermore, project mentors' experiences were considered an invaluable commodity to project managers. In this respect, learning by leveraging their prior experiences '... is more like trying to get the knowledge from your mentor'. PM-14-08 concurred and noted '... learning from the experience of the mentor is very effective to help you develop yourself or help other project manager'.

In comparison to classroom-style learning, i.e. learning based on textbooks, PM-08-05 felt that learning based on shared personal experience was more efficacious:

'... when your experience mentor come into play because they have faced through this kind of ahmm ... situation they would be able to advise you actually. So, for in class ... in class, what we do is more of like methods like methodologies, like skills you know, but in real world seriously ... ok methodologies are there because of processes but skills wise in a sense that... how do you handle a customer ... like a very difficult customer ... it is not cover in class. So, that is when your mentor who is like ... have seen all walks of people they ... they will be able to help you in the sense that this kind of behaviour you can approach like that ... you know kind of thing'.

The following three testimonies mentioned the advantages of having more experienced individuals in the capacity of mentors on projects:

- *'I would say that...ah...it is sufficient, but a mentoring process, actually helps out to...actually help the project manager to manage the project more successfully. Because when you talk about the training that is provided in the uni or what we learned from uni is more...the one the more well defined is actually the quantitative processes, the quantitative analysis of a risk ... the weight-age ... how would you define weight-age, but what does these weight-age means to a project manager ... when we are new ... we actually ... we do not know ... this particular weighting may mean it is more risky, but what do we do. What aspect is it risky? That's where the experience of the mentor comes into play ... you know ... to help the project manager understands quantitative results'* (PM-41-09 re: risk analysis).
- *'[Project mentors can] shed some light ... for example...creating a work packages...there are situations where the prioritization of the work packages are actually very important. Those time...ah...just say...you know...you should have done Y first before you do B, so if the project mentor can actually shed some light to tell you why you should have done Y first instead of B, then ...you know... that will help you to learn and in future projects be able to guide yourself'* (PM-14-08 re: prioritization of work activities).
- *'... for example, you want to do standardizations across the different countries ... right. So you need to drive this standardization and let say ... you hit certain road blocks ... whatever...let say you are resistance ... because there are always resistance between ... it will be good if let say this mentor can help you to ... let say based the experience and then ... what is the better way to tackle this part or it is ok'* (PM-38-01 re: resolution of project problems involving regional deployment).

5.3.5 Multifaceted Learning

Learning in the context of mentoring generally involved elements of observation and listening, and action on the part of project managers. Advice and guidance offered not only provided answers to project problems faced by project managers, but learning occurred as a result. The analysis of the interview narratives revealed many

facets to learning. For example, PM-08-05 noted ‘... *there are a lot of ways of learning*’, and PM-41-09 observed ‘*more than one style or one process at any one time, because it may change throughout the learning process*’. The analysis identified eight facets to learning, and these are listed in Figure 5.12. The full statements and testimonies of the participating IS project managers can be viewed in Appendix 7.

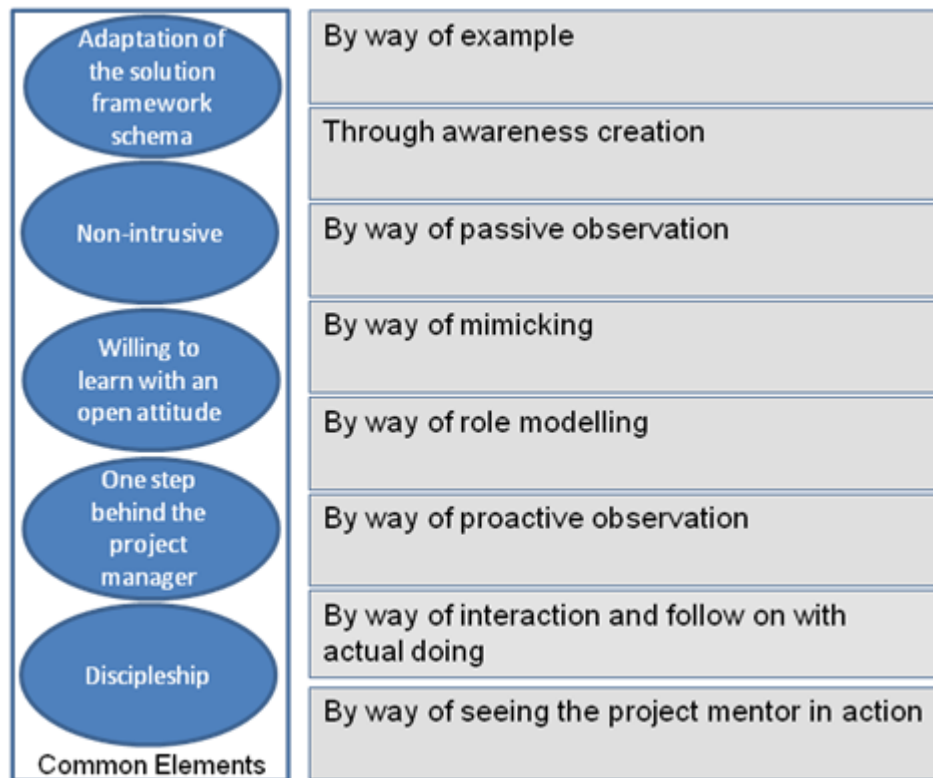


Figure 5.12 Facets of Learning

Answers and solutions provided by project mentors in response to requests for assistance from project managers were generally in ballpark or skeletal form, i.e. general high-level directions. Project managers were expected to adapt them to their project problems by way of customization. The following statements exemplified this reality:

- ‘... *the style and approach may varied and it may not be restricted to just one*

way or approach such by way of interaction. It is more project managers picked up what framework of context and the then impose own style and thereafter make it better' (PM-41-09).

- *'... so latter you can just grab the concept how things is moving, then you can mimic it and then more put in the way you feel more comfortable to want to do it' (PM-2-14).*
- *... so therefore, you improvised those experiences to the project managers, right, that you cannot get it from text book, that you cannot get it from anywhere, but you get it from job experience through your mentor' (PM-42-13).*

Four other common elements were identified:

- Non-intrusive. PM-29-19 noted that the learning process need not be intrusive in nature: *'... ah ... you mentioned shadowing, shadowing may be intrusive for some people. A shadow is very intrusive. A shadow is with you everywhere you go. Even if you don't want the shadow to be with you. So, shadowing may appeal to some people, but some people may find it very intrusive. They may say that, I don't want for someone to be on my back constantly. You know, for good or bad reasons. Some people may think shadowing is to too intrusive'.*
- Willing to learn with an open attitude. PM-11-02 noted the need to adopt an open-minded outlook and mindset: *'... ya, even after many years also, because there will be many people that have more successful than you. Even if I have work for project manager for let say, more than 5 years. But there are still areas that we have not experience yet. So it is always that, let say ... formal or informal. People can give you input and you know to save your time. Right ... don't always knock on the wall. Then you learn it.'* Similar sentiments were uttered by PM-02-06 *'... no matter how experienced will learn something new along the way. No matter how experienced we are, when we go through every project, its different, circumstances that you may*

not have encountered before. This is always where you can seek advice from somebody'.

- One step behind the project manager. PM-29-19 described this characteristic as having a more experienced individual standing by: *'... so, very ... constantly, we [mentors] need to emphasize that we are one step behind the PM ... we are there to make sure that he looks good. And he can do his job. But at no time are we there to take over his job. Or run the show for him. He is running the show; we are helping him to run the show.'* Furthermore, it was also likened to be someone more experienced providing supplementary support *'... you know, I am here to supplement what you are doing, you know i.e. PM behind the PM ... I am here to help you, I am not here to manage you'.*
- Discipleship. PM-32-07 noted this aspect of the student/teacher relationship, which facilitated learning: *'... and a mentor is giving his lessons learned, more often than not. So he is the wise sage on the hill and you are discipline asking the questions'* and the project mentor *'... is typically basically coming in to facilitate learning'.*

The learning process could be triggered by either project managers or mentors. However, the analysis revealed that mentors were considered best suited to plan, prioritize and customize the learning requirements of project managers. In this connection, PM-29-19 observed:

'... different people absorb learning effectively in a different way. Some people need to be told. Some people don't want to be told. So, I think a good mentor will again look at the mentee and ask himself, if I want to help person, what is the best way, I should do it ... so a good mentor would know ... will need to have some understanding of the personality or the style or learning style of the mentee. And figure out, what is the best way to help the person that is how I feel'.

The benefit of facilitating the learning of 'trade secrets' and 'tricks of the trade' was also noted. PM-42-13 opined that, project managers are very likely to profit from mentoring support. This refers to project mentors' revelation and sharing of practice-

related information that may not be generally available. For example, PM-42-13 remarked that such trade secrets may not be that readily shared under normal circumstances. Likewise, PM-32-07 commented on learning the tricks of the trade in the mentoring process:

'... Okay, I will give an example, what is the tricks of the trade ... so one of the tricks of the trade is that don't be afraid to share what is the reality in the project. So, you have got a problem, or if you are falling back behind, you have to communicate it to the right stakeholders. Now it doesn't mean that you go rushing to the CEO of the organization and tell him that the project is behind schedule.'

5.3.6 Soft Skills Inclined

A focus on soft skills rather than hard skills was a key learning characteristic that emerged from the analysis. For example, the following statement of PM-02-06 exemplified this orientation towards soft-skill learning of project managers across the IS project management process:

'... perhaps less focus on the hard skills, more making sure that the soft skills is well rounded'. In comparison, "... hard skills is actually is very easy, because there are so many books and then you can just pick up and may be you know, you just go to Internet to search. There are some many materials that you can refer to'.

PM-38-01, PM-11-02 and PM-33-04 also remarked on this contrast. For example, PM-11-02 noted the subtleties of soft skills and that the nature of soft-skill learning was intricate: *'... because it is like for human behaviour'*. PM-33-04 described the exactness of hard skills:

'... because on our experience is that we found out that hard skills ... you mentioned we can really learn from the book or we can really refer to certain database. It is quite now common in our world, can get a database that we found out from Internet and then we can learn from the community. Those are hardware or software problem which is work with the technical port; normally

it can give you a very clear guideline. And you just have to follow the step and can find out the actual results of the solution to solve our problem'.

Overall, the participants recognized the positive influence of soft skills on project success. For instance, communication is a soft skill, and this was considered a key skill for effective project management. Communication skills are critical in the interchange of information between project managers and key stakeholders.

The following three comments suggest how soft-skill learning is a key characteristic of learning:

- *'... soft skills become more important as you go higher up ... there are certain things which are just critical. All right ... for example, you must know how to conduct client kick off meeting, you must know how to conduct client progress meeting. You must how to do internal audit meeting. You must know how to do internal quality check meeting ... quality check activities, right. There are certain things that you just need to know. There might some documents, that tells you this is you, how it is done. Or you might need to learn from your supervisor. Or the supervisor needs to teach the guy. This could be either to training or whatsoever, right. These are things that a person just needs to know ... all right. How do you interact? If you are actually have a problem coming out of a client. How do you report to your bosses? How do escalate to your bosses. How to manage the problem. When do you get your bosses involve ... you know ... so all these things are, you know, it is very difficult to say that ... ohh ... some simple things like ... ok ... when you actually have a client update meeting, like as much as possible, try to a fact to face update, because, we do an update by email, of you do a update by phone, a lot of things get miss communicated' (PM-17-10).*
- *'... there must a learning skill that ... living skill, I call it living skill that you have, you know' (PM-42-13).*
- *'... put all that together in a bundle and making it work. I think that where I really put it then. As you moved higher and higher in an organization, I think it is mostly soft skills, which will take you. You get lost, you know, you could*

be a fantastic spreadsheet guy, but if you are not networking with the right people or if you are not communicating with the right people, I don't think you get anything for this. So, I think, I would put it at a very high 75% on that one' (PM-32-07).

Evidence of soft-skill learning was noted with respect to the participation of mentors in project meetings. The following two comments illustrate this;

- *'... touching base on what I said previously on the PMBOK, PMBOK itself is just a framework, it just shows the processes involved but all this comes with soft skill. Most basic, I said just now, even conducting a meeting it doesn't show in the framework, it's very important you don't see that. A mentor seeing if a meeting doesn't go smooth, then he can highlight to the manager. So who gains it at the end is the company, because when the human capital matures, it indirectly benefits the company. I mean the company is maturing in that sense' (PM-25-17).*
- *'... as I said, the customers body language, the reaction all that, somebody can actually observe and feedback to the project manager; that helps a lot. Because when you are in there, you don't really see it, you get your head deep inside that situation, you need someone else outside to notice. Maybe you look very tense when you are speaking, or maybe you are avoiding eye contact or whatever it is. The mentor can say I've noticed that, this is what you've been doing, and this is how you can improve yourself' (PM-02-06).*

5.4 Contributions to Project Success Improvement

Subsection 4.3.2 noted that project success was a key motivation for IS project management mentoring adoption. The support of mentoring practice provided to project managers can likely improve project success. PM-41-09 likened the process to building a rocket ship:

'For many ... many reasons, because I would say that earlier when I talk about observation and learning. So you talk about observation and learning ... when you look at the ... when we observe the mentor does something ... ok ...

so early we talk about ... if we look at the example of building a rocket-ship ... let say there are 10 steps to build a rocket-ship ...ok...you already know the steps, but doesn't mean it you can make it successfully. But having a mentor there ...you are seeing the mentor do step one to step two, and through your observation and learning, you are ... and also you know that step will be successful because the mentor has done it ... and the mentor is also there to guide you ... you know ... should you do it wrongly. But going back to the project management side, earlier we were talking about project, A mentor's role will comes into play more when there are human ... ah ... factors involved ... right. So, I would say that even though in classroom, in universities that ... you know the steps by steps. And the technicality on project management ... ok ... you actually you do not know ... you do not learn about handling emotions ... human emotions in classrooms and universities ... both from the stakeholder side. And I mean ... as well as the project manager themselves ... in the thick of action ... you know ... when you have tight deadlines ... your deadline is already here ... you know ... the stakeholder chasing after you and all those. There are so ... your emotion comes into play and just knowing what to do does mean that you will actually do it correctly or successfully ... you know ... I would say the mentor plays a big part to help thru this process'.

PM-44-18 noted that mentoring support was helpful and used a mirror metaphor to reflect on aspects of improvement required of the project managers:

'... the reason being is ahh ... as I say, you cannot see yourself in the project. You need somebody from outside you know to actually coach you and guide you. They might give some advice and of course, you have to run the whole project. I mean still you need somebody outside the project to look at the issue in different angle. You know, you need more opinions. You need more advice of how to actually expedite the project. How to actually make it better. How do you actually see yourself in the project from your senior, from your mentor? It not only about the project itself ... it about yourself also. You need a mirror of yourself. You need somebody to tell you'.

The analysis of the interview narratives identified five factors that were considered to have contributed to IS project success in the adoption of mentoring practice (see Figure 5.13). The Availability of Advice and Support factor is more passive and less tangible than the other four. The next five subsections discuss each of the factors in turn.

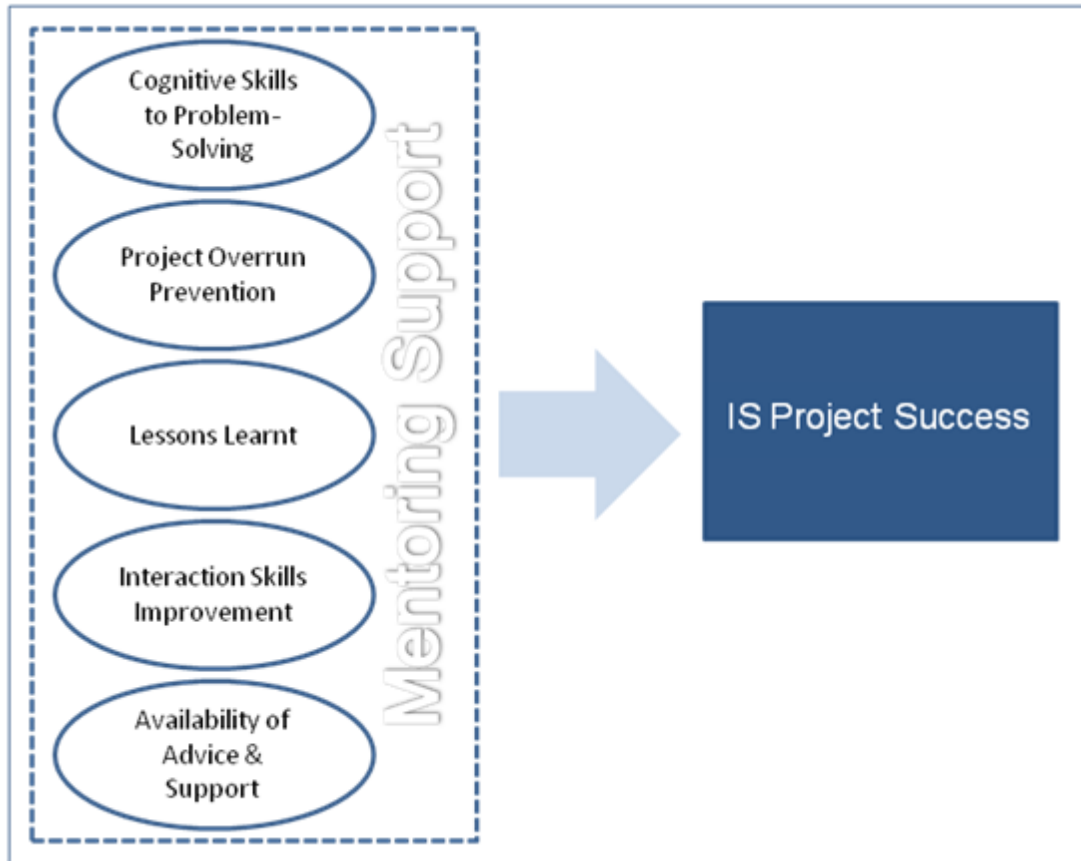


Figure 5.13 Contributions to Project Success

5.4.1 Availability of Advice and Support

Mentoring support across the IS project management process provided a platform that endowed project managers with access to the advice and guidance of more experienced individuals. For example, PM-25-17 noted that an established mentoring relationship '*provid[ed] the platform*'. PM-38-01 added that the assistance and support was rendered without inhibitions. Furthermore, PM-41-09 emphasized

that mentoring relationships provided a *'better platform'* to project managers, in which rapport and ease were very evident. PM-38-01 noted that such a platform offered an assurance that project managers

'... have someone that you can seek for help ... Or you can have some advice to you and may be help you out in some of the like ahh ... how you handle certain situation'.

PM-05-16 noted that the mentoring relationship not only provided a platform but it *'... is actually a good platform for the learning'* of project managers. Therefore, the knowledge and availability of an avenue of support was an encouragement for project managers. PM-11-02 saw it as a *'boost'* to project managers' self-esteem:

'... and definitely, because, if you have someone to back you, you will feel more comfortable and more confident. Because it is like for the ... let say for the fresh or not may be, you know, not so experienced project manager, definitely it is like, you know if you have people always talking to you and then you know, give you advice.

In addition, this knowledge and availability of an avenue of support also provided the reassurance of a second opinion:

'... mentor may tell ... oh... this is the right way to do ... right ... when you are describing certain situation to him ... right ... so, so you feel more confident to execute your task ... ya ... because the mentoring may be ... he may be telling you what you planning to do for whether you it is alright or not ... you are getting a second opinion ... right' (PM-38-01).

PM-25-17 likened this assurance of support as being on the radar of project mentors. Project managers benefited in terms of their self-confidence:

'... yeah ... initial stage is like you feeling it as stressful, but the reward is there when you know you can do the project well and the customer recognize and the boss also knows your capability and so on, you feel like yeah I have the potential I can do it, it's not that difficult, previously I've been sticking behind boss like what to do and that kind of thing. So in a way it puts you up front and you lead the project'.

5.4.2 Cognitive Skills for Problem-Solving

Subsection 5.3.1 presented evidence of the importance of critical thinking and in-depth reflection in the solving of project issues and problems. The analysis of the interview narratives revealed that project managers were encouraged to think deeper towards project issues resolution. Critical evaluation and thinking were applied to generate viable and alternative solutions. As a result, project managers assessed the possible implications and consequences of the provided advice and guidance. For example, PM-25-17 felt that project managers benefited from prodding by the more experienced individuals. The following testimony of PM-25-07 exemplified the development and augmentation of cognitive skills:

'... how he does it ... is like, without us realizing actually, we see him and say 'we have this project coming in and these are the problems', his first question is 'what would you do? How will you manage it?' He wants to see what is your view and opinion. For the first time, we were thinking. We never really thought about it, 'hey I never think about that, I'm always waiting for you to tell me'. So it was a good experience, at that point where these questions came to me, then I start to think 'this is what I'm supposed to do' then it actually comes to the first boss I've served. Actually I've learned, but it's just that I didn't put my foot front saying this is what we can do: 'these are the options we have, these are the risks we're experiencing, this gives good result because in the past we've done this way', a lot of things come to mind and your mind starts to think'.

Furthermore, project managers benefited from unsolicited suggestions and support that provoked deeper investigations into project issues. PM-41-09 commented:

'... I think ... in this sense ... why I would say that the mentor will probe more as to why are project manager actually comes to this particular conclusion. Ok ... as to why he include this certain person as a stakeholder or why is that the project manager did not include this certain person as a stakeholder in the project ... or why this area is included in the scope or why it is not. So, a

mentor will actually help to probe the project manager deeper to understand why is it and why to reach the solution'.

Finding strategies and directions for the handling and resolution of project issues and situations evoked a greater depth of thinking and analysis on the part of project managers. PM-33-04 asserted that project managers were encouraged to understand and reflect on the issues or problems at hand in greater depth and detail. Furthermore, it indicated a greater certainty towards project success as a result. In this connection, PM-33-04 asserted:

'... if a mentor he can personally show us, you know, present the way he present in terms of the wordings he used, the gesture he wants to highlight to make the customer more interested or accept the idea we presented. Then we can easier to learn from that basis. Ok, those are strategy is also very important, because it is like he come across a certain kind customer who have a similar working environment or culture, then he will know roughly what the customer think. So, when he push those customer, he will come with some proper tactic, we call strategy and tactic, you know. Strategy is go for high level, so he say our looking for a certain strategy A, so we can approach the customer efficiency. We can then follow with a tactic and say you should follow this step ... that step. So that they will come back with all the information you need. So, the tactic to acquire customer information is one thing that we always appreciate, so then we can ... ya ... so the key point is that cognitive skill set ... I will appreciate if they say ... how to get into the customer brain and get those info from there. It will be the first step to ensure our project to be success. And then from there we only put into the wording to set a proper scope of working from the beginning. That is how we can ensure that the project to be success at the end'.

In contrast to learning by reading reference books, mentoring was considered more effective by PM-33-04. In addition, learning by reading reference books lacked the personal touch, the 'personal feeling to apply to our working environment'. Face-to-

face interaction with real people was preferred. In this respect, PM-18-03 described the mentor as a sparring partner:

'... a healthy thing to do because you don't want to always go upon to the mentor ... because sometimes you may have some ideas but you are not sure and you might want to hear from the mentor. What does she think about the idea or approach itself? So this is where this becomes healthy because you are offering your thoughts and idea. So the mentor will feel that you are thinking and you are not just there, always asking open ended questions, then it gives the mentor the comfort you are learning, you are thinking and you are improving along the way and it gives the mentor some sense of satisfaction that you are making it work so to speak'.

Assistance provided through mentoring support can unlock more approaches and possibilities. In other words, project mentors can provide a wider perspective on solutions and alternatives to the project issues and problems. For example, PM-11-02 felt that project success could be improved by having *'... more inputs, right, the inputs from other people'*. One individual (the project manager) can

'... only look one or two angles. Hopefully, we can think, people say vertically. They call it, two type of thinking, either you think horizontally and vertically. If you think may be, vertically is only one angle. If you can think horizontally and then you can see more. But, so sad to say that, I think people cannot look at so many angles. So we need inputs from other people. The input will be helpful, definitely. Because more people and then ... Of course, once you listen you don't say that all these are good to you. You have to filter and then pick up whatever that is useful to you'.

As noted above, the presence of project mentors can at times unlock alternative solutions. PM-17-10 noted that verbalization on the part of project managers could be productive:

'... sometimes ... just you know ... you do not have to say anything, just let that guy ... there are so many instances, when the guy freely can just let his idea flow right. Suddenly the problem gets solved, you know, if he is just

restricted to the project scope, and you are just working around there. It is just psychologically you are not thinking from one thing from different angle. You are just stuck there. But if you let it go, somehow, things start falling into place, lah'.

5.4.3 Interaction Skills Improvement

The analyses of the interview narratives indicate a connection between mentoring, interpersonal skills and improved project success. Cordial and responsive relationships between project managers and project owners/team members generally bring about better interactions. Project mentors can heighten the awareness and at times can act a bridge towards the maintenance and developing of interpersonal relationship. In this regard, PM-32-07 commented on the mentors' role in cultivating of good relationships with key project stakeholders:

'... I think, first and foremost a good relationship with your client, so, a good relationship I think is the most important success factor. Right ... Good relationship can overcome many other deficiencies in the project. Ok. So, even if you have a project slippage in the time or you have a project cost which went up. A good relationship can manage a lot of those things'.

Good relationships can ease the buy-in process. PM-41-09 noted the benefits of maintaining good communication with the project owners/stakeholders in the following statement:

'... when we talk about communication process in a ... in term of mentoring. To me a communication process is more than just what is listed out in the communication plan. In order to manage a stakeholder expectation ... you know ... to get their buy in ... we don't always communicate formally ... there are ... sometimes that we may do a indirect communication to the stakeholders. There is where the experience of the mentor on how to handle this aspect of stakeholders and understands the needs of the stakeholders ... the needs of the stakeholders play a part'.

Effective people interactions were crucial to project success. PM-32-07 noted that communication and interpersonal relationship skills were important because of the need to handle difficult project situations in a firm and amicable manner. Project problems or issues were not usually straightforward and easy. At times, difficult project situations can border on absurdity or irrationality. This can be demanding. The following example illustrates a demanding situation involving a very difficult project owner (client):

'... so, more often than not, we do a lot of work for a customer which we tend not to communicate or which we tend not to talk about. So, in a meeting, when the customer will typically come to us and say I want this, I want this and usually it is more than what is given in the contract for'.

PM-32-07 explained that in a demanding situation such as this, advice offered by the project mentor defused the situation:

'... refuse them without making them feel bad, without making them feel ... you know ... ignored or without making them that you just don't want to give them any importance'.

Handling and dealing with project owners requires tact and the experiences of project mentors can be helpful. As such, people interactions are considered a key component of IS project management. The following statement of PM-42-13 affirmed this:

'... not just like you say you talk about IS project or IT project right? It doesn't mean you face machines and software all the time, right ... so you need to meet people, so the learn here means how to interact with people. Communication, communication skills, their communication skills and at the same time to develop their soft skills in a way to improve that you get collaborations with other team members and other parties involved in the same project'.

In this regard, the assistance and support provided to project managers towards better relationship management and development with key project stakeholders can be rendered in several ways. For examples:

- PM-02-06 and PM-25-17 suggested the presence of mentors in important project meetings. However, PM-29-19 cautioned against this.
- PM-32-07 suggested pre-meeting and post-meeting briefings. Project managers can benefit from feedback such as meeting strategies and areas of improvements in subsequent meetings.
- PM-18-03 and PM-44-18 suggested proactive solicitations of advice and guidance through informal meetings with project mentors.

The leveraging of mentors' prior project management experiences was noted in the context of interaction skills enhancement. In addition, prior relationships of mentors could also be tapped. PM-02-06 noted the mentoring relationship can provide a platform for 'building the bridge' for interpersonal relationships with project owners by building on the previous good relationships of mentors and project owners (if any). According to PM-02-06:

'... If you have the right mentor, the right experience for that type of project, especially if the mentor has previous dealings with the customer, it helps a lot if the mentor has already done some previous projects and already knows the personalities involved, able to then guide. If not also, the mentor has that skill that experience, to be able to step in and build the bridge easier for the project manager. So, yes I would say that to fast track that building the bridge, building the rapport and helping the project manager to avoid some pitfalls, it will be one of the best vehicles'.

5.4.4 Lessons Learnt

Lessons learnt from prior experiences can bring about improved project success rates. Participants' desire to leverage the prior experiences of their mentors revealed their support of the mentoring process. Mentoring support across the IS project management process provided IS project managers with advantages. For example, PM-33-04 noted the prevention and mitigation of '*wrong decisions*' by project managers. PM-42-13 observed that with awareness and knowledge of lessons learnt, project managers could avoid making similar mistakes, and '*not ... repeat the same problem in future*'. The following comment by PM-44-18

underscored this finding:

'... critical issues ... ahhh ... I think mentoring is also important to actually share with other project manager. What have you learn and what have gain from each project, so that they wouldn't make the same mistake'.

PM-11-02 also noted the advantage of learning that enables one to not repeat the mistakes of others:

'... ya, even after many years also, because there will be many people that have more successful than you. Even if I have work for project manager for let say, more than 5 years. But, there are still areas that we have not experience yet. So it is always that, let say ... formal or informal. People can give you input and you know to save your time. Right ... don't always knock on the wall. Then you learn it'.

As noted above, project managers not only learned from the prior experiences of mentors, but also felt that this enhanced project success rates: *'... learning new things or ability to handle a similar situation in future'* (PM-14-08). PM-18-03 observed that learning from mentors' prior experiences *'... definitely improves the absorption of the experience without which it will be all theoretical'*, while PM-13-15 noted that *'... what a mentor does is it gives you the inside of the experience from another person'*. This enabled learning because project managers (then) become aware of the rationale and philosophy behind the actions taken. In addition, PM-06-11 observed that project managers were able to tap into their project mentors' networks:

'... and my mentor has been working with him for like 6 or 7 years. So, we have know each other quite well and it is a very simple thing like ... let say you want to confirm whether it is going to go ... is the project is going to go on, what do you think of the project ... or how is going to ... or if you need his assistance to actually sell your project to the market, right. So, you could actually pick up the phone and give him a call. And you will talking like old friends. See, it's like network and connection at the same time also'.

PM-33-04 felt that success breeds success, i.e. the successes of project mentors in

prior projects could be leveraged to the benefit of another project:

'... the mentor himself also based on experience, he can clearly tell us if we follow exactly what I can give you advice then you definitely can deliver the solution to the customer within the time, within the budget and then will ensure your team will full of spirit and motivated. So you can make sure of your success. So this is something we can expect people who can give us guidance'.

5.4.5 Project Overrun Avoidance

Project overrun is a serious phenomenon and it impedes project success. In this regard, PM-11-02 commented: *'... actually from my experience my previous projects and existing project, all overrun. It is just by ... you know ... how serious is that'.* It was suggested that project mentors could play a significant part in lessening the occurrence and impact of project overrun. PM-18-03 described the advantages of maintaining an active mentoring relationship, which can not only can avert potential project cost overrun, but also positively impact project managers' learning processes. The following testimony noted that timely mentoring support provided a lifeline to the project:

'... let me touch a bit about within budget per se. I was handling this project which calls for new technologies to be invested upon, to sort of deploy some new equipment for the project. And being new to the technologies as well as to the organization, I run into some issues along the way, reason being probably, I don't know what's there in the existing infrastructure. So there were some presumptions made and which kind of get the project into some critical situation. So as a result, we had to actually purchase more equipment which we didn't plan for. To come and get the budget to be approved, it's very difficult because you have the budget being agreed upon. So with the mentor on hand because the mentor that I have that time, has actually quite a broad network within our organization and he happens to come across another project would which also make a purchase more a less the same equipment.

So in order not to sort of blow the budget in a significant way, so we kind of solve through the mentor to do a joint investment into that piece of hardware. If I were to reflect back, without my mentor at that point of time, the budget over run would have been much more significant. But being able to connect to another project and share the investment, so the budget over run was kind of capped within 10%, so it was acceptable range to the project board. I find it is quite useful to actually do that.

Mentoring support was considered advantageous by practising IS project managers; in the area of averting possible schedule overrun. PM-18-03 stated the following in this connection:

'There are times when you need to seek alternative resources to compensate the shortcomings from difficult members. So sometimes you just can't afford to just stop the project and you need a bit of extra hand to solve and channel it to another resource to do, help speed up the project or address the shortcoming. So in that particular situation, so another of my informal mentor says 'Why don't you look for this person, who happens to know a bit about doing this kind of task or technical aspects as well'. So then, I look for the other resource and I was quite happy it was able to provide me the extra hand as well as the insight of how to go about addressing the problem'.

5.5 Summary of the Chapter

This investigation has revealed that mentoring support is very focused across IS project management activities in the Planning process group, more so than in the Initiating and Monitoring and Controlling process groups. In contrast, the Executing and Closing process groups attracted a lesser degree of mentoring support. The need to resolve project problems or issues on hand generally triggers the seeking of assistance from mentors, which is generally in the form of advice and guidance. In this connection, project manager/mentor meetings tended to be at predetermined intervals over the project management process. However, they were still very much project-manager driven and were generally informal. Aspects of the project management process learned are generally soft-skill-related and very much deliverable-focused. For

example, the Planning process group is focused on communications and the development of the key deliverable – the project management plan.

Evidence of participants learning through mentoring support across the IS process management process abounded in the interview narratives and the analysis identified six key learning characteristics: a discerning attitude; an exchange process; ‘double the speed’; leveraging of experience; multifaceted learning; and soft-skill focused. Mentoring adoption was shown to positively impact project success rates in the areas of project effectiveness; availability of advice and support; cognitive skills for problem-solving; interaction-skill improvement; lessons learnt; and project-overrun prevention.

The next chapter discusses the findings in relation to the descriptive model of IS project management mentoring that was developed in Chapter 2.

CHAPTER 6 DISCUSSION OF FINDINGS

6.1 Outline of the Chapter

This chapter presents the discussion of the research findings. It is built on the analysis of the survey and interview narratives reported in the prior two chapters. This chapter is a step towards uncovering the implied statements of the practising IS project managers and findings of this study. The descriptive model of IS project management mentoring described in Section 2.6 acts as a composite theoretical lens which, in part, is corroborated by the extant literature. In order to present meaningful answers to the research questions, the chapter is structured in the following way.

Section 6.2 presents a précis that contextualizes the discussion of the findings with respect to the research objectives and the overall research approach. This section puts the discussion into perspective. Section 6.3 is a discussion of the landscape of mentoring adoption and focuses on the 'whats' and 'whys' of mentoring practice adoption across the IS project management process. This section provides answers to the first and second research questions.

Section 6.4 presents a broader discussion towards the theory of IS project management mentoring. It has four subsections. The first subsection discusses aspects of the IS project management process learned through the adoption of mentoring practice. The second subsection discusses the consequences of IS project management mentoring. The third subsection discusses the occurrence of learning and six key characteristics of learning supported by the adoption of mentoring practice. Each of these subsections provides answers to the last three research questions. The fourth subsection presents discussion and explanation towards the establishment of a theory of IS project management mentoring. Lastly, Section 6.5 presents a chapter summary.

6.2 A Compendium - the Research Questions and Approach

The fundamental objective of this study is to examine the extent to which adoption of mentoring is present in the support of IS project managers across the IS project management process. In line with the research objectives outlined in Section 1.4, five interrelated research questions were formulated:

1. What are the perceptions of IS project managers towards the adoption of mentoring practice?
2. Why are mentoring practices being adopted by IS project managers?
3. What aspects of IS project management process have been learned through the mentoring practice?
4. How is learning characterized by IS project managers in the adoption of mentoring practice?
5. What contributions towards IS project success are perceived by IS project managers in the adoption of mentoring practice?

To address and provide answers to these questions, a descriptive model of project management mentoring was developed. The model is grounded in the mentoring and IS project management literature described in Chapter 2 and presupposed the positive nature and consequences of the mentee/mentor dyad relationship. The well-documented mentoring literature in the disciplines of academia, counselling and medicine served as a basis for the present study.

To achieve robust results, this research study adopted a two-part multiple-method research approach. This approach was able to systematically elicit the meanings of the perceptions and experiences of a sample of IS project managers in the adoption of mentoring across the IS project management process. Phase 1 of the research utilized an exploratory survey approach to assess the landscape of project management mentoring practice across the IS project management process. This not only served as an update on the state of practice, but also provided essential contextual information for the second part of the study. Phase 2 of the research utilized the inquiry by narrative interview approach for the collection and collating of

narratives from practising IS project managers. McCracken's (1988) long-interview technique was used to capture the required narratives. The framework of the interview narratives data analysis followed the recommendations of Miles and Huberman (1994). Comprehensive research protocols related to both the survey and interview components were developed (described in Chapter 3).

To facilitate the respective research processes, this study is cognizant of the need for the robust implementation and proper conduct of the study in the following rigorous standard of research conduct. At all times the researcher observed and complied with official guidelines in relation to the research instruments, data gathering techniques and analysis used in this study. The next section discusses the landscape of IS project management mentoring as perceived by practising IS project managers.

6.3 Landscape of Mentoring Practice in IS Projects

This assessment of the landscape of mentoring practice adoption across the IS project management process covers two areas of the discussion: the 'whats' and 'whys' of mentoring adoption as perceived by IS project managers. Broadly, the 'whats' relate to the general attitude/outlook of the survey participants towards mentoring adoption. This includes their attitudes towards mentoring practice, understanding of mentoring and adoption characteristics, perceived obstacles to adoption, and lastly advice of IS project managers to intending adopters. The second area of discussion is the 'whys' of mentoring adoption – the reasons/rationales why IS project managers adopted mentoring, why IS project managers were motivated to adopt mentoring, and lastly the benefits that result from adoption.

Overall, participants had positive attitudes towards the adoption of mentoring practice across the IS project management process; no negative attitudes were recorded but some were neutral. This broadly positive outlook resonates with mentoring adoption across most disciplines such as academia, counselling, management and medicine (Allen et al., 2004; Baugh & Scandura, 1999; Sambunjak et al., 2006; Tashakkori et al., 2005). Such an unambiguous positive outlook could

be due to several reasons. The results of this study indicated that the IS project managers were generally knowledgeable about mentoring, well aware of the benefits accrued to mentoring, and also well read in areas related to mentoring. In addition, the sources of mentoring knowledge cited by IS project managers reflected a sense of personal interest; the most cited sources for mentoring knowledge were their own personal experiences, reading and exploring, and observations and discussions with peers. This was consistent with O'Neil and Gomez's (2009) observation that a successful mentoring relationship generally is supported by a good knowledge of mentoring.

The overall positive perception of IS project managers towards the adoption of mentoring indicates that it is an effective method of developing one's potential. In addition, mentoring was considered best carried out in a spontaneous manner. This finding is consistent with the broad assertion of numerous studies that have found that mentoring is an appropriate and efficacious mechanism for the betterment of the mentee (Chao et al., 1992; K. E. Kram, 1985; Taylor & Woelfer, 2009). The development of soft skills was indicated as a key outcome of mentoring adoption across the IS project management process. This result supports the importance of soft skills to project management practice identified by El-Sabaa (2001) and Pant and Baroudi (2008). Furthermore, the learning of soft skills can be efficaciously achieved through mentoring (Clutterbuck, 1992).

Two of the key characteristics of mentoring adoption perceived by the participants were trusted and confidential relationships established on an informal and as-required basis; and being able to learn from more experienced individuals. These characteristics resonated with the many definitions of the mentoring relationship (R. Atkinson, Crawford, & Ward, 2006; Crabwell-Ward et al., 2004; Drotar, 2003; Nicholls, 2002). With regard to the occurrences of learning, participants perceived the learning-to-do, learning-to-be and learning-to-see approaches as being effective. This seems consistent with the three models of mentoring discussed in Chapter 2: the apprenticeship, competence and reflective models (Diaz-Maggioli, 2004; Kerry & Mayes, 1995; Maynard & Furlong, 1993). In short, these main characteristics cogently reflect the definition of the mentoring relationship in

Mumford (2002); it is 'a protected relationship in which experimentation, exchange and learning can occur and skills, knowledge and insight can be developed'.

With respect to other characteristics of mentoring adoption across the IS project management process, three of the most noteworthy are now considered. First, the mentoring relationship was found to be non-gender biased. This is consistent with the general indication of workplace mentoring that the mentor and mentee may not necessarily be of the same gender (Collofello, 2002). The second noteworthy characteristic was mentors holding the hands of their mentees received a mixed response from participants. The need for handholding may be dependent on numerous factors such as the mentee's level of experience and nature of the project. Overall, it seems consistent with the suggestion that there is a need to strike a balance (Parsloe & Wray, 2000). Third, and finally, was the characteristic of mentors playing the role of devil's advocate, which also received a mixed response from participants. A devil's-advocate approach seems consistent with the broader concept of encouraging deeper reflection; it facilitates the understanding and development of the IS project manager (K. E. Kram, 1996; B. Smith, 1993).

The main barriers identified to the adoption of mentoring were the non-availability of suitable project mentors and lack of available time within the project schedule. The first of these may be due to the serious brain-drain situation in Malaysia (World Bank, 2011). Time and availability factors are not uncommon barriers in the discipline of medicine (Straus, Chatur, & Taylor, 2009). Other obstacles perceived by IS project managers were: being kept busy with project responsibilities; lack of incentives; being fearful of potential personal conflict; and budgetary considerations. These perceived obstacles are common across the discipline of medicine and in academia (D. Clutterbuck, 2004; Fountain & Arbreton, 1999; E. J. Mullen, 1994; Young & Perrewé, 2000).

The broad positive outlook on mentoring discussed was also evident in the advice participants had for their peers who were intending to adopt mentoring. Such positive recommendations have been noted in medicine and academia (K. E. Kram & Cherniss, 2001; Lankau & Scandura, 2002; Scher, 1996; Williams, 2003).

There now follows a discussion of the 'whys' of mentoring adoption: the rationale, motivation and benefits perceived by IS project managers. When project managers were asked in the survey to state their agreement or disagreement with the reasons as to why mentoring is adopted, overall they indicated a strong awareness of the benefits that accrue from mentoring, such as: learning on the job; refining aspects of soft skills; assistance in project problem-solving; support; encouragement and conferring/consulting. This is consistent with the broad definitions of mentoring in the literature (Carruthers, 1993; Galvez-Hjornevik, 1986; Mumford, 2002) and the functions of mentoring identified by Anderson and Shannon (1995).

The availability of a free and open exchange of knowledge and experience was a reason unanimously agreed with by responding IS project managers; this is the general expectation of mentoring relationships as identified by (Mumford, 2002; Papke-Shields, Beise, & Quan, 2009; T. A. Scandura & Schriesheim, 1994). In addition, mentoring was not generally adopted for reasons of compliance – IS project managers adopted it of their own volition. This resonates with the reasons for mentoring adoption noted by (Bailey & Pearson, 1983; Doll & Torkzadeh, 1988). While monetary and economic considerations were general motivating factors, human capital elements (Snell & Dean Jr, 1992); self-esteem and self-actualization (Maslow, 1946); sense of community (Sarason, 1974); and esprit de corps (McMillan & Chavis, 1986) were also powerful motivations for mentoring adoption for the participants. This is consistent with this study's descriptive model of IS project management mentoring.

Four factors that motivated the adoption of mentoring in IS projects were identified in this study. The first of these is the desire for project success (and improvements in project success rates); this is a major consideration (E. E. Ensher & Murphy, 2006; Scher, 1996). The second factor is the advantage of connectivity to a network of experienced individuals; this provides greater exposure, visibility and protection (Hansman, 2002; J. F. White, 1988), and contributes indirectly to personal and professional development (K. E. Kram, 1985). The third factor is participants' awareness of the benefits that accrue from mentoring adoption. This concurs with the finding of Schulz (1995) that mentoring tends to be more easily adopted when its

benefits are known. Esprit de corps is the fourth motivating factor identified in this study, and this is consistent with the altruistic nature of the mentee/mentor dyad seen in social exchange and communitarian theoretical perspectives (Gibb, 1999). This resonates with Sarason's (1974) description of the psychological sense of community and McMillan and Chavis's (1986) observation of the sense of personal relatedness.

As a result of the above-noted ambience of trust and confidentiality in the mentee/mentor dyad relationship, the creation of a stronger personal network is likely. This would provide a basis for the enhancement of social capital. New knowledge³² may be generated by mentors and the mentees solving project problems in a collaborative effort (Bourdieu, 1986).

This chapter has already noted the participants' high degree of awareness of the benefits that can accrue from mentoring adoption. Kram (1985) and Burke and McKeen (1985; 2002) noted the benefits to career development that come from the establishment of a mentoring relationship. This was amongst the many benefits experienced by IS project managers in this study. Access to a wealth of expertise and experience in an environment that offers active feedback and introspection; and better anticipation of project risks and better resolutions of project problems were cited as the main benefits by participants. These are related to the benefit of capability and skill enhancement, which resonates with the observations of Chao et al. (1992) and Ganser (2010; 1993).

6.4 IS Project Management Mentoring

As the previous section demonstrated, participants had positive attitudes towards the adoption of mentoring practice across the IS project management process. The findings from the analysis of the interviews conducted in Phase 2 of the research revealed a similarly positive outlook. Participants reported that they had learned key aspects of the IS project management process through mentoring, and that mentoring practice adoption had improved project success rates. Overall, the

³² New knowledge may be generated from resolutions to project problems which result from of the input provided by mentors and the effort put in by IS project managers

findings showed that mentoring adoption in IS is not dissimilar to mentoring adoption in academia, counselling, management and medicine.

Mentoring was found to augment the IS project management process as an efficacious supporting tool. Evidence was identified across each of the five PMBOK process groups. However, the analysis in Chapter 5 revealed that mentoring support is very focussed in the Planning process group, followed by Initiating, and Monitoring and Controlling. The Executing and Closing process groups attracted relatively little mentoring support in comparison to the other three. This asymmetric pattern of the need for mentoring support across the IS project management process was expected. The project management plan, a key deliverable of the Planning process group was considered key to project success (by the practising IS project managers). In this regard, active mentoring relationship in the Planning process group is expected. But perhaps more in Executing process group might further reduce overruns.

The next subsections discuss the results of Phase 2 of this study and address research questions 3, 4 and 5, which were presented in Section 6.2.

6.4.1 Aspects of IS Project Management Process Learned

Mentoring can be seen as a process in which more experienced individuals assist less experienced individuals in a supportive relationship (K. E. Kram, 1985). Mentoring enhances the transformation of tacit knowledge into knowledge that is explicit and definite (Nicholls, 2002). Learning on the part of IS project managers is experience-based in mentoring relationships and mentoring is a platform that facilitates up-skilling (D. A. Kolb et al., 1999). The results of this research were consistent with these studies and mentoring adoption across the IS project management process was shown to bring about learning in IS project managers.

In a broad sense, findings of this study show that the need for mentoring support appears asymmetrically spread over the five process groups. Mentoring support was most conspicuous in the Planning process group – the participants felt that support was most crucial at this stage, and decreased in significance in the order of the Initiating, Monitoring and Controlling, Executing and Closing process groups.

Generally, mentoring support was triggered by the need of IS project managers to resolve project problems or issues across the project management process. Assistance provided by project mentors is generally in the form of advice and guidance which stems from their prior experiences. The nature of the assistance provided was generally on the IS project managers' terms, i.e. it was not dictated by project mentors. Mentors were there to respond to participants' requests for advice and support. In this context, this study revealed that mentoring adoption provided IS project managers with support in four main aspects of the IS project management process; participants felt they learned from their mentors in the areas of soft-skill development, strategic overviews and pathways, key deliverables, and other project management processes. Table 6.1 shows the spread of these four key aspects across the five process groups.

		Project Management Process Groups				
		Initiating	Planning	Executing	Monitoring and Control	Closing
Aspects of Project Management Process Learned	Soft skills development	<ul style="list-style-type: none"> Relationship Building Managing Expectation 	<ul style="list-style-type: none"> Communications 		<ul style="list-style-type: none"> Communication 	<ul style="list-style-type: none"> Managing Expectations
	Strategic Pathways	<ul style="list-style-type: none"> Project Strategic Direction 	<ul style="list-style-type: none"> 'Big Picture' of the Plan* 			<ul style="list-style-type: none"> Forward Planning
	Improvement to key management aspects		<ul style="list-style-type: none"> Project Scope, Schedule, Staffing and Costing* 	<ul style="list-style-type: none"> Profiling of Project Team Members Quality Assurance Procurement Project Situation Handling on as required basis 	<ul style="list-style-type: none"> Cost control 	<ul style="list-style-type: none"> Handling Urgent Project Situations
	Key deliverables production	<ul style="list-style-type: none"> Development of Project Charter 	<ul style="list-style-type: none"> Development of Project Management Plan Development of Risk Management Plan 			

* Part of the 'Development of Project Management Plan' deliverable production

Table 6.1 Aspects of Project Management Process Learned Across the Project Groups

Soft skills development evident in this study was mainly in the area of communication with key stakeholders such as project owners and project team members. The empirical evidence revealed that interactions with key stakeholders are frequent and at times intense. Findings showed that communication primarily involves negotiations, buy-ins, relationship building and managing expectations. Development of soft skills was thought by IS project managers to be less significant in the Executing process group than the others. Overall, soft-skill development was found to be important to IS project managers because it can improve project success rates.

The findings of this study were consistent with the assertion that the competencies required of IS project managers are generally those that are people-centric (J. Rose et al., 2007). Soft skills have been shown to have a dominant influence on project management practices (El-Sabaa, 2001; Pant & Baroudi, 2008) and are sometimes likened to survival skills (Brewer, 2005). Key stakeholders need to be dealt with objectively and amicably over the course of the project, and soft skills are a key factor in project success (Stevenson & Starkweather, 2009).

Strategic overviews and pathways mainly involved mentors showing IS project managers the way; high-level directions and assistance are provided towards the accomplishment of key project management processes. The findings of this study showed that IS project managers were provided with strategic directions needed for the project charter; a 'big picture' view of the project management plan, and forward planning in the anticipation of likely closure issues by their mentors. This is consistent with the definition of mentoring that sees mentees as being nurtured (Anderson, 1987) through a scaffolding process (Diaz-Maggioli, 2004). It is also consistent with the mentoring function model of Anderson and Shannon (1995).

Mentoring practice adoption provides a supporting platform to IS project managers in the production of key deliverables and the conduct of key project management processes. The findings of this study identified three key deliverables: the project charter, the project management plan, and the project risk management plan, which reinforces the importance and centrality of these deliverables in PMBOK (2004). These deliverables are widely linked to IS project success (De Bakker, Boonstra, &

Wortmann, 2010; Dvir, Raz, & Shenhar, 2003; Ruuska & Teigland, 2009). The project charter authorizes project kick-off while the project management plan sets out the clear strategic directions and tactical actions of the project; it is considered the blueprint of the project (PMI, 2004). Development of the project management plan involves the areas of project scope, schedule, staffing, project risk, and quality. Once in place, the project management plan enables the production of subsidiary project management plans such as the risk management plan. Corresponding to the various subsidiary project management plans are the related key project management processes. The results of this study showed that mentoring practice adoption provides support to the conduct of these project management processes. Other key project management processes that were supported by mentoring adoption in this study were related to the project procurement, human resources, quality, and cost management knowledge areas. The expertise, knowledge and judgement of mentors who were more experienced individuals contributed to better deliverable achievement and this is consistent with the guidelines of PMBOK (PMI, 2004). The findings of this study revealed that with mentoring support, IS project managers were assisted in the handling of project situations generally on an as-required basis. This is consistent with the essence of Anderson and Shannon's (1995) mentoring model: providing support and feedback.

6.4.2 Consequences of IS Project Management Mentoring

Participants identified the overall consequence of the support provided through mentoring practice adoption across the IS project management process as improved IS project success rates. The analysis of the findings showed that this can be broken down into five key areas (Table 6.2 lists each). This is congruent with the descriptive model of IS project management mentoring described in Section 2.6 and resonates with the positive outcome of mentoring practice adoption identified in the extant literature, i.e. mentoring facilitates the translation of competencies, capabilities and capacities from more experienced individuals to those with less experience (Blandford, 2000; K. E. Kram, 1985).

1	Availability of advice and support*
2	Enhancement of cognitive problem-solving skills
3	Improvement of their interaction skills
4	Creation of a knowledgebase of lessons learnt
5	Avoidance of project overrun

* Passive

Table 6.2 Consequences to Mentoring Adoption (in the context of project success improvement)

As discussed in the previous section, support provided through mentoring practice adoption enables learning of IS project managers. As a result, IS project managers not only learned the finer aspects of the project management process; mentoring practice also facilitated IS project success-rate improvement. This overall finding is consistent with the assertion of Scher (1996) that mentoring enhances project success.

1. Mentoring practice adoption provided the IS project managers in this study with access to mentors who are inherently more experienced than themselves. The awareness and knowledge of project managers is thereby boosted and the availability of advice and support bolsters IS project managers with a sense of confidence. This in turn empowers and sustains IS project managers. This finding appears consistent with the suggestions of G. Rose et al. (2005) and Rombeau et al. (2010) that the availability of mentoring support reassures the mentee that they are not all alone. Such positive reaffirmation provides IS project managers with a sense of increased competence to carry out the required project activities (Bass & Riggio, 2006). Note – this consequential aspect of mentoring practice adoption of the ‘availability of advice and support’ is more

passive in contrast to other four aspects. It is considered inherent to mentoring adoption i.e. by definition of mentoring.

2. The adoption of mentoring practice across the IS project management process was found to enhance IS project managers' cognitive problem-solving skills by way of experience-based learning – the learning is reflective in nature. This finding is consistent with Kolb's theory of experiential learning (D. A. Kolb et al., 1999) i.e. learning by way of reflection on prior experiences augments cognition (Colucciello, 1999; Kuiper & Pesut, 2004). Experience-based learning nurtures the personal growth and development of the mentee. This in turn enhances the effectiveness of problem resolution and decision-making processes. Questioning and self-discovery are characteristics of learning by way of reflection and these contribute to the development of one's management skills.

As noted by Schön (1983) and Mintzberg (2004), the contribution of human cognition towards professional and management competencies development cannot be overstated. In general, cognitive skills are deemed essential in the workplace (Russell, 2006). In the context of project management, cognitive aptitude is considered crucial for project managers because it enhances project success (K. Strang, 2003). Cognitive skills can be both learned and acquired (Assiter, 1994). The process of reflective learning based on prior experiences has the advantage of generating real-world practice-based resolutions instead of relying on textbook-based answers (Berggren & Söderlund, 2008). This can improve the likelihood of knowledge co-production by the mentoring dyad.

3. The third key consequence of mentoring adoption was the improvement of interactive or soft skills which contribute to IS project success. This finding revealed the importance of inter-personal interaction skills on the part of IS project managers and is consistent with the assertion that people-centric interactive skills are key success factors in projects (Kruglianskas & Thamhain, 2002; Stevenson & Starkweather, 2009). This finding also underscores the dominant influence of soft skills on project management practices (Pant & Baroudi, 2008).

Lankau and Scandura (2002) noted that effective communication and attentive listening skills reinforce the building of relationships with project stakeholders. This is crucial because stakeholders need to be dealt with objectively and amicably to bring about desired results. This evidence of improvement (facilitated via mentoring) to inter-personal interaction skills also alludes to the need to overcome soft-skill deficiencies in IS project management. This finding was consistent with the assertion of Kruglianskas and Thamhain (2002) that soft skills are often weak in IS projects; they need to be fine-tuned to improve project success rates.

4. The fourth key consequence of mentoring adoption was the formation of a knowledge base of lessons learnt facilitated by IS project management mentoring that contributed to improvement of IS project success rates. This provides a platform to refine and augment the project management process. The knowledge base of lessons learnt facilitates learning by way of prior experience and this in turn replicates prior success. This finding is consistent with the suggestion of Herbsleb et al. (1997) that mentoring can bring about maturity in processes. Kerzner (2000) noted that repetition of past mistakes can indicate a possible absence of maturity. This implies lessons are not being learnt, which Kleiner and Roth (1998) observed when a learning platform was lacking.

In general, knowledge from lessons learnt brings about effectiveness of learning in projects (Cooke-Davies, 2002). Furthermore, Hannah (1995) suggests that it can bring about the advantage of practice innovation. Bringing new problem-solving ideas into use is characteristic of innovation (Kanter, Listen, & Learn, 1983); it can also be understood as getting things done by shifting to a higher level of effectiveness (J. A. Ward, 1994). Ward (1994) asserts that mentoring can bring about innovation in process and practice.

5. The fifth key consequence of mentoring adoption by IS project managers was the aversion of possible project overrun. Averting project overrun contributes towards IS project success improvements. This finding supports the importance of keeping project risk low and project quality at a high level (PMI, 2004). IS

project success can be impeded significantly by cost and schedule overruns (Reel, 1999). Having realistic project schedule and cost estimation is important. In addition, project management processes related to risk and quality are also crucial in project overrun avoidance (Cohen, 2005; Jiang & Klein, 2000). Generally, the mitigation of project risk is a function of IS project managers' experience level; well-supported IS project managers can be expected to put in place efficacious mitigation or prevention efforts (Ropponen & Lyytinen, 2002).

6.4.3 Occurrence of Learning

A mentoring relationship is an antecedent of learning (Lankau & Scandura, 2002), and learning takes place by input of mentors' prior experiences (Cooke-Davies, 2002; Kleiner & Roth, 1998; Toft, 1992). Ehrich et al. (2001) considered the learning dimension as one of three main support functions of mentoring. In short, mentoring promotes and cultivates learning in the work environment (Brockbank & McGill, 2006; Hansman, 2002). The findings of this research are aligned with these studies and empirical evidence of the occurrence of learning abounded in the interview narratives. Learning is generally triggered by IS project managers' need to overcome project problems or issues by finding solutions. The end goal is successful project completion. The IS project managers (mentees) received assistance from more experienced individuals (mentors). The assistance received normally comes in the form of advice and guidance provided over the period of the mentee/mentor relationship.

Finding solutions to the encountered project problems or issues provided key learning opportunities; it also provided real opportunities for participants to better themselves. This finding was consistent with the descriptive model of IS project management mentoring described in Section 2.6. For example, learning can reveal untapped potential (K. E. Kram & Cherniss, 2001), enhance professional skills and competencies (K. E. Kram, 1983), and add value to career capital (R. Singh et al., 2009). Mentoring support across the IS project management process was likened by participants to a 'mirror of reflection'. In addition, mentoring provided a platform for learning for IS project managers. In other words, the indication is that mentoring

support across the IS project management process is fundamentally premised on learning. That is, learning off more experienced individuals. Mentoring support empowers IS project managers with the advantage of prior knowledge and experience, even to the very experienced IS project managers. The example of Tiger Woods was given: even he has a coach to guide him.

Learning generally involves the elements of observation and listening, as well as action on the part of project managers. Learning through and from experience was looked upon positively. Learning not only contributes towards IS project success but was also perceived to have significant contributions to professional development. Again, this is congruent with the descriptive model of IS project management mentoring and represented a broad positive outcome of the support provided through mentoring practice adoption. As such, this finding resonated with the assertion of McKimm et al. (2007), that learning is central to the mentoring process and is indeed at the heart of the process. The importance of mentoring as a key practice tool for the actualization of learning cannot be overestimated across the IS project management process. Six key learning characteristics that emerged from the empirical evidence of this study are listed in Table 6.3.

1	A discerning attitude
2	An exchange process
3	An accelerated pace of learning - 'double the speed'
4	Leverage on experience
5	Multifaceted learning approach
6	Soft skills-focused learning

Table 6.3 Learning Characteristics in IS Project Management Mentoring

These characteristics are discussed below.

1. A discerning attitude on the part of project managers was observed in the context of in-depth thinking and reflection in the face of project problems or issues. This is the first learning characteristic. This finding supports Nicholls's (2002) contention that critical and systematic reflection on learning characterizes the implementation of mentoring practice. It appears that mentored IS project managers also display a greater amount of discernment. This underscores that reflective learning is a foundation of mentoring practice (Brockbank & McGill, 2006; Brockbank et al., 2002). Learning on the part of mentees takes place in response to the experience of project mentors. This is consistent with Jarvis's (1987) suggestion that learning begins with experience. Both Kolb (1984) and Jarvis (1987) noted that new experiences can result from the action of experimentation, reflection and reasoning, which initiates and promotes the learning process.
2. This leads to the second characteristic of learning, the leveraging of the experience of mentors. Experience is considered crucial for the effective management of IS projects and contributes to improved project success rates. Learning from the experience of mentors is very much practice-based and hands-on in nature. Learning based on shared personal experience was deemed more efficacious than academic/classroom-style learning. This finding was consistent with the assertion that experience scaffolds the learning of IS project managers (Diaz-Maggioli, 2004). In addition, it is also consistent with the view that mentoring acts as bridge-builder (East, 1995) or channel (Swap et al., 2001). That is, project managers can be up-skilled by way of self-reflective learning in a supportive environment through the element of experience.

Experience is considered an important component in knowledge creation (Nonaka, 1994). Petter and Vaishnavi (2008) described the use of prior experiences in this context as the 'reuse of experiences'. The findings of this study indicated that such experience-based scaffolded learning not only stimulates the interest of project managers but also provides the motivation and

encouragement needed for achieving the mandated project objectives (Peer & McClendon, 2002).

3. The third characteristic of learning identified was an accelerated pace of learning with the support of mentoring practice. In a broad sense, participants noted a general reduction in the learning curve and the shortening of project deliverables' time-to-production. This finding was in line with studies in academia and medicine (Bell, 2000; Fabrizio, Tuerk, & Schellhammer, 2003; Kosir, Fuller, Tyburski, Berant, & Yu, 2008; Lynn, Akgün, & Keskin, 2003; Roth, Maruchek, Kemp, & Trimble, 1993).
4. Learning by leveraging the experiences of mentors was revealed to be multifaceted in this study. Learning in this area varies from passive observation to proactive interaction. This variation was dependent on combinations of elements such as the nature of the project situations faced by participants; the mentor/mentee dyad relationship; and the personality and outlook of individual project managers. This was consistent with the observation of Clutterbuck and Lane (2004) that effective mentoring implementations generally depend on the context of the situations and the mentoring dyad. This finding also resonated with Maynard and Furlong (1995) noting that adjustments and refinements of mentoring approaches can and should happen over time. Clutterbuck and Lane (2004) noted individual mentoring relationships can be a complementary synthesis of many mentoring approaches – there are no simple recipes to effective mentoring.

However, five common denominators stood out across this multifaceted learning characteristic. First, the assistance provided in the form of advice and guidance was normally dispensed in broad-solution schemas such as general strategic directions or in skeletal form. Second, the assistance was non-intrusive and third, project managers needed to display willingness to learn with an open attitude. Fourth, mentors were expected to supplement and be just one-step behind the project managers. Fifth, there was an element of discipleship. These findings were consistent with those of the mentoring literature, for example, the

observations of Lechuga (2011) on non-intrusiveness, of Lingam and Gupta (1998) on open-minded and flexible attitudes to learning, and of Cunningham (1999) on discipleship.

5. The fifth learning characteristic was the two-way exchange nature of the learning process. The mentoring relationship can be considered a deliberate act pairing two individuals (Murray & Owen, 1991). The desire to meet personal and professional developmental goals (of the mentee project manager) is a key factor in the realization of an effective mentoring relationship (K. E. Kram, 1985). To echo the assertion of Murray and Owen (1991) and Blandford (2000), the mentoring process facilitates the transfer and translation of experiential knowledgebases of skills, competencies, capabilities and abilities from one of more experience to one of less. As a two way process learning (C. A. Mullen, 2007; E. J. Mullen, 1994), mentoring usually benefits both halves of the mentee/mentor dyad (Nicholls, 2002). The findings of this study reverberated with expressions like 'two-way traffic' and 'two-way learning'. The participating IS project managers considered this two-way process of learning as an exchange process between the dyad. That is, mentoring provided a platform of exchange enabling the fusing of ideas from both sides to produce new knowledge or experience. In this respect, the findings showed that this process was more than just learning. This was consistent with Mullen's (1994) suggestion that mentorship is a two-way exchange of information, and Mumford's (2002) description of the mentoring relationship as partly an exchange, as a collaborative partnership. Brockland and McGill (2006) also described mentoring as an exchange process that promotes learning.
6. Overall, this study found that learning through mentoring support gravitated more towards soft-skill improvement than hard-skill improvement. This was the sixth characteristic of learning identified in this research. This finding was in line with the general observation that the competencies required of project managers were centred not on hard skills such as methods, tools and techniques (J. Rose et al., 2007). People-centric soft skills have been shown to have greater influence on project management practices (El-Sabaa, 2001; Pant & Baroudi,

2008) and to promote IS project success (Stevenson & Starkweather, 2009). The participants were aware of the importance and influence of soft skills, the lack of which can impede IS project success. One often mentioned example was the need for good communications skills, especially in the interchange of information between project managers and key stakeholders.

The IS project managers were very much aware of the need to augment aspects of soft skills and considered mentoring adoption as an ideal platform. Participants described soft skills as essential living skills and as being indispensable. This leads to the suggestion that soft skills are almost a prerequisite for effective IS project management, a suggestion that is consistent with the assertion that it is imperative for IS project managers to have good soft skills (Jalil & Shahid, 2008; Kruglianskas & Thamhain, 2002; Pant & Baroudi, 2008)..

6.4.4 Towards a Theory of IS Project Management Mentoring

IS project management mentoring involves a collaborative effort of the mentoring dyad in the translating of competencies, capabilities and capacities from more experienced mentors to less experienced project managers. The construct of reflective learning underpins IS project management mentoring. It enhances the IS project management process and promotes improvements in project success rates. The experiences and perceptions of the participants with regard to improvement of project success corroborated the espoused objectives of the mentoring phenomenon. As such, these findings provide evidence of the effectiveness of IS project management mentoring practice that not only supports IS project managers with a platform for handling project problems and issues but also endows them with enriched competencies for future projects.

This research studied the phenomenon of IS project management mentoring by examining mentoring practice adoption across the IS project management process in the context of project success improvements. It also focused on problem-solving effectiveness. This study thus provides for the establishment of a theory. This espoused theory of IS project management mentoring is contingent on the foundational theoretical frameworks of IS project management and mentoring. It

include Kolb's theory of experiential learning (D. Kolb, 1984; D. A. Kolb et al., 1999), social exchange theory and communitarian theory (Gibb, 1999), the three models of mentoring (apprenticeship, competence and reflective models) (Maynard & Furlong, 1993), and the mentoring model of Anderson and Shannon (1995). In addition, the theory of IS project management mentoring espoused by this study is informed by the wide and varied extant literature on mentoring practice adoption in the mature disciplines of management, counselling, medicine and academia (Sambunjak et al., 2006; D.A. Schön, 1983; Tashakkori et al., 2005). Figure 6.1 presents an overview of the theory of IS project management mentoring.

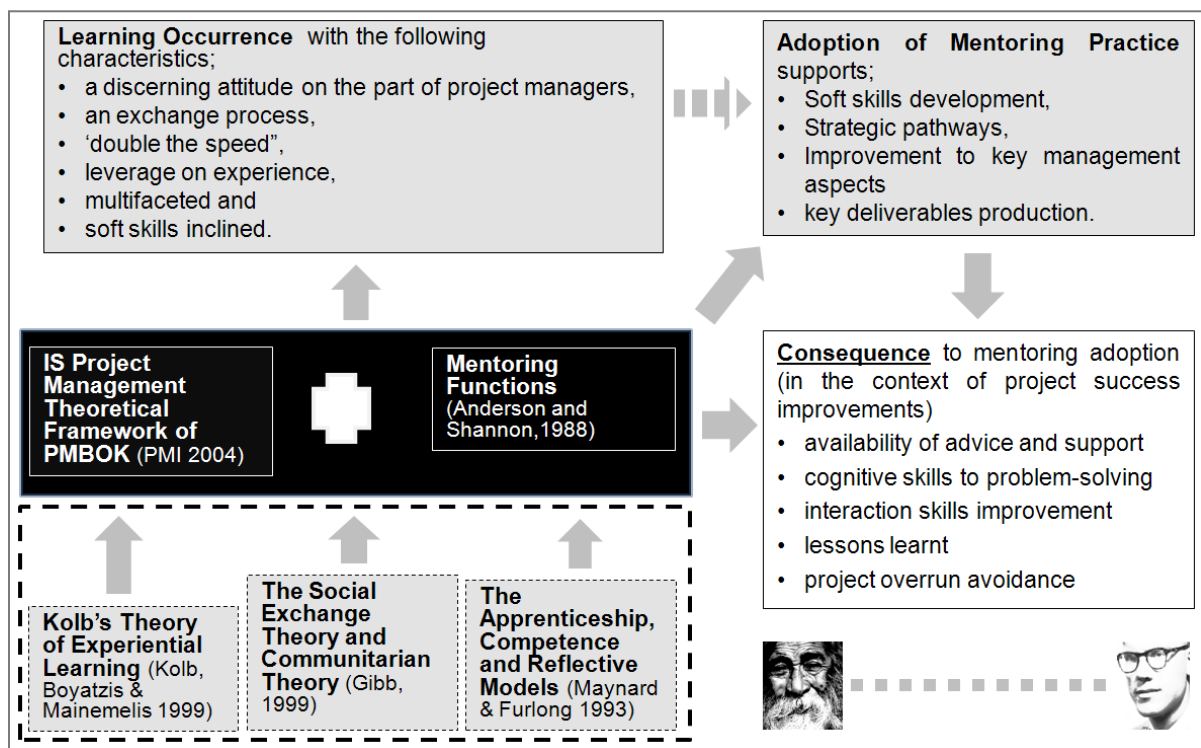


Figure 6.1 Theory of IS Project Management Mentoring

The theory of IS project management mentoring supports the following arguments:

1. Mentoring practice facilitates effective learning for IS project managers and improves project management processes and competencies, with deliverables

production being progressively refined and reinforced. Learning is a constructive by-product of IS project management mentoring.

2. Mentoring practice facilitates the accrual of benefits not only in terms of IS project managers' competencies but also in terms of organizations' capabilities. The benefits enhance both human and social capital profiles.
3. Mentoring practice adoption across the IS project management process promotes and facilitates IS project success improvements.

Central to the above arguments is the assumption of IS project managers having an overall positive attitude towards mentoring and strong personal interest in the mentoring process.

6.5 Summary of the Chapter

IS project management mentoring appears to promote IS project success improvements. Informed by practising IS project managers, the espoused theory of IS project management mentoring of this study fosters the necessary nurturing to the IS project manager and also active reflective learning on the part of the IS project manager – mentoring was considered to be an efficacious platform for learning. In the earlier assessment of mentoring adoption across the IS project management process, the overall practice landscape in Malaysia was positive. It must be noted; however, that two key impediments to the realization of the benefits that can accrue from mentoring practice were a perceived lack of experienced IS project managers and time available during the project.

The next chapter presents the conclusions of this thesis.

CHAPTER 7 CONCLUSION

7.1 Outline of the Chapter

This chapter presents the conclusions of this thesis. In short form, this is as follows: Mentoring practice supports the IS project management process, improves project success rates, and provides IS project managers with an efficacious platform for the achievement of mandated project objectives. Section 7.2 presents this study's updated landscape assessment of mentoring practice adoption across the IS project management process in Malaysia. Section 7.3 presents this research's conclusions regarding IS project management mentoring in the context of IS project success. Section 7.4 then sets out the contributions of this study in the areas of research approach, addressing of the knowledge gap identified from the extant literature, and the theoretical frameworks of both IS project management and mentoring. Next, Section 7.5 presents the study's contributions to practice and policy of IS project management. Section 7.6 makes recommendations for future research and suggests possible directions for that research. In addition, limitations and threats are also covered. Section 7.7 presents the concluding remarks.

7.2 The Context of IS Project Management Mentoring in Malaysia

The adoption of mentoring practice across IS projects was noted in Section 2.4.1, and there appeared to be a relative paucity of empirical IS studies on mentoring practice as a supporting tool in the IS project management process. The survey conducted in the first phase of this study addressed this knowledge gap in part by providing an updated assessment³³ of the landscape of mentoring practice adoption across the IS project management process. Chapter 4 and Section 6.3 respectively presented and discussed the results of this part of the study in detail. The findings

³³ The researcher presented an abridged version of this mentoring adoption landscape assessment at the Asia Pacific Research Conference on Project Management (APRPM) that was held in Melbourne, Australia from February 25–26, 2010. The paper was titled 'Information Systems Project Management Mentoring Practices in MNCs'.

from the interviews narrative collected in the second phase amplified the survey findings of Phase 1.

The two phases of this study involved practising IS project managers who were employees of multinational corporations (MNCs) based in Malaysia. Overall, this updated assessment on the landscape of mentoring practice adoption across the IS project management process provides the context of IS project management mentoring in Malaysia. The following conclusions can be drawn:

1. Mentoring practice adoption across the IS project management process was perceived by the participants as generally positive and rewarding. The mentoring relationship not only provided support through advice and guidance from more experienced individuals but also provided invaluable up-skilling opportunities. Significantly, practising IS project managers appreciated the support and learning received in times of need; they found that what they learned could be put into practice. Additionally, this generally positive attitude towards mentoring may be a result of IS project managers' *au courant* attitude towards mentoring knowledge; the quest for mentoring knowledge appears to have its source in strong personal interest in mentoring.
2. The practising IS project managers in this study were cognizant of the benefits that can accrue from mentoring practice adoption. The benefits of capabilities and skills enhancement for professional development were clear. The participants identified access to the wealth of expertise and experience of mentors and knowledge gain as amongst the top benefits. The generally positive attitude towards mentoring and the knowledge of benefits that accrue from mentoring practice adoption meant that the participants generally recommended mentoring to intending adopters without hesitation.
3. The key motivation to adopt mentoring across the IS project management process was the drive for project success. The advantages of connecting to a network of experienced individuals and the awareness of the benefits emanating from mentoring relationships were two other motivating factors. In addition, a sense of *esprit de corps* – which can deepen a relationship – also drives practising IS project managers towards mentoring practice adoption. Better and

improved career development seems to be the underlining consideration of these motivations. The practising IS project managers identified the advantages of learning on the job, refinement of soft skills, project problem-solving, support, encouragement, and conferring/consulting.

4. Mentoring practice adoption was more expedient and forthcoming in an informal relationship environment, which is characterized and sustained by active feedback, introspection and reflection. Informality is considered fundamental to the mentoring relationship (D. T. Hall, 1996). The relationship mentoring dyad relationship was perceived by IS project managers as one of trust and confidentiality where free and open exchange can occur. The connectedness of the mentoring dyad enhances and in turn increases the ability and inclination to learn (Merriam & Heuer, 1996). Evidence of innovations and enhancements of project management skills that improve IS project success rates can be expected.
5. Impediments to mentoring practice adoption identified by participants were the non-availability of suitable project managers as mentors and lack of time over the duration of a project. These impediments can prevent full realization of the benefits of mentoring adoption, which can in turn devalue efforts and compromise project success. Further to this, such impediments may diminish the state of expectation of IS project managers due to the generally high level of positive awareness.

7.3 IS Project Management Mentoring

As an extension to the mentoring practice adoption landscape survey, interviews were conducted to examine the nature and extent of the adoption of mentoring practice across the IS project management process in Phase 2 of this research. The interview narratives of practising IS project managers represented their respective lived-through experiences of mentoring across the IS project management process – from project initiation to closure. These narratives, which contain participants' viewpoints, thoughts and intentions, were descriptions of organized actions that included elements such as event, rationale and time (Sarbin, 1986). To provide

better insights into this phenomenon, the gathered narratives were guided by the PMBOK structure of IS project management. Phase 2 was also guided by McCracken's (1988) long-interview technique which allowed participants' experiences and perceptions to be elicited in an unbounded manner.

Chapter 5 and Section 6.4 respectively presented and discussed the results of the second phase of the study in detail. The survey results from Phase 1 provided context for the results of Phase 2 by supplying perspective, reinforcement and augmentation. In addition, the results of Phase 2 provided confirmation of the evidence for mentoring practice adoption in IS projects identified in Phase 1 and, to a lesser extent, corroborated prior anecdotal evidence.

Explanations of the findings of Phase 2 of this study were made using the theoretical composite lens of the descriptive model of IS project management mentoring described in Chapter 2. The following conclusions can be drawn:

1. IS project management mentoring promoted IS project success by enhancing the cognitive problem-solving and interaction skills of the participants. In addition, ongoing relationships with more experienced project mentors provided practising IS project managers (the mentees) with a knowledgebase of lessons learnt. Further to this, the mentoring relationship was seen as providing a learning platform – the IS project managers knew they could seek assistance that was trustworthy and confidential should the need arise. This can result in a general boost of confidence, capabilities and capacities. Participants were not generally intimidated by their own lack of experience, as they knew that they were not alone. Advice and guidance received by IS project managers provided important feedback on problems that might impede project deliverables and in areas such as scheduling, costing, resources, and averting project overrun.
2. IS project management mentoring helps nurture IS project managers. They receive support in the solving of problems faced during the course of a project. At the same time, development of project management competencies by way of reflective learning takes place. This increases performance effectiveness not only in the current project but also in subsequent projects. The aspects of IS project management learned were soft skills, strategic overviews, production of

key deliverables such as the project charter and project management plan, and the conduct and handling of difficult project situations.

3. Learning is effective under IS project management mentoring, which is an efficacious learning platform. IS project management mentoring challenges IS project managers to resolve project situations by way of critical analysis and in-depth reflection. In this regard, constructive elucidation can help IS project managers. The learning was more focused on soft-skill competencies than hard-skill competencies. Learning involved the leveraging of the experiences and knowledge of mentors by mentees and was multifaceted in nature. Mentoring also enables learning to take place at an accelerated pace.
4. IS project management mentoring fosters human capital and enriches social capital. IS project managers' careers were positively influenced as mentoring advances and matures competencies. Social capital enhancement can instil a greater sense of belonging and camaraderie. Together with increased human capital, Nahapiet and Ghohal (1998) argued that organizational advantage is possible; organizational capabilities are increased by virtue of shared knowledge.

Notwithstanding the multi-disciplinary nature of the adopted PMBOK's (2004) project management framework, the findings of this study underscored the specificity to IS in the espoused theory of IS project management mentoring. The grid on the 'Aspects of Project Management Process Learned' across the 'Project Management Process Groups' highlighted in Table 6.1 provides clear evidence to this effect. Aspect of interactions / communications with key project stakeholders is an example. The study of Tukul and Rom (1998) titled 'Analysis of the Characteristics of Projects in Diverse Industries' noted that this aspect is more characteristic to IS as compared to other disciplines (such as construction) – where 'client consultation' as a critical success factor is considered more distinct in IS projects. This advocacy of building strong relationships with key stakeholders is also in part due to the inherently complex nature of IS projects along the dimensions of 'organisational / technological and structural / dynamic' (Xia & Lee, 2004). A high degree of project failure is also another characteristic of IS projects (Daniels & LaMarsh, 2007; K. Yeo, 2002). These characteristics are reflected in the bird's eye view of the

mentioned grid. This is corroborated by the need to; establish a well-thought IS project management strategic pathway, improve key project management aspects such as schedule and costing, and lastly but not the least, establish a well-contingent risk management plan.

7.4 Contributions to Literature and Theory

This study has examined mentoring practice adoption across the IS project management process and addressed an apparent gap in the IS project management research literature. In addition, this study has also surveyed the extant literature on both IS project management and mentoring practice in order to improve understanding of the contributions of mentoring practice adoption to project success improvement.

Chapter 2 developed the descriptive model of IS project management mentoring which is supported by theoretical frameworks from the disciplines of IS project management and mentoring. The theoretical frameworks informing this study are PMBOK's IS Project Management Theoretical Framework, Kolb's experiential learning theory, social exchange theory and communitarian theory, the apprenticeship, competence and reflective models of mentoring, and Anderson and Shannon's mentoring model. The descriptive model of IS project management mentoring has proved to be an appropriate theoretical lens for informing the analysis of the study's findings.

The next subsections describe the contributions and theoretical insights that have emerged from this study.

7.4.1 Contributions to the Multiple-Method Research Approach

Chapter 3 discussed the study's two-part multiple-method research approach that is qualitative in nature and was able to provide empirical evidence leading to sound and robust research results. Trauth and Jessup (2000) asserted that different methods of analysis of the same data can bring about more comprehensive results leading to deeper understanding of studied phenomena. In regard to IS studies, Petter and Galliva (2004) and Mingers (2003) noted that a multiple-method research

approach can bring about better understanding by providing richer and more reliable results. The multiple-method research approach as a means of social inquiry has been used for about two decades (Greene, 2008). In spite of this, Mingers' (2003) review study found only a small degree of uptake of the multiple-method research approach within the IS discipline.

This study further corroborates the feasibility and appropriateness of (in this case two-part) multiple-method research in IS studies. It has significantly contributed to the limited body of qualitative research on the understanding of mentoring adoption across the IS project management process by addressing the apparent knowledge gaps described in Section 2.4.1. Compared to a mono-method research approach, Kaplan and Duchon (1988) have noted that a multiple-method research approach provides greater richness in IS studies. In addition, the latter approach is able to compensate for any inherent weaknesses of the methods used (N.K. Denzin, 1978).

7.4.2 Contributions to Knowledge Gap and Extant Literature

Section 2.4.1 described the relative paucity of IS project management mentoring studies. In this regard, little was known about the phenomenon of mentoring practice adoption across the IS project management process. The updated assessment of the landscape of mentoring practice adoption across the IS project management process reported in this thesis was informed by the perceptions of practising IS project managers of MNCs based in Malaysia. Therefore, this study address in part a knowledge gap with regard to the state of practice of mentoring adoption across the IS project management process. This study not only reflects IS project management practices in Malaysia but also to a certain extent those in other countries, due to the fact that the participants were employed by MNCs (see Section 3.5 for more detail). By extension, this study can be said to have enhanced our understanding of the IS project management mentoring phenomenon on a regional scale.

This research has contributed to the extant literature on mentoring practice adoption in the context of project success improvements. IS project management mentoring

provides practising IS project managers with a supportive and nurturing platform. Practising IS project managers benefit from the advice and guidance received from mentors. Additionally, learning opportunities are a significant by-product; they increase project management knowledge. Mentoring enhances the translation of tacit knowledge into knowledge that is more explicit and definite. IS project management mentoring not only facilitates solutions to project problems at hand but also prepares IS project managers for future projects. Evidence of the professional development of the IS project managers in this study was clear and better career development is an underlining consideration that motivates practising IS project managers in the adoption of mentoring. Key motivations identified were ensuring project success, connecting to a network of experienced individuals, profiting from the inherent benefits of mentoring, and enhancing esprit de corp.

The broad characteristics of IS project management mentoring were found to be similar to those seen in the mature disciplines of medicine and academia. There is a general tendency towards an informal mentoring dyad relationship characterized by active feedback, introspection and reflection. In addition, the relationship tends to be one of trust and confidentiality in which exchanges are free and open. As noted, IS project management mentoring boosts the confidence, capabilities and capacities of IS project managers. Any perceived lack of experience on the part of IS project managers does not seem to intimidate their positive attitude and demeanour towards achieving the end goals. Their lack of experience is made up for by the availability of more experienced individuals; through which IS project managers know that they are not alone and project situations can be overcome one way or another.

IS project management mentoring advances the learning of IS project managers over the duration of the project. The process of doing reinforces learning. Aspects of IS project management learned were generally in the areas of soft skills, strategic overviews, production of key deliverables such as the project charter and project management plan, and the conduct and handling of difficult project situations. The learning platform supported by IS project management mentoring is considered

efficacious. In this context, learning not only facilitates knowledge transfer but also IS project managers learn at a more accelerated pace.

IS project management mentoring instils a greater sense of belonging and camaraderie. This attitude of esprit de corps can bring about an increased of social capital that may be accrued through the sharing knowledge³⁴.

7.4.3 Contributions to IS Project Management Theoretical Framework

Section 2.3 presented suggestions for a general rethink of project management. For example, Pollack (2007) noted the changing paradigms of project management and that an explicit understanding of the theoretical basis of project management is necessary in moving forward. The growing criticism of project management theory was noted in an earlier study conducted by the EPSRC (2006) titled 'Rethinking Project Management'. It highlighted the widening divide between the theory and practice of project management. In the same year Winter et al. (2006) outlined the EPSRC's five recommended areas in the form of a direction framework for the development of project management: project complexity, social process, value creation, project conceptualisation, and practitioner development. A follow-up study by Sauer and Reich (2009) corroborated and validated the EPSRC direction framework for project management in the IS discipline. As a result, a new IS project management mindset emerged, which is framed by nine principles: focus on ultimate value; deep personal identification with project goals; investment in trust; devolved, collective responsibility; willingness to continually adapt; people development; learning orientation; creativity and innovation; and proactive view.

The findings of this study resonate with most of the EPSRC direction framework's nine principles and both corroborate and supplement the new IS project

³⁴ IS project management mentoring may be likened as a bridge and enabler to share the body of knowledge of IS project management. One of the latest concepts of sharing is 'sharism' i.e. – 'The more you give, the more you get. The more you share, the more you are shared. Sharism is an ideology for our Internet Age. It is a philosophy piped through the human and technological networks of Free and Open Source software. It is the motivation behind every piece of User-Generated Content. It is the pledge of Creative Commons, to share, remix and give credit to the latest and greatest of our cultural creations. Sharism is also a mental practice that anyone can try, a daily act that beckons a future of increased social intelligence' (www.sharism.org)

management mindset. IS project management mentoring focuses on the ultimate value of IS project managers as evidenced by the underlining consideration of career development and the motivation of IS project success. In turn, this reflects a deep and serious personal effort on the part of practising IS project managers towards achieving the mandated objectives of IS projects. Moreover, IS project management mentoring demonstrates the importance of maintaining a relationship that embodies the elements of trust and confidentiality. The reflective nature of learning in the mentoring process improves cognitive skills in the area of problem solving and can promote innovation and creativity. Towards this end, this study contributes to the ongoing discourse of the new IS project management mindset and can provide greater understanding of its theoretical basis.

The theory of IS project management mentoring developed in this study can further contribute to the understanding of IS project management in the context of promoting IS project success improvement. Towards this end, augmentation of IS project management theoretical frameworks such as PMBOK (PMI, 2004) with the proposed theory of IS project management mentoring will provide increased understanding in the area. This contribution can direct IS project management theoretical frameworks further towards a practice-driven orientation; the theory/practice gap identified in EPSRC (2006) can be reduced. This contribution is significant for two main reasons: 1) the high failure rate of IS projects (Dorsey, 2000; G. Klein & Jiang, 2001; Tiwana et al., 2006); and 2) IS project management is generally considered an undermined area (Reif & Mitri, 2005).

7.4.4 Contributions to Mentoring Theoretical Frameworks

The findings of this study corroborate the guiding principles of mentoring in IS project management. Core underlining elements of mentoring such as reflective learning, esprit de corps and positive outcomes were identified. In particular, this study has reaffirmed the universality of mentoring theoretical frameworks; the adoption of mentoring was found to be pervasive among the participants considered and an important part of the discipline of IS project management. The findings of this study have to a small extent contributed by reaffirming the broadness and

application of mentoring. This study's theory of IS project management mentoring supported by the descriptive model (see Section 2.6) and informed by empirical evidence (see Sections 6.3 and 6.4) can assist in refining mentoring theoretical frameworks particularly in relation to IS projects. Furthermore, the findings of this study were very much in line with the distinctive features of the mentoring relationship observed by both Johnson (2006) and Ehrich, Hansford and Tennent (2001).

7.5 Contributions to IS Project Management Practice and Policy

IS project success is generally the focus of most if not all IS investment in businesses. Better understanding of the parameters and attributes surrounding mentoring practice adoption will better prepare IS project managers to face the plethora of project-related challenges. IS project management is generally practice-centric; it is about getting things done (R. M. Wideman, 1995). The fundamental principle is concerned with the optimal use of knowledge, skills, methods, techniques and resources towards achieving project success. In brief, the way things are accomplished is central. In the numerous IS project management knowledge repositories the element of expert advice and judgement is often highlighted – *A Guide to the Project Management Body of Knowledge (PMBOK Guide)* (PMI, 2004) is one example. Most significantly, the results of this study provide IS project management practitioners with a more refined perspective and understanding, in particular regarding the aspects of the IS project management process that are supported and learned through the adoption of mentoring. This study revealed the efficacy of mentoring adoption in the following areas: 1) soft-skill development; 2) strategic overviews and development of key deliverables such as the project charter, the project management and risk management plans; and 3) improvement of key project processes that are related to scheduling, staffing and costing.

As noted in Section 7.2, impediments to mentoring practice adoption were the non-availability of suitable project managers as mentors and lack of time over the duration of a project. These impediments can prevent full realization of the benefits

of mentoring adoption, which can in turn devalue efforts and compromise project success. The findings of this study can act as early warning signals to both project management practitioners and their organizations. To capitalize on the advantages of mentoring practice adoption, proactive initiatives and policies should be put in place to address these impediments. As a starting point, organizational policies should be instituted to encourage IS project managers to be mentored by peers, which would build up competencies over the course of time.

The identified contributions to IS project success of mentoring adoption can be used by intending adopters as guidelines for IS project management mentoring. In the same way, the identified learning characteristics of this study can also serve as guidelines. Overall, the empirical evidence of this study should facilitate the realization of the benefits of mentoring adoption as part of human capital investment.

It has been established that not all IS project managers have the necessary experience to manage projects well (S. Petter & Vaishnavi, 2008). Hoffman (2003) identified a lack of IS project management skills in most organizations and this lack is considered a strong contributor to IS project failure (Du et al., 2004; Viskovic et al., 2008). The findings of this study can contribute towards the strengthening of IS project management competencies in practice by advocating the purposeful adoption of IS project management mentoring. Similarly, organizations can encourage adoption of mentoring in IS projects through policies.

Finally, institutionalization of the role of IS project mentor in IS projects should be considered in business organizations. Affirmed by the findings of this study, the contribution of IS project management mentoring towards project success improvements indicates the significance of project mentors.

7.6 Limitations and Future Research

The conclusions outlined in this study suggest future research opportunities in IS project management mentoring vis-à-vis IS project success rates and the up-skilling of IS project managers. Future research could be conducted in the areas of cognitive skills enhancement for problem-solving, personal interaction skills

improvement, and knowledge base of lessons learnt. A longitudinal study of the perspectives of project owners and project mentors in each of the areas identified above may also be useful. Given the increasing dependence of businesses on IS (Carugati & Rossignoli, 2011; Halpin et al., 2010) and the need to implement business information solutions effectively and successfully, these areas are significant. Further empirical research in these areas not only can contribute meaningfully towards IS project success but also help to corroborate that IS project management mentoring is an effective platform for the up-skilling and learning of novice IS project managers. This can further accelerate the transformation of tacit knowledge of IS project management into more explicit and definite knowledge (Nicholls, 2002).

The principal focus of this study was IS project managers' experience in mentoring practice adoption as mentees; mentoring has been examined from their perspective. Future research should also focus on the perspective of the other half of the dyad, the project mentors. Possible learning on the part of project mentors was alluded to in this study; Kram and Hall (1996) suggested that mentors can be co-learners. Results of such studies would not only corroborate the perceptions of IS project managers but also lay a firmer foundation for the establishment of a viable platform for mutual learning. Such studies could provide a better understanding as to why there is an apparent lack of experienced IS project managers playing the role of project mentor. Future research studies could also examine the rationales and motivations of experienced IS project managers taking (and not taking) on the role of project mentors. This would not only provide insights into this lack but also provide a possible pathway of up-skilling junior project managers.

The results of this study reveal the occurrence of learning to practising IS project managers. This appears consistent with Lankau and Scandura's (2002) finding that mentoring is an antecedent to learning. Future research work in IS project management mentoring could be targeted at personal learning and competencies development on the part of IS project managers. Such studies could impact positively on the human capital development of IS project managers because good

project management practice has been suggested as a key IS project success factor (Viskovic et al., 2008).

The results of this study indicate that mentoring practice support is spread out unevenly over the five PMBOK process groups. Project management activities within the Planning process group were more conspicuously associated with mentoring support compared to the project management activities in the other process groups. Longitudinal case studies of IS project management mentoring would provide greater insight in this area. Such studies should consider IS project management mentoring as a multi-dimensional process with respect to the nine knowledge management areas within the Planning process group; the dynamics of interactions between IS project managers, mentors and key project stakeholders could also be considered.

The participants of this study reported a spirit of *quid pro quo* and the reciprocal nature of the mentoring relationship in academia was noted by Paris (2010). This situation comes about when the two professionals in a mentoring dyad agree to offer one another something of value and represents something of a deviation from the traditional practice of mentoring. To further the understanding of such an exchange between two professional IS project managers in the mentoring dyad, longitudinal studies could be conducted to advance mentoring scholarship. Further research would not only enable greater clarity and understanding but also potentially improve project success rates even more. Future studies may also position IS project management mentoring well beyond traditional approaches to mentoring adoption. In addition, another foreseeable research stream could study the incentives and inducements offered to experienced project managers to play the role of project mentors.

One minor inference from this study is that mentoring seems to work better when IS project managers are not being 'forced upon' into a mentor-mentee relationship. Voluntary adoption is generally considered a key requirement towards a successful outcome; where it may be a scheme that is facilitated or otherwise. Facilitated mentoring schemes that are voluntary have been regarded to be more successful

(Egan & Song, 2008; Viney & McKimm, 2010). Future studies could explore mentoring adoption schemes that are voluntary and yet are somewhat mandated / guided (either partial or full) by factors such as; predetermined internal organisational policies, prearranged training to the mentoring dyad, purposeful goal setting and mentor-mentee link-up by the management. In addition, these studies could also explore possible impacts and outcomes to variations / degrees of facilitation.

IS project management mentoring is very much a process. Essential mentoring attributes affirmed in this study include; nurturing, supportive, reflective, teaching and learning. Mentoring adoption across the IS project management process is fundamentally practice-based and its primary objective can be said to be that of process improvement. Towards this end, conceptualization of IS project management mentoring as a professional practice towards better project outcome can benefit both the IS project management practitioners and business owners. Further practice-based studies could be explored. They may include studies along the line of; 'What is needed to be put in place to make mentoring work?', 'How does project mentee prepares oneself to maximise inherent benefits of having a mentor?' and 'How does the project mentor learn to be a good mentor?'

Virtual IS project team – a team of geographically distributed project team members working together, is increasingly more prevalent (Prikladnicki, Audy, & Shull, 2010). Generally, the intent is to leverage on availability of skilled resources at source. In part, the motivation is cost reduction; where it can be achieved by taking advantage of lower charge-out rates and possible absence of relocation cost. Virtual IS project management mentoring may have its place but it was not significantly dealt with in this study. Virtual mentoring (sometimes also known as e-mentoring) facilitates learning. In this respect, Thompson, Jeffries and Topping (2010) noted that effective virtual mentoring should involve elements of; 'systematic induction, mapping all support channels, needs assessment, differentiation and blended forms of communication'. Further studies could explore correlation of these elements of virtual mentoring across the process of IS project management towards an outcome

that is successful and effective. In addition, considerations on impacts of virtual mentoring on organisations could also be included.

This study did not address factors related to gender and gender differences that could influence the results. On a broad basis, the mentoring adoption survey of this study seems to indicate a low gender preference by the participating IS project managers. Gender and gender differences of the mentoring dyad are known to influence the expected outcome of a mentoring relationship (Ragins & Scandura, 1994). To further understand the issues of gender, gender differences and gender preferences of the mentoring dyad, further studies could be conducted in these areas.

Finally, future research could be conducted in the area of employee retention in businesses. Heerkens (2001) and APM (2011) noted that experienced and competent IS project managers are generally in high demand; they are crucial to project success. The results of this study indicate the existence of an attitude of esprit de corps in the mentoring dyad in mentoring practice adoption. This could be harnessed towards improving retention of IS project managers (Miller & Le Breton-Miller, 2005; Schulz, 1995); teamwork could be then be built up and creativity enhanced.

Overall, this study has provided a solid foundation for future research work in the area of IS project management mentoring. Accordingly, IS project management mentoring research should continue to be productive and profitable not only in terms of IS project management theory but also in terms of IS project management in practice. Greater realization of human capital (Getha-Taylor and Brudney 2006) endows and purposefully empowers IS project managers with better experience and competencies towards improved IS project success rates.

7.7 Summary of the Chapter and Concluding Remarks

By bridging the knowledge gap relating to IS project management mentoring, this study has made a unique and significant contribution to IS project management practice. While it is true that improvements in project success rates can to a great extent be purposefully engineered, the findings of this study have clarified the

impediments preventing the full realization of the benefits that can accrue from the adoption of mentoring in IS projects.

APPENDIX 1: AUTC Ethics Approval



MEMORANDUM

Auckland University of Technology Ethics Committee (AUTC)

To: Felix Tan
From: **Madeline Banda** Executive Secretary, AUTC
Date: 11 June 2009
Subject: Ethics Application Number 09/116 **Mentoring as a successful practice tool for Information Systems Project Management.**

Dear Felix

Thank you for providing written evidence as requested. I am pleased to advise that it satisfies the points raised by a subcommittee of the Auckland University of Technology Ethics Committee (AUTC) at their meeting on 21 May 2009 and that I have approved your ethics application. This delegated approval is made in accordance with section 5.3.2.3 of AUTC's *Applying for Ethics Approval: Guidelines and Procedures* and is subject to endorsement at AUTC's meeting on 13 July 2009.

Your ethics application is approved for a period of three years until 11 June 2012.

I advise that as part of the ethics approval process, you are required to submit the following to AUTC:

- A brief annual progress report using form EA2, which is available online through <http://www.aut.ac.nz/about/ethics>. When necessary this form may also be used to request an extension of the approval at least one month prior to its expiry on 11 June 2012;
- A brief report on the status of the project using form EA3, which is available online through <http://www.aut.ac.nz/about/ethics>. This report is to be submitted either when the approval expires on 11 June 2012 or on completion of the project, whichever comes sooner;

It is a condition of approval that AUTC is notified of any adverse events or if the research does not commence. AUTC approval needs to be sought for any alteration to the research, including any alteration of or addition to any documents that are provided to participants. You are reminded that, as applicant, you are responsible for ensuring that research undertaken under this approval occurs within the parameters outlined in the approved application.

Please note that AUTC grants ethical approval only. If you require management approval from an institution or organisation for your research, then you will need to make the arrangements necessary to obtain this. Also, if your research is undertaken within a jurisdiction outside New Zealand, you will need to make the arrangements necessary to meet the legal and ethical requirements that apply within that jurisdiction.

When communicating with us about this application, we ask that you use the application number and study title to enable us to provide you with prompt service. Should you have any further enquiries regarding this matter, you are welcome to contact Charles Grinter, Ethics Coordinator, by email at charles.grinter@aut.ac.nz or by telephone on 921 9999 at extension 8860.

On behalf of the AUTC and myself, I wish you success with your research and look forward to reading about it in your reports.

Yours sincerely

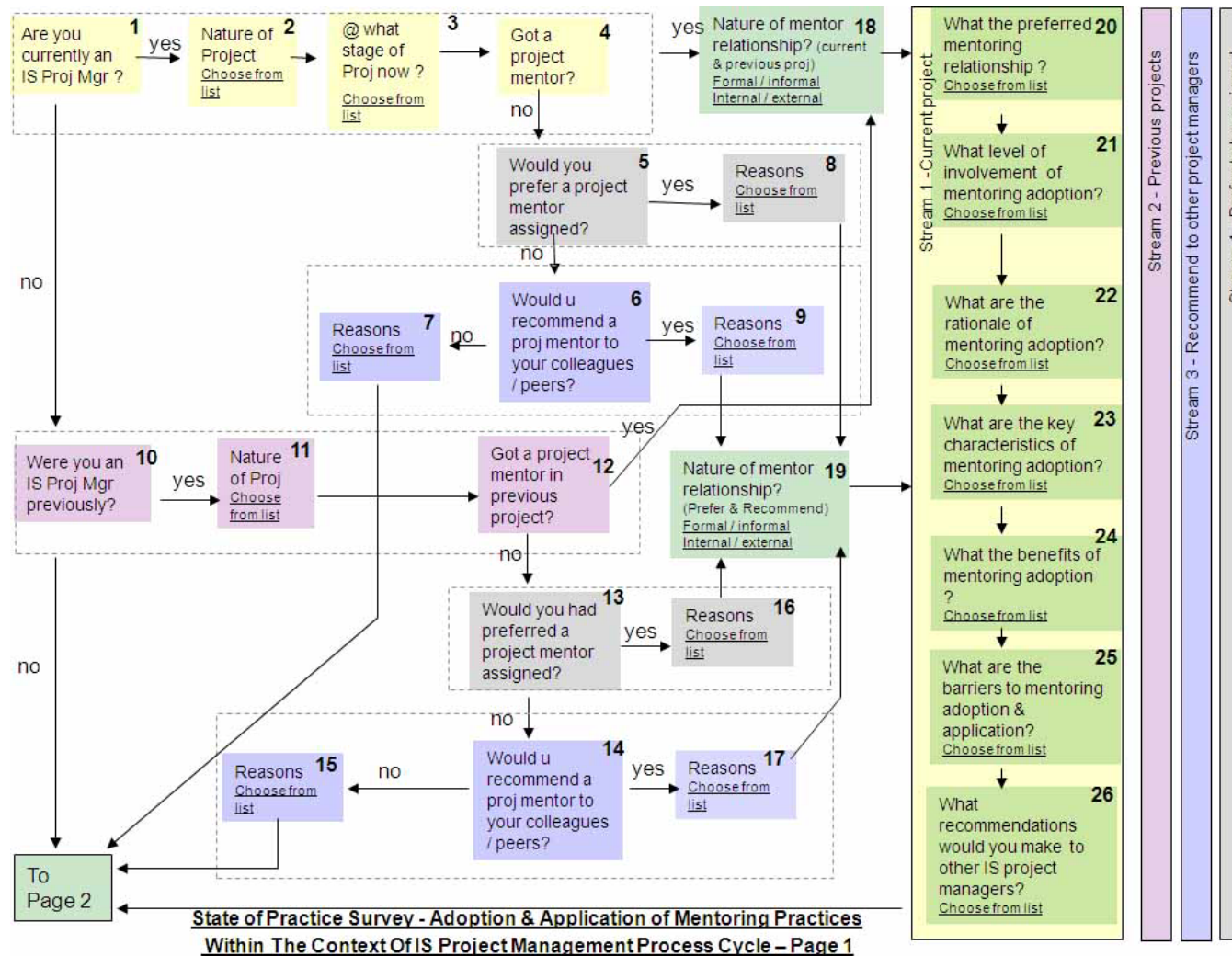
Madeline Banda
Executive Secretary
Auckland University of Technology Ethics Committee

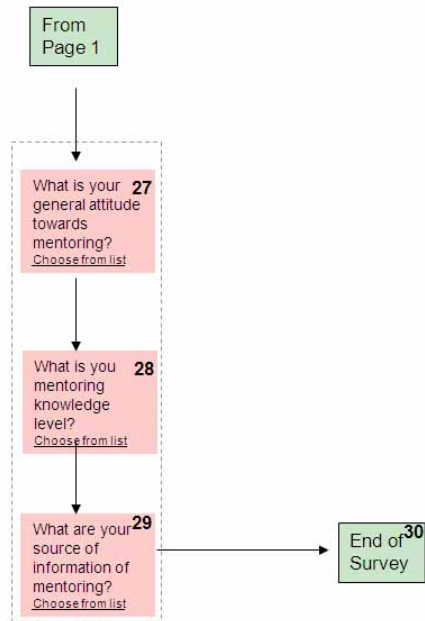
Cc: Paul Leong pleong@aut.ac.nz, AUTC Faculty Representative, Business and Law

APPENDIX 2: Information of Participants' Survey and Interview Dates

	Participant Code	Gender		Date of Survey	Date of Interview
1	PM-01-21	Male	IT Implementation Service Provider	Jun/30/09	Jan/28/10
2	PM-02-06	Male	Computers & IT Supplier	Jun/30/09	Nov/20/09
3	PM-03	Female	Manufacturing & Distribution	Jun/30/09	
4	PM-04	Female	IT Implementation Service Provider	Jun/30/09	
5	PM-05-16	Male	IT Implementation Service Provider	Jul/2/09	Dec/15/09
6	PM-16-11	Female	Manufacturing & Distribution	Jul/2/09	Dec/7/09
7	PM-07	Male	IT Implementation Service Provider	Jul/6/09	
8	PM-08-05	Female	Computers & IT Supplier	Jul/6/09	Nov/6/09
9	PM-09	Male	Computers & IT Supplier	Jul/7/09	
10	PM-10	Male	IT Implementation Service Provider	Jul/7/09	
11	PM-11-02	Male	Computers & IT Supplier	Jul/7/09	Oct/31/09
12	PM-12	Male	International Television	Jul/8/09	
13	PM-13-15	Male	IT Implementation Service Provider	Jul/8/09	Dec/13/09
14	PM-14-08	Male	Computer Security	Jul/8/09	Dec/2/09
15	PM-15	Male	Computers & IT Supplier	Jul/8/09	
16	PM-16	Male	Consulting & Investment Services	Jul/9/09	
17	PM-17-10	Male	Consulting & Investment Services	Jul/9/09	Dec/5/09
18	PM-18-03	Male	International Courier Services	Jul/9/09	Nov/1/09
19	PM-19	Male	Computers & IT Supplier	Jul/9/09	
20	PM-20-14	Female	Engineering	Jul/9/09	Dec/12/09
21	PM-21	Male	Computers & IT Supplier	Jul/9/09	
22	PM-22	Male	Computers & IT Supplier	Jul/9/09	
23	PM-23	Male	Manufacturing & Distribution	Jul/9/09	
24	PM-24-20	Male	Banking & Finance	Jul/10/09	Dec/29/09
25	PM-25-17	Male	Telecommunications	Jul/12/09	Dec/19/09
26	PM-26	Male	Manufacturing & Distribution	Jul/13/09	
27	PM-27	Male	Computer Security	Jul/14/09	
28	PM-28	Male	Engineering	Jul/14/09	
29	PM-29-19	Male	Computers & IT Supplier	Jul/14/09	Dec/24/09
30	PM-30-12	Male	International Television	Jul/14/09	Dec/8/09
31	PM-31	Male	Engineering	Jul/14/09	
32	PM-32-07	Male	IT Implementation Service Provider	Jul/15/09	Nov/27/09
33	PM-33-04	Male	Computers & IT Supplier	Jul/15/09	Nov/2/09
34	PM-34	Male	IT Implementation Service Provider	Jul/15/09	
35	PM-35	Female	Telecommunications	Jul/17/09	
36	PM-36	Female	Telecommunications	Jul/17/09	
37	PM-37	Male	Computers & IT Supplier	Jul/17/09	
38	PM-38-01	Female	Semiconductor	Jul/17/09	Oct/9/09
39	PM-39	Female	Consulting & Investment Services	Jul/17/09	
40	PM-40	Male	Semiconductor	Jul/17/09	
41	PM-41-09	Male	Banking & Finance	Jul/20/09	Dec/3/09
42	PM-42-13	Male	Banking & Finance	Jul/21/09	Dec/8/09
43	PM-43	Male	Telecommunications	Jul/23/09	
44	PM-44-18	Male	Telecommunications	Jul/24/09	Dec/22/09
45	PM-45	Male	Computers & IT Supplier	Aug/2/09	
46	PM-46	Male	Engineering	Aug/11/09	

APPENDIX 3: Survey Questions Flow and Survey Questionnaires





State of Practice Survey - Adoption & Application of Mentoring Practices
Within The Context Of IS Project Management Process Cycle – Page 2

Approved by the Auckland University of Technology Ethics Committee, reference Number: 09/116

Concerns regarding the conduct of the research should be notified to the Executive Secretary, AUTECH, Madeline Banda, madeline.banda@aut.ac.nz , or by phoning +64 9 921 9999 ext 8044.

This survey has two sections i.e. Section A and Section B.

When you have completed this survey, please click the 'Submit' button at the bottom of the page to send us your answers for processing.

Section A

1. Are you currently an IS Project Manager? Please select one. *

- ☐ Yes
- ☐ No

2. What is the nature of your current IS project? Please select any that applies. *

- ☐ Business Applications Related Software System Project
- ☐ Systems Related Software System Project
- ☐ Computer Hardware Related Project
- ☐ Networking Related Project
- ☐ Communications Related Project
- ☐ A Combination of any of the above-mentioned
- ☐ Other - Please specify

3. What phase of the IS project management process cycle are you currently at? Please select any that applies. *

- ☐ Initiating
- ☐ Planning
- ☐ Executing
- ☐ Monitoring and Controlling
- ☐ Closing
- ☐ Other

4. Do you have a mentor currently? Please select one. *

- ☐ Yes
- ☐ No

5. Would you prefer a mentor assigned to your project? Please select one. *

- ☐ Yes
- ☐ No

6. Would you recommend to your peers or colleagues that they adopt the mentoring process in their project? Please select one. *

- ☐ Yes
- ☐ No

7. What would be the reasons that you would NOT recommend the adoption of mentoring to your peers or colleagues in their project? Please select any that applies. *

- ☐ An IS project mentor is not useful.
- ☐ It takes too much project time.
- ☐ Management is not supportive.
- ☐ Getting a mentor is detriment to their career
- ☐ Do not believe in mentoring.
- ☐ It would reflect negatively on them.
- ☐ Other - Please specify

8. What would be the reason(s) that you would prefer a mentor assigned to your projects. Please select any that applies. *

- ☐ An IS project mentor would be helpful.
- ☐ Avoid the trial and error approach.
- ☐ Increase the probability of success.
- ☐ Enhance the trust of senior management.
- ☐ Want a better managed IS project.
- ☐ Want an expanded knowledge of career path and options.
- ☐ Be effective as a IS project manager.
- ☐ Other - Please specify

9. What would be the reason(s) that you recommend the adoption of mentoring to your peers or colleagues? Please select any that applies. *

- ☐ An IS project mentor would be helpful.
- ☐ Avoid the trial and error approach.
- ☐ Increase the probability of success
- ☐ Enhance the trust of senior management.
- ☐ Want a better managed IS project.
- ☐ Want an expanded knowledge of career path and options.
- ☐ Be effective as a IS project manager.
- ☐ Other - Please specify

10. Were you an IS project (leader) manager previously? *

- ☐ Yes
- ☐ No

11. What was the nature of your IS project previously? Please select any that applies. *

- ☐ Business Applications Related Software System Project
- ☐ Systems Related Software System Project
- ☐ Computer Hardware Related Project
- ☐ Networking Related Project
- ☐ Communications Related Project
- ☐ A Combination of any of the above-mentioned
- ☐ Other - Please specify

12. Did you have a mentor in your previous IS project? Please select one. *

- ☐ Yes
- ☐ No

13. Would you have preferred a mentor assigned? Please select one. *

- ☐ Yes
- ☐ No

14. Would you recommend to your peers or colleagues that they adopt the mentoring process in their project? Please select one. *

- ☐ Yes
- ☐ No

15. What would be the reasons that you would NOT recommend the adoption of mentoring to your peers or colleagues in their project? Please select any that applies. *

- ☐ An IS project mentor is not useful.
- ☐ It takes too much project time.
- ☐ Management is not supportive.
- ☐ Getting a mentor is detriment to their career
- ☐ Do not believe in mentoring.
- ☐ It would reflect negatively on them.
- ☐ Other - Please specify

16. What would be the reason(s) that you would prefer a mentor assigned to your projects? Please select any that applies. *

- ☐ An IS project mentor would be helpful.
- ☐ Avoid the trial and error approach.
- ☐ Increase the probability of success
- ☐ Enhance the trust of senior management.
- ☐ Want a better managed IS project.
- ☐ Want an expanded knowledge of career path and options.
- ☐ Be effective as a IS project manager.

- ☐ Other - Please specify

17. What would be the reason(s) that you recommend the adoption of mentoring to your peers or colleagues? Please select any that applies. *

- ☐ An IS project mentor would be helpful.
☐ Avoid the trial and error approach.
☐ Increase the probability of success
☐ Enhance the trust of senior management.
☐ Want a better managed IS project.
☐ Want an expanded knowledge of career path and options.
☐ Be effective as a IS project manager.
☐ Other - Please specify

18. What is the nature of mentoring in your IS project? Please select any that applies. *

- ☐ Formal
☐ Informal.
☐ Internal mentor.
☐ External mentor.
☐ Mentor is of much more experience than me.
☐ Mentor is of less experience than me.
☐ Mentor is of equivalent experience like me.
☐ Other - Please specify

19. What would be you think is the nature of mentoring in the IS project? Please select any that applies. *

- ☐ Formal
☐ Informal.
☐ Internal mentor.
☐ External mentor.
☐ Mentor is of much more experience than me.
☐ Mentor is of less experience than me.
☐ Mentor is of equivalent experience like me.
☐ Other - Please specify

Section B.

20. What is the mentoring relationship like? Please select any that applies. *

- ☐ Assigned by immediate supervisor / manager (boss).
- ☐ Self assigned.
- ☐ Meet mentor in person.
- ☐ Meet mentor in virtual (electronic) space.
- ☐ Other - Please specify

21. How is mentoring schedule within the IS project management process? Please select any that applies. *

- ☐ On a scheduled basis.
- ☐ On a need basis.
- ☐ On an ad-hoc basis.
- ☐ As per instructed by management.
- ☐ When crisis hits.
- ☐ Other - Please specify

22. Please state your agreement or disagreement to the following statements. Please select one option for each row.

"The reasons for the adoption and application of mentoring are :"

	Strong Agree	Agree	Neither	Disagree	Strong Disagree
Need the guidance, support and encouragement of a more experience IS project manager *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Encouraged by immediate superior / manager (boss) to do so. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recommended by my peer and colleague. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comfortable in the solicitation of input and opinion on any issue. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promotes learning on the job. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helps my career. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wants to realise the benefits of mentoring. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is part of a statutory (government or professional bodies affiliation or related) fulfilment requirement. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is part of management and company policy. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The need to ensure project success. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assists in the development of my professional network *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Complements the current project management methodologies and tools *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Helps in the realisation and improvement of my project management hard skill such as technical knowledge. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help in the establishment of my project management soft skills such as negotiations & communications. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of a free and open exchange of knowledge and experience *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. Please state your agreement or disagreement to the following statements. Please select one option for each row.

"The followings are considered as key mentoring adoption characteristics :"

	Strong Agree	Agree	Neither	Disagree	Strong Disagree
An formal and organised approach *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
An informal and on a as-required basis *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A learning-to-do approach *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A leaning-to-be approach *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A leaning-to-see approach *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A trusted and confidence adoption *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A hand-holding approach *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Devils advocate approach *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Same gender as project manager *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Empathise with IS project manager *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regarded as an exemplary by others *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Driven by technical knowledge *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Driven by business domain knowledge *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. Please state your agreement or disagreement to the following statements. Please select one option for each row.

"The adoption of mentoring in IS project would deliver :"

	Strong Agree	Agree	Neither	Disagree	Strong Disagree
Better control of project schedule / deadline *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
An expanded knowledge of career path and options *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better management of project stakeholders and executive sponsors *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Development of project interpersonal and communication skills *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better management of project resources *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contribute to project knowledge base of the organisation *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Accessibility to the wealth of professional expertise and experience of my project mentor *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better anticipation of project risk *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase probability of project success *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better cost containment / control *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase my confidence as a project manager *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge gain from another perspective and learning new ideas *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enhanced trust of the senior management due to the presence of a more experienced mentor *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improved overall risk of the project management *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avoid learning by the trial and error method *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase and boost honour, recognition and self-esteem *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enable and provide feedback, reflection and introspection of the project *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better resolution of project issues *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. Please state your agreement or disagreement to the following statements. Please select one option for each row.

"The obstacles in the adoption of mentoring in IS project are :"

	Strong Agree	Agree	Neither	Disagree	Strong Disagree
Lack of information in the determination of mentoring adoption *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of support and encouragement from immediate supervisor / manager (boss) *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of available time within the project schedule *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Required management approval *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mentoring increases overall project cost *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Budgetary considerations *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Uncertainty about how it works *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management no supportive of mentoring approach *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Negative attitude that the IS project manager would be perceived as not competent or not up to mark *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Too time consuming a process to adopt *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of understanding or perspective of mentoring *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Non-availability of suitable mentors / experience project managers *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other project responsibilities interfering with mentoring *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fearful of potential personality conflict *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of incentives to adopt mentoring *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Don't know if its right for me *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. Please state your agreement or disagreement to the following statements. Please select one option for each row.

"My recommendations to any IS project manager are:"

	Strong Agree	Agree	Neither	Disagree	Strong Disagree
Mentoring be adopted within all the IS project management process cycle. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mentoring be adopted within selected IS project management process cycle. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mentoring to be made mandatory. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mentoring to be encouraged and be adopted on a need basis. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mentor need to be sourced from within the organisation. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mentor must be some one who much more experience than the project manager. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mentoring must not be adopted at all. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mentor assigned must be from external source. *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

27. What is your general attitude towards mentoring? Please select any that applies. *

- ☐ Very Positive
- ☐ Positive
- ☐ Neutral
- ☐ Negative
- ☐ Very Negative
- ☐ Other - Please specify

28. How would you rate your knowledge on mentoring? Please select any that applies. *

- ☐ Excellent
- ☐ Very Good
- ☐ Moderate
- ☐ Poor
- ☐ No Knowledge
- ☐ Other - Please specify

29. What are your sources of information of mentoring knowledge? Please select any that applies. *

- ☐ Personal experience
- ☐ Observing others in my work unit
- ☐ Reading about it
- ☐ Discussions with peers
- ☐ Internet
- ☐ University or institution of higher learning
- ☐ Other - Please specify

30. What are your perceptions concerning mentoring in IS project management? Please select any that applies. *

- ☐ Mentoring is only for the "high potential" IS project manager.
- ☐ Mentoring is for those IS project manager who have not made the grade.
- ☐ Mentoring is an effective method of developing your potential.
- ☐ Mentoring can only be effective when one's immediate superior / manager (boss) is involved
- ☐ Spontaneous or natural mentoring is best.
- ☐ Other - Please specify

31. End of Survey.

During the period of July 2009 to December 2009, we will be conducting a series of studies of IS project management in MSC status companies in Kuala Lumpur, Malaysia. Through this we will gain an in-depth understanding of the various aspect of the adoption and application of the IS project mentoring process within the IS project management process cycle, in order to provide some guidance to industry on achieving more positive IS project outcomes.

Would you be willing for us to contact you about this research? If so, please click on the appropriate option and enter your email address below. You are free to enter your email address or not as your choose. *

- ☐ No, Please do not contact me.
- ☐ Yes, I am happy to be contacted about further research. Please enter your Email Address

32. If you would like a summary of the results of this survey, please click on the appropriate option and enter your email address below. You are free to enter your email address or not as your choose. *

- ☐ No, Please do not send me a summary of the results.
- ☐ Yes, I would like a summary of the results. Please enter your Email Address

33. Similarly, if you would like a copy of your responses to this survey, please click on the appropriate option and enter your email address below. You are free to enter your email address or not as your choose. *

- ☐ No, Please do not send me a copy of my responses.
- ☐ Yes, I would like a copy of my responses. Please enter your Email Address

Should you want to go [back to previous question](#), please click the **Back** button of your browser.

Please contact pleong@aut.ac.nz if you have any questions regarding this survey.

Thank you very much for participating in this survey.



APPENDIX 4: PMBOK Project Management Knowledge Areas (PMI, 2004)

Project Integration Management

Project Integration Management includes the processes and activities needed to identify, define, combine, unify and coordinate the various processes and project management activities within the Project Management Process Groups. In the project management context, integration includes characteristics of unification, consolidation, articulation and integrative actions that are crucial to project completion, successfully meeting customer and stakeholder requirements and managing expectations. The Project Integration Management processes include:

- Develop Project Charter – developing the project charter that formally authorizes a project
- Develop Preliminary Project Scope Statement – developing the preliminary project scope statement that provides a high-level scope narrative
- Develop Project Management Plan – documenting the actions necessary to define, prepare, integrate, and coordinate all subsidiary plans into a project management plan
- Direct and Manage Project Execution – executing the work defined in the project management plan to achieve the project's requirements defined in the project scope statement
- Monitor and Control Project Work – monitoring and controlling the processes required to initiate, plan, execute, and close a project to meet the performance objectives defined in the project management plan
- Integrated Change Control – reviewing all change requests, approving changes, and controlling changes to the deliverables and organizational process assets
- Close Project – finalizing all activities across all of the Project Process Groups to formally close the project.

Project Scope Management

Project Scope Management includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully. Project Scope Management is primarily concerned with defining and controlling what is and is not included in the project. The Project Scope Management processes include:

- Scope Planning - creating a project scope management plan that documents how the project scope will be defined, verified, and controlled, and how the work breakdown structure (WBS) will be created and defined
- Scope Definition - developing a detailed project scope statement as the basis for future project decisions
- Create WBS - subdividing the major project deliverables and project work into smaller, more manageable components
- Scope Verification - formalizing acceptance of the completed project deliverables
- Scope Control - controlling changes to the project scope.

Project Time Management

Project Time Management includes the processes required to accomplish timely completion of the project. The Project Time Management processes include:

- Activity Definition - identifying the specific schedule activities that need to be performed to produce the various project deliverables
- Activity Sequencing - identifying and documenting dependencies among schedule activities
- Activity Resource Estimating - estimating the type and quantities of resources required to perform each schedule activity
- Activity Duration Estimating - estimating the number of work periods that will be needed to complete individual schedule activities
- Schedule Development - analyzing activity sequences, durations, resource requirements, and schedule constraints to create the project schedule

- Schedule Control - controlling changes to the project schedule.

Project Cost Management

Project Cost Management includes the processes involved in planning, estimating, budgeting, and controlling costs so that the project can be completed within the approved budget. The Project Cost Management processes include:

- Cost Estimating - developing an approximation of the costs of the resources needed to complete project activities
- Cost Budgeting - aggregating the estimated costs of individual activities or work packages to establish a cost baseline
- Cost Control - influencing the factors that create cost variances and controlling changes to the project budget.

Project Quality Management

Project Quality Management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken. It implements the quality management system through policy and procedures, with continuous process improvement activities conducted throughout, as appropriate. The Project Quality Management processes include:

- Quality Planning - identifying which quality standards are relevant to the project and determining how to satisfy them
- Perform Quality Assurance - applying the planned, systematic quality activities to ensure that the project employs all processes needed to meet requirements
- Perform Quality Control - monitoring specific project results to determine whether they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance.

Project Human Resource Management

Project Human Resource Management includes the processes that organize and manage the project team. The project team is comprised of the people who have

assigned roles and responsibilities for completing the project. While it is common to speak of roles and responsibilities being assigned, team members should be involved in much of the project's planning and decision-making. Early involvement of team members adds expertise during the planning process and strengthens commitment to the project. The type and number of project team members can often change as the project progresses. Project team members can be referred to as the project's staff. Project Human Resource Management processes include:

- Human Resource Planning - Identifying and documenting project roles, responsibilities, and reporting relationships, as well as creating the staffing management plan
- Acquire Project Team - Obtaining the human resources needed to complete the project
- Develop Project Team - Improving the competencies and interaction of team members to enhance project performance
- Manage Project Team - Tracking team member performance, providing feedback, resolving issues, and coordinating changes to enhance project performance.

Project Communications Management

Project Communications Management includes the processes required to ensure timely and appropriate generation, collection, distribution, storage, retrieval, and ultimate disposition of project information. The Project Communications Management processes provide the critical links among people and information that are necessary for successful communications. Project managers can spend an inordinate amount of time communicating with the project team, stakeholders, customer, and sponsor. Everyone involved in the project should understand how communications affect the project as a whole. Project Communications Management processes include:

- Communications Planning - determining the information and communications needs of the project stakeholders

- Information Distribution - making needed information available to project stakeholders in a timely manner
- Performance Reporting - collecting and distributing performance information, including status reporting, progress measurement, and forecasting
- Manage Stakeholders - managing communications to satisfy the requirements of, and resolve issues with, project stakeholders.

Project Risk Management

Project Risk Management includes the processes concerned with conducting risk management planning, identification, analysis, responses, and monitoring and control on a project. The objectives of Project Risk Management are to increase the probability and impact of positive events and decrease the probability and impact of events adverse to project objectives. Project Risk Management processes include:

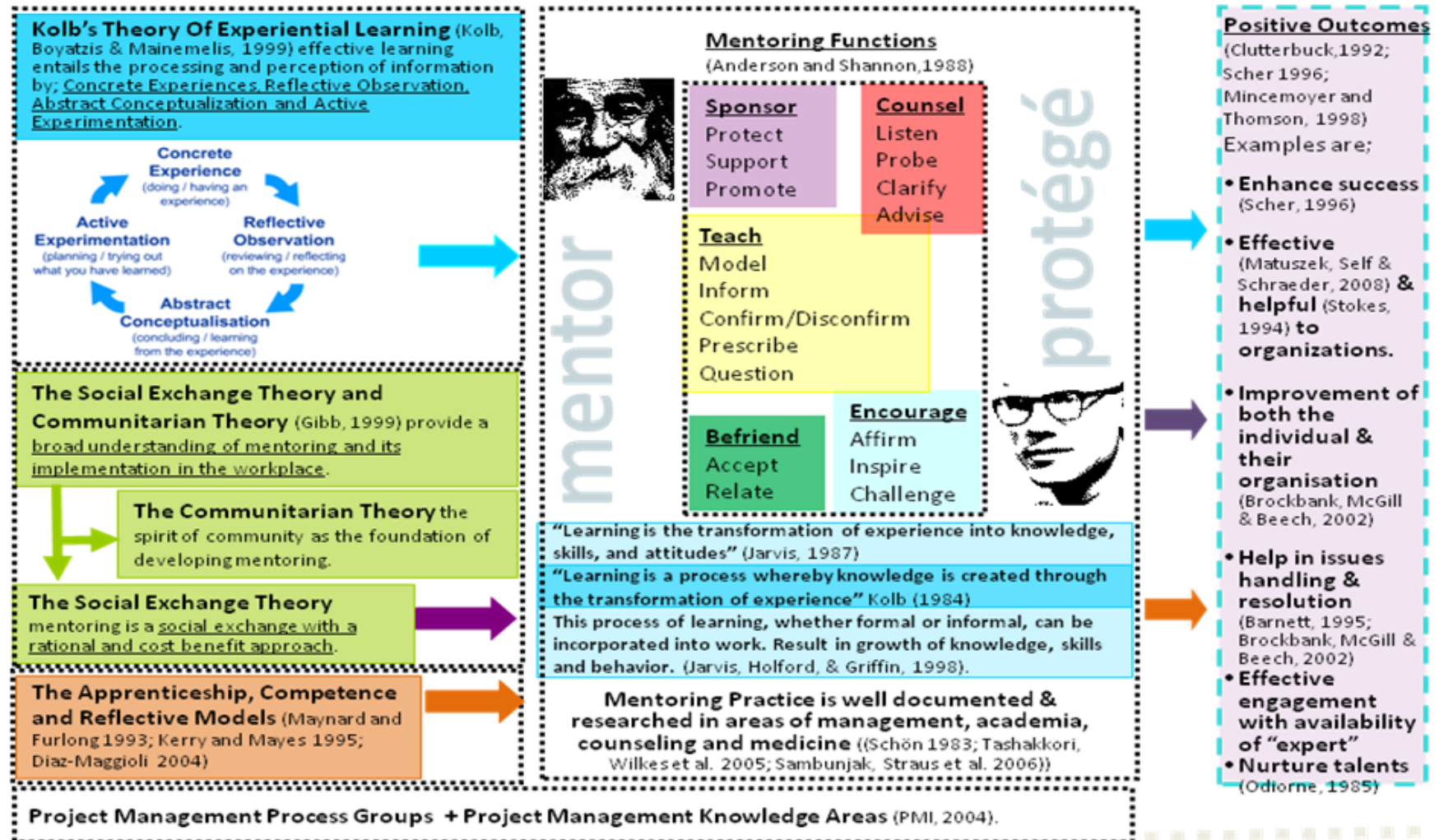
- Risk Management Planning - deciding how to approach, plan, and execute the risk management activities for a project
- Risk Identification - determining which risks might affect the project and documenting their characteristics
- Qualitative Risk Analysis - prioritizing risks for subsequent further analysis or action by assessing and combining their probability of occurrence and impact
- Quantitative Risk Analysis - numerically analyzing the effect on overall project objectives of identified risks
- Risk Response Planning - developing options and actions to enhance opportunities and to reduce threats to project objectives
- Risk Monitoring and Control - tracking identified risks, monitoring residual risks, identifying new risks, executing risk response plans, and evaluating their effectiveness throughout the project life cycle.

Project Procurement Management

Project Procurement Management includes the processes to purchase or acquire the products, services, or results needed from outside the project team to perform the work. There are two perspectives of procurement. The organization can be either the buyer or seller of the product, service, or results under a contract. Project Procurement Management includes the contract management and change control processes required to administer contracts or purchase orders issued by authorized project team members. Project Procurement Management also includes administering any contract issued by an outside organization (the buyer) that is acquiring the project from the performing organization (the seller) and administering contractual obligations placed on the project team by the contract. Project Procurement Management processes include:

- Plan Purchases and Acquisitions - determining what to purchase or acquire, and determining when and how
- Plan Contracting - documenting products, services, and results requirements and identifying potential sellers
- Request Seller Responses - obtaining information, quotations, bids, offers, or proposals, as appropriate
- Select Sellers - reviewing offers, choosing from among potential sellers, and negotiating a written contract with a seller
- Contract Administration - managing the contract and the relationship between the buyer and the seller, reviewing and documenting how a seller is performing or has performed to establish required corrective actions and provide a basis for future relationships with the seller, managing contract related changes and, when appropriate, managing the contractual relationship with the outside buyer of the project
- Contract Closure - completing and settling each contract, including the resolution of any open items, and closing each contract.

APPENDIX 5: Descriptive Model of IS Project Management Mentoring



APPENDIX 6: Mapping of Project Management Processes to Project Management Process Groups and Knowledge Areas (PMI, 2004)

Knowledge Area Processes	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring & Controlling Process Group	Closing Process Group
4. Project Management Integration	Develop Project Charter 3.2.1.1 (4.1) Develop Preliminary Project Scope Statement 3.2.1.2 (4.2)	Develop Project Management Plan 3.2.2.1 (4.3)	Direct and Manage Project Execution 3.2.3.1 (4.4)	Monitor and Control Project Work 3.2.4.1 (4.5) Integrated Change Control 3.2.4.2 (4.6)	Close Project 3.2.5.1 (4.7)
5. Project Scope Management		Scope Planning 3.2.2.2 (5.1) Scope Definition 3.2.2.3 (5.2) Create WBS 3.2.2.4 (5.3)		Scope Verification 3.2.4.3 (5.4) Scope Control 3.2.4.4 (5.5)	
6. Project Time Management		Activity Definition 3.2.2.5 (6.1) Activity Sequencing 3.2.2.6 (6.2) Activity Resource Estimating 3.2.2.7 (6.3) Activity Duration Estimating 3.2.2.8 (6.4) Schedule Development 3.2.2.9 (6.5)		Schedule Control 3.2.4.5 (6.6)	
7. Project Cost Management		Cost Estimating 3.2.2.10 (7.1) Cost Budgeting 3.2.2.11 (7.2)		Cost Control 3.2.4.6 (7.3)	
8. Project Quality Management		Quality Planning 3.2.2.12 (8.1)	Perform Quality Assurance 3.2.3.2 (8.2)	Perform Quality Control 3.2.4.7 (8.3)	
9. Project Human Resource Management		Human Resource Planning 3.2.2.13 (9.1)	Acquire Project Team 3.2.3.3 (9.2) Develop Project Team 3.2.3.4 (9.3)	Manage Project Team 3.2.4.8 (9.4)	
10. Project Communications Management		Communications Planning 3.2.2.14 (10.1)	Information Distribution 3.2.3.5 (10.2)	Performance Reporting 3.2.4.9 (10.3) Manage Stakeholders 3.2.4.10 (10.4)	
11. Project Risk Management		Risk Management Planning 3.2.2.15 (11.1) Risk Identification 3.2.2.16 (11.2) Qualitative Risk Analysis 3.2.2.17 (11.3) Quantitative Risk Analysis 3.2.2.18 (11.4) Risk Response Planning 3.2.2.19 (11.5)		Risk Monitoring and Control 3.2.4.11 (11.6)	
12. Project Procurement Management		Plan Purchases and Acquisitions 3.2.2.20 (12.1) Plan Contracting 3.2.2.21 (12.2)	Request Seller Responses 3.2.3.6 (12.3) Select Sellers 3.2.3.7 (12.4)	Contract Administration 3.2.4.12 (12.5)	Contract Closure 3.2.5.2 (12.6)

APPENDIX 7: Eight Identified Facets of Learning

The following are statements and testimonies of the participating IS project managers

By way of example

Noted by PM-17-10 i.e. *"... to be honest, for project scoping it has to be literally be ... ah ... learn by example. So that the mentor has to sit down and do the project scoping with the client and the new team member, who you are trying to mentor to sit by and just watch how it is done. But you cannot allow the new person to sit down and do it and ok, I will interject and I will fit in. that is taking way too much risk, alright. Because, scoping literally is like, when you build a house, is the foundation. And if you mess up that you are virtually dead".* And, PM-20-14 considered it useful as it was regarded to have instilled some sense of confidence to project managers.

Through awareness creation

Noted by PM-25-17. *"... awareness is one word, definitely wake up kind of thing like okay this how it is being managed. And also other contributions are there ... it really helps to build your self-confidence more, and probably keeping yourself aware on 'Google Alert', certain keyword you put in and emails will be coming into your inbox and you can learn".* In addition, it was also noted that *"... it's knowledge where you don't learn directly".*

By way of mimicking

Noted by PM-20-14 i.e. *"... is like they can give the... what they have been experience of course it is a good example or success example, then I can mimic from there, then it is much more faster. I can mimic, then latter I can do some changes according to my style. I would not think that I like to follow exactly the person's style because it is like ... it might not suit you. So latter you can just grab the concept how things is moving, then you can mimic it and then more put in the way you feel more comfortable to want to do it"*

By way of passive observation

It was also termed as “*indirect mentoring*” or “*sub-conscious mentoring*” because project managers held captivated by (or attracted to) the mien and poise of project mentors who were well regarded. PM-42-13 illustrated with the following example. That is “...yes, yes, you are right. In fact for my CEO, like I told you, the current CEO, although I don't really work with her and I don't have many encounters with her, because she knows nothing about IT (laughter). Anything you talk about technical, it is a dry subject to her, so ... but she will appreciate the work that we do, that is all. But you see, every time, when she is face something, you see ... what I learned from her, I called that it is a indirect mentoring. What I learned, what I take from her when she was a CEO here, she has super mother tongue step and she speak so simple English, everybody can understand. She never use bombastic English, she make it so simple, she connects her points so easily that even deaf also can hear. And you know her presentation points; she is not the person who presents with lengthy text in the power point. All her PowerPoint one point, one point, one point ... and then she elaborate the point, so simple. It really amazing ... I mean what I am trying say, I know I would be able to reach that, but what I am trying to say, I am ... its ahh ... it help to say, how important is it? It is not what you say, like what she says, it is the way you say it. You know and therefore, by learning, keep on changing, let say myself, consciously, right, that is hopefully you improved little by little. And that to me is ahh ... sub-conscious mentoring, I call it, you know. For every person that I worked with, that is why I shared with the team. Even I worked with you, I picked up something from you, you may not know ... although you think you are very junior but actually I do pick up something from you as well. So, although I don't say it whether you are a mentor, but I do pick up, you see. Similarly when I work with anybody, let say the CEO, deputy CEO, my boss or even my peers, right. So, I do pick up, you see when I was in this organization, just to share with you, I call it mentoring where I mentored in terms of English speaking world”.

By way of role modelling

Noted by PM-41-09 i.e. *"... and so the mentor in this part actually provide the example ... act as a role model to the mentee ... right ... and at the latter part, as the mentee gets a deeper understanding ... he will actually improve this process or even put his own style to the process"*.

By way of proactive observation

Noted by PM-17-10 i.e. *"... alright, so, and this one actually comes from the point of view where you learn by watching... right. And that only happen, if you will actually, find certain traits interesting in another person. Alright, some people just say, have excellent presentation skills, right ... ok. And if you actually see the person and you saying that ... wow ... this guy's presentation skills are excellent, right. Then, what will normally happen is that you will find that ... ahh ... impressive and you will try and relate more to it. And may be improve you own presentation skills. But those are the things you cannot force down. So, that kind of actual ... like soft skills learning happen if you find that particular thing impressive. If you don't, you can send the guy for training, right. If he hates presenting, he just hates it. Correct. So, he can may be go for training, improve himself. He can may be try and control his nervousness during training, right. Some people are just not good in presentation la. So it hopeless in forcing down a soft skill like presentation skills. For a guy who is just quiet by nature, he is introvert, you are wasting your time, right"*.

By way of interaction and follow on with actual doing

Noted by PM-41-09 i.e. *"... as it progress the learning process actually comes less from the observation and the listening. But it may comes more in the interaction with the mentor ... you know ... probing ... because at the earlier stage you are actually just want to observe ... you now learn from example ... but once we have gone thru this learning process or learning example ... you are already there at the stage it may be more on ... how would I put it ... ah ... depending the thoughts ... having a deeper understanding about the processes like for example ... you know...in a holding a meeting scenario ... ok ... the earlier part by*

observation by listening ... we have be actually looking at example in ... and then ... it may be actually following that example ... right ... thru interaction and thru probing ... I would say that it actually present the opportunity to have a deeper understanding on the whole process ... to also have a deeper understanding on the experience of mentor ... right. And it actually allows the mentee to brings in his own style into the picture ... his own knowledge".

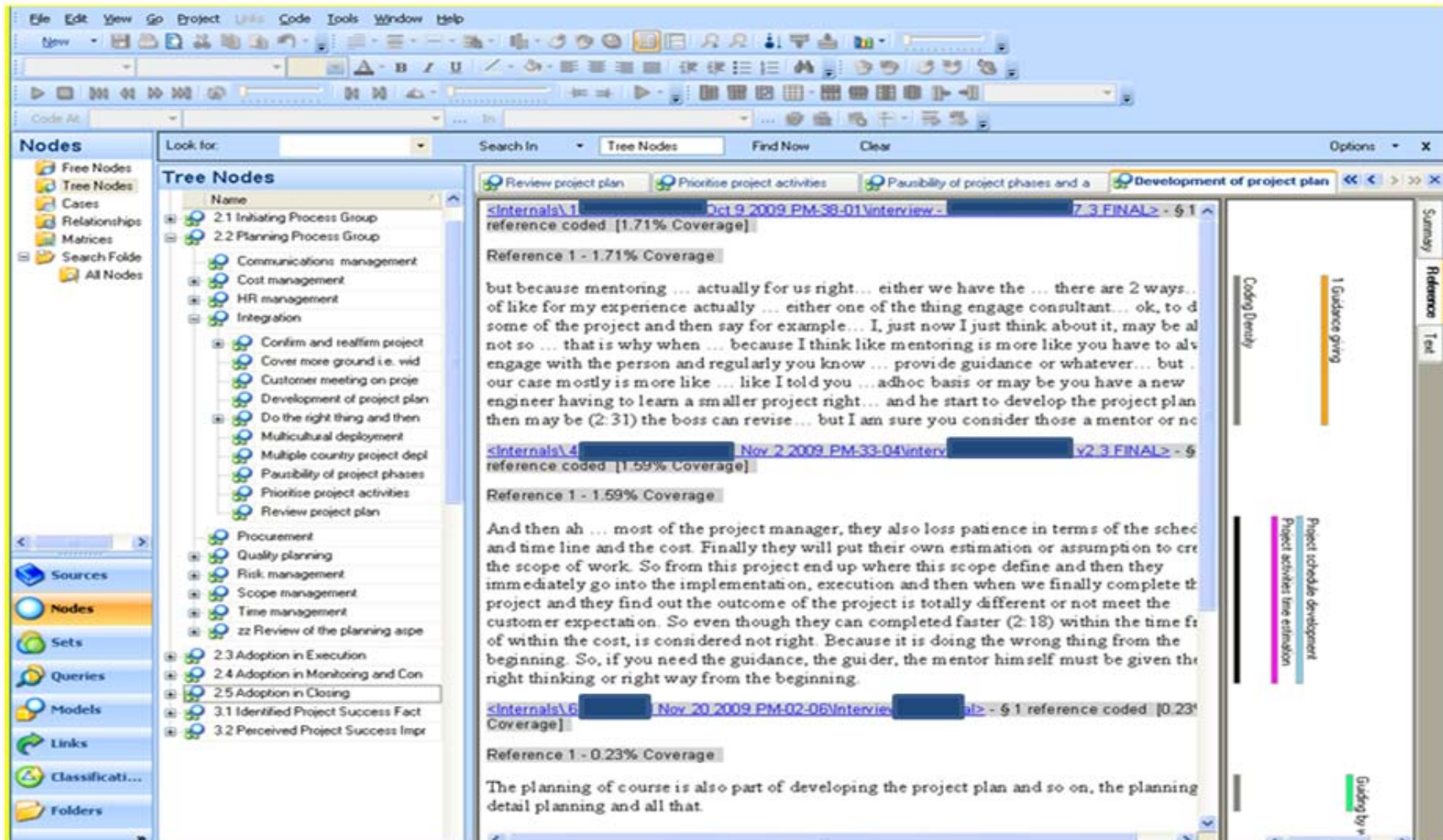
By way of seeing the project mentor in action

Noted by PM-25-17 this example as "... one is, just an example, you follow your boss to a meeting and you see how he actually talks to the customer and try to send his message out at the same time listening to them. So you are in the same meeting with your mentor and your mentor is actually talking to customer and leading. So a couple of meeting this way, four five meetings, you know roughly how he works already. Probably you don't realize immediately that you have that knowledge on how your mentor has been doing meeting, so next step would be for you, probably your boss couldn't make it in the next two three meetings probably, he wanted you to go, so you know roughly how your boss has been doing and you do more or less the same. First two three times you won't be immediately like how your boss or supervisor has been doing. But over time you will come to understand exactly what your boss has been doing in the meeting. Like make sure after the meeting you have achieved your objective meaning before your meeting you set the objective saying that this is what". This was also noted by PM-41-09 i.e. "... ok ... for example, I would say that...when I was new..ok...my mentor actually bring me into project meetings ...observe how he handle various stakeholders. How was handling done. Listen to what he got to say. Mentor ...may also provide some guidance on how it is done".

APPENDIX 8: A Taxonomy of Theory Types in IS Research (Gregor, 2006)

Theory type	Distinguishing attributes
I. Analysis	Says 'what is'. The theory does not extend beyond analysis and description. No causal relationships among phenomena are specified and no predictions are made.
II. Explanation	Says 'what is', 'how', 'why', 'when', 'where'. The theory provides explanations but does not aim to predict with any precision. There are no testable propositions.
III. Prediction	Says 'what is' and 'what will be'. The theory provides predictions and has testable propositions but does not have well-developed justificatory causal explanations.
IV. Explanation and prediction (EP)	Says 'what is', 'how', 'why', 'when', 'where' and 'what will be'. Provides predictions and has both testable propositions and causal explanations.
V. Design and action	Says 'how to do something'. The theory gives explicit prescriptions (e.g., methods, techniques, principles of form and function) for constructing an artifact.

APPENDIX 9: Screenshot of Nvivo during Point of Data Analysis



Note: Names of participant and organization blank out (compliance to AUTC guidelines)

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