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Making Sense of Project Management: Contingency and Sensemaking in Transitory Organizations

by

Janice Lynne Thomas 

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Doctor of Philosophy

in

Organizational Analysis

Faculty of Business

Edmonton, Alberta
Spring 2000

University of Alberta

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Degree: Doctor of Philosophy

Year this Degree Granted: 2000

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ABSTRACT

Projects are unique, complex, multi-activity tasks constrained by predetermined time, cost and specification goals. Projects and their management are an increasingly prevalent and important aspect of modern organizational life. They are thought to increase organizational flexibility and ability to deal with change. The project mode of organization, as found in professional service firms, networked organizations and virtual corporations, is often proclaimed the future, or post modern, organizational form.

While Project Management is relatively new phenomenon for business research, there exists a large body of Project Management literature arising mostly out of engineering disciplines. Most of this research implies that we know how to manage projects. Unfortunately, this is belied by the numbers of projects that are perceived to fail. This study utilizes both a contingency view of Project Management, and a sensemaking approach to understanding organizations to address the practically and theoretically important problem: Why do so many projects fail?

Project Management is found to be a construct ultimately very dependent on the social construction of those involved in projects. Not only are more than one understanding of Project Management common amongst experienced project participants, the interplay of these varied understandings is both beneficial and detrimental for those operating in project arenas. Exploring the formation and use of these understandings makes important theoretical contributions to the Project Management literature and practise. Documenting how project participants sensemaking activities around Project Management affect the actions they take on projects and the outcomes and judgments of those outcomes makes an important contribution to sensemaking theory by linking meanings and actions.

ACKNOWLEDGEMENTS

This project has been trying and exhilarating in almost equal parts. I literally could not have completed it without the help and support of a great many individuals. I thank all those who contributed. Some individuals deserve my special gratitude:

- My supervisor, Bob Hinings, a brilliant and well respected scholar and one of the nicest men I've ever met, for always providing support and gentle guidance.
- My committee members, Bob Gephart, David Cooper and John Whittaker, for introducing me to (and insisting I engage with) disciplines I may never have discovered including post modern and critical theories of organization, ethnomethodology and scheduling under constraints.
- My colleagues, in the Project Management Specialization and in the Faculty of Management, for continually reinforcing the 'one important thing' and for standing by me through out.
- My students who forgave my absent mindedness and harping on the lessons learned from my own hard experience.
- Jeanette, Lynn and Michelle who saved my sanity on more than one occasion.

Above all, I thank my friends and family who have encouraged and supported me throughout my studies. In particular, I recognize the devotion of my mother (Norma Runacres), the patience of my three boys (Matthew, Andrew and Christopher) and the fortitude of a man (Neil Thornton) strong enough to take on me, and all of the above, half way through this process.

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1 INTRODUCTION

For years Project Management existed as a technical activity of questionable value, but recently 'management by projects' has been recognized as a powerful way to manage in a business environment attempting to achieve higher levels of performance and productivity (Morris, 1994). Project Management tools and techniques are gaining acceptance in organizations of all types around the globe. For a growing number of organizations, project work is a fact of life. The demand for training, support and expertise in Project Management is so high that large management consulting firms are specifically differentiating themselves based on skills in Project Management. Consulting firms are competing to be recognized as cutting edge in this globally competitive market and are willing to invest heavily to attain this position as evidenced by the international accounting/consulting firm of KPMG adopting SMART ™ Project Management methodology in 1999.

At the same time, research from the United States shows that over 30% of information technology projects are cancelled before they are completed. It is estimated that over half of all projects come in as high as 190% over budget and 220% over the original time estimate (Standish Group, 1995). The situation in Canada is assumed to be similar as evidenced by the Globe and Mail (Sept 4, 1996) report of federal technology project overruns amounting to between $1 and $3 billion (and growing). The high rate of reported project failures drives a seemingly endless search for the holy grail of "successful" Project Management.

1.1 THE RESEARCH PROBLEM

This disconnect between the literature and common belief that there is a "best" approach that will solve all Project Management problems and the regular reporting of continually failing projects provides the practical problem I set out to address in this dissertation. More explicitly, if we know so much about Project Management, why do so many projects fail? What are we missing?

This is not a new concern. More than fifteen years ago the Council of the Association of Project Managers (CAPM) appointed a working party to investigate the question, 'Why is there a gap in project implementation between what is claimed to be possible in the control of performance relative to plans, and what project managers find to be of value in the day-to-day running of their projects?' (CAPM, 1984). The results of the CAPM study reflect most of the traditional responses in Project Management literature, namely that methods are not well understood and used by practitioners and that there is a need for more advanced tools, particularly those using micro computers (Chapter 2 provides a review of the development of modern Project Management thought). The working party had great faith in these new tools to overcome this gap and reduce the incidence of project failure. However, ten years later, Morris (1994) still bemoaned the existence of this gap and projects continue to fail on a regular basis (Globe and Mail, Sept 4, 1996; Standish, 1995). Cost overruns of between 40 and 200 percent continue to be the rule rather than the exception (Morris & Hough, 1987).

The primary explanations for project failure garnered from current practitioner journals (such as PMI Network) and research articles (e.g. Hartman, 1996) are that: a) the project failed to meet expectations; and, b) there was a failure of communication (Hartman, 1996). Somehow, as an experienced project manager and an organizational theorist in training, these did not seem to provide a sufficient answer for me. These sound more like symptoms arising from some more basic underlying process at work on projects. The first thing I needed to do was to determine what we knew about Project Management, how we knew it and where the gaps were.

1.2 GROUNDING THE RESEARCH IN THE LITERATURE

Most of the academic research into Project Management that does exist originates in the engineering management discipline and is quite prolific. It began with the precedence network diagramming techniques developed for the Polaris project in the late 1950s (Fondahl, 1987). This Project Management literature reflects normative techniques and methods for project planning and control developed by consultants and engineers. It tends to focus on the prescriptive, providing advice and principles for how to plan, organize and control project work, or the descriptive, entailing war stories about what happens on projects.

The underlying assumption of this literature is that the purpose of using Project Management tools is to get something done on time, on budget and to a specified level of quality or functionality. Emphasizing the importance of formalization and rationality, the message is that successful Project Management

requires high performance in project planning, proper choice of organizational structure, and formalized operating and management procedures (Archibald, 1976; Cleland & King, 1972; Frame, 1987; Kerzner, 1979; Lock, 1977; Stuckenbruck, 1982; et. al.). A fundamental belief is that success is a result of efficiency in the project process accomplished through rationalistic Project Management procedures.

Despite the normative emphasis on the use of formal Project Management (or perhaps because of it), there is surprisingly little research into how Project Management is practiced in organizations. What research there is does not always support the confident portrayal of the benefits and procedures of Project Management. There are projects where these Project Management techniques are of secondary importance (Packendorff, 1994). No formal evidence exists that a project manager who is literally following all the advice of the textbooks would be more successful than the project manager who does not (Morris & Hough, 1987). Many examples exist of project failures in large projects where the project managers sought to follow formal Project Management guidelines (Khabanda & Stallworthy, 1983; Morris & Hough, 1987; Stinchcombe & Heimer, 1985). In addition, there are studies of successful projects that violate several of the "holy" principles of the Project Management textbooks. Engwall's (1994) description of the Fenno-Skan project illustrates a project widely regarded as a success that lacks a formalized project organization with formal authority to the project manager, and which did not conduct project meetings or formalized project planning. All of these are serious deficiencies according to the current

"Project Management Body of Knowledge" (usually abbreviated to PMBOK -- Project Management Institute, 1987).

Addressing failed expectations means that we must first understand where the expectations arise from, what they are, and how different understandings of Project Management affect these expectations and practices of projects. Typically most project expectations arise out of a common sense understanding derived from traditional Project Management model which is most often expressed as a unitary model applicable to all projects. Project success depends on how well the project meets the triple constraints of cost, time and specifications. This criterion arises from the assumption that the fundamental purpose of Project Management is to accomplish a specified task on time and on budget. Most prescriptive research originates in this approach, incorporating a human relations perspective to account for failure to apply Project Management practices successfully. See Chapter two for a review of the evolution of Project Management theory.

However, some current project research suggests other models may influence expectations. While maintaining a predominantly control orientation, contingency researchers have started to classify projects based on technical uncertainty and project complexity (Hartman, 1996; Shenhar, 1993, 1995). The suggestion is that different projects need to be managed and evaluated based on different criteria. Given that some projects are successfully completed, there must be different models of Project Management in use that account for these

different factors. To date, the existence of different models and what they may consist of has been speculated upon (Wideman & Shenhar, 1996) but has not been empirically derived from examples of Project Management practice in the field. Thus, this contingency approach to Project Management theory provides the first suggestion that project managers may make sense of Project Management differently and that these different understandings of Project Management may influence expectations, project practice and success.

Other work explores the possibility that Project Management operates in organizations in ways other than the rational mode implicit in most traditional Project Management literature. Some suggest that the primary purpose of Project Management may be legitimation (Engwell, 1994; Lundin, 1994). From this perspective, formal Project Management tools may provide a facade that symbolizes control, rationalism, power and efficiency (Sapolsky, 1972). Others have suggested that Project Management's role in generating action in organizations (Packendorff, 1994) needs further investigation. Some have gone so far as to suggest that Project Management, at least in some instances, is not efficiency but action and understanding (Engwell, 1994; Packendorff, 1994). For instance, Engwell (1994) suggests that 'Project Management Theory might be instrumental as talk for some practitioners when they try to interpret and explain their organizational lives.' I view these approaches as applying an approach based in social contruction of reality and relying on a simple sensemaking perspective. Combining the contingency recognition of different models of

Project Management with these alternative views of Project Management leads to the first orienting question.

1) **How do project participants make sense of Project Management?**

If project participant's understand Project Management differently than the rational goals implicit in the traditional Project Management model, and different models of Project Management practices exist depending on the level of understanding of the participant and the type of project, this has implications for how Project Management practices are applied and how participants construct project success or failure. This in turn leads to the second orienting questions.

2) **How do understandings of Project Management influence the actions taken on projects, their outcomes and the judgments of these outcomes?**

Given the disconnect identified above, It seems clear that present theories do not reflect practice. We do not know how project managers understand, use and make sense of Project Management practices. What is missing in Project Management research is exploratory qualitative studies grounded in the experience of "normally competent individuals in ordinary situations" (Bittner, 1967). Rather than studying people on projects, this study attempts to use people's experience of projects to investigate the nature and meaning of Project Management to those involved in it. By exploring the process of Project Management as it is understood by project participants, I hope to develop an understanding of how Project Management concepts are used in practise. This in turn will provide the foundation for future work aimed at developing a reflexive theory of Project Management practice.

In order to address these concerns, this study broadens the foundation of knowledge of Project Management by studying the lived experience of project managers through a sensemaking frame. Sensemaking is understood as both a theory and a process. As a theory, sensemaking explains how people construct meaning during their everyday lives. When used as a process, sensemaking includes the efforts of individuals and social groups as they seek, process and construct information to negotiate through problem situations.

To make sense is to create order and understanding of experience by applying a mental framework to an event or cue (Weick, 1995). Frameworks serve as mental maps which enable individuals to traverse and orient themselves within their experiential terrain (Louis, 1980; Weick, 1979) and guide interpretations of the past and present and expectations for the future. As Neisser (1976) and Weick (1979) observed, schemas guide the search for, acquisition of, and processing of information, and guide subsequent behavior in response to the information. Thus, the first step in being able to "make sense" is to hold a particular mental framework about the activity in question. In this chapter, I seek to identify the mental frameworks, or understandings, of Project Management held by key project participants. Chapter 2 relates sensemaking to Project Management exploring both how people make sense of Project Management and how they use Project Management tenets to make sense. Here, the sensemaking literature stimulates the theoretical sensitivity needed to examine Project Management as an open and emergent process of sensemaking rather than a determinant and closed process of following prescriptions and rules.

Finally, sensemaking theory provides some insight into how these different models and levels of understanding of Project Management may lead to communication failures on projects.

1.3 CONCLUSION

In summary, this study addresses the problem of project failure. It takes as a starting point the assertion that projects fail because they do not meet expectations and because the communication process fails.

Working from this assertion through a thorough review of the extant literature and an empirical project, I address two research questions:

1) **How do project participants make sense of Project Management?; and,**

2) **How do understandings of Project Management influence the actions taken on projects, their outcomes and the judgments of these outcomes?**

From this starting point, I explore the deeper underlying causes of these symptoms by integrating current work on contingent Project Management and sensemaking approaches to Project Management into the process of setting and meeting expectations and the implications for communication.

This study explores an important and under-researched organizational construct that significantly affects organizational bottom lines. It uses a qualitative approach that has rarely been used in the Project Management literature. It has both practical and theoretical implications for the fields of Project Management and sensemaking theory. Empirically it adds significantly to both areas.

The following provides a brief overview of each of the following chapters.

Chapter 1 This chapter provides an overview of the entire study. It starts by introducing the disconnect between Project Management hype and reports of dismal results which forms the practical problem driving the research. I provide an introduction to the Project Management literature and to how I think sensemaking theory can contribute to our understanding. I describe the approach the study takes and the orienting questions.

Chapter 2 entitled Making Sense of Project Management explores the development of Project Management thought from a control orientation to what I call a sensemaking orientation. The chapter also discusses how sensemaking concepts can provide useful insights into the practice of Project Management in organizations.

Chapter 3 The third chapter chapter describes the empirical study that informs this dissertation. Here I:

- set out the scope and preliminary conceptual framework;
- discuss the use of a qualitative and phenomenological method incorporating some technics more commonly associated with grounded theory or a limited ethnography;
- define the research procedures used;
- describe the data collection strategy, summarize the data collected and provide some preliminary descriptive analysis;
- attempt to explain the mechanics of the analysis process through the use of examples of the how findings were derived to reduce the need to exhaustively report on the analysis in the body of the findings.

Chapter 4 reports the findings associated with a primarily phenomenological analysis of data addressing the first research question: **"How do project participants make sense of Project Management?"**.

Chapter 5 addresses the second research question: **"How do understandings of Project Management influence the actions taken on projects, their outcomes and the judgments of these outcomes?"**.

Chapter 6 presents the conclusions and contributions of the study.

2 MAKING SENSE OF PROJECT MANAGEMENT[1]

The study of Project Management occurs at the intersection of theorists and practitioners, and between the fields of Engineering and Business Administration. Examples of organizational projects include: setting up new technological processes; bringing out new products; starting up new ventures; consummating a merger; seeing through the completion of a contract; and supervising the construction of a new plant. For years Project Management existed as a technical activity of questionable value, but recently 'management by projects' has been recognized as a powerful way to manage in a business environment attempting to achieve higher levels of performance and productivity (Morris 1994). There is even a body of literature that suggests that projects and Project Management will be the future of organizational study (Bennis 1968, Clegg 1989, Weick 1995).

In addition, there are two other fundamental reasons why we should understand Project Management. First, projects are an integral structural building block of today's organizations (Hardy 1994) in almost every industry. Furthermore, increasing use of outsourcing and strategic alliances reflect the project approach to management based on contractual hierarchical relations (Stinchcombe 1985a).

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[1] I presented earlier versions of this chapter at the Third Biannual Conference of the International Research Network on Organizing by Projects in July of 1997 and at the Western Academy of Management in March of 1999. A version of this chapter will be in a book compilation of Project Management research due out in 2000.

The second fundamental change is the increasing role change plays in organizational life. Managing this change is where Project Management comes into play (Cleland & Gareis 1994, Morris 1994). The project mode of operation is thought to be more flexible and adaptable to changing circumstances than the standard continuous mode of operation found in traditional organizations (e.g., 1994, 1995).

As interest in forms of temporary organizing has grown, there have been repeated calls for more research and theoretical development around projects in organizational theory (Bryman, *et al.* 1987, Ford & Randolph 1992, Packendorff 1994, Shenhar 1995). However, there continues to be very little focus on projects per se. In organization theory, the study of Project Management is a relatively young area of research recognized to suffer from a lack of theoretical basis and concepts (Ford & Randolph 1992, Packendorff 1994, Shenhar 1995, Stinchcombe & Heimer 1985). Thus, the study of projects and Project Management represents an important and under-researched organizational construct which potentially has significant impact on an organization's bottom line.

Existing research is based on two contrasting beliefs about the role of Project Management in organizations. The first stream views Project Management practises as a means to create order and impose control on organizational life through a determinant and closed process, following specific prescriptions and rules. The second stream views Project Management practices as emergent and open processes for making sense out of organizational action.

The aim of this chapter is to delineate each of these streams of research and the theoretical constructs they encompass, and to discuss their implications for a more inclusive, comprehensive and practical study of Project Management. In the text, each stream of research concludes with a summary of its contributions and shortcomings.

In the section describing the sensemaking perspective, several research questions are posed, which if investigated, would enrich our understanding of Project Management and Project Management theory. This description is inclusive and far reaching in attempting to illustrate the potential impact of a research stream anchored in this phenomenon and theory. It includes too many questions and concepts to be adequately dealt with in any one study.

2.1 EXAMINING PROJECT MANAGEMENT AS A MATTER OF CONTROL

Academic research into Project Management began with the precedence network diagramming techniques developed for the Polaris submarine project in the early 1960's. This Project Management literature reflects normative techniques and methods for project planning and control developed primarily by consultants and engineers. It tends to focus on the prescriptive, providing advice and principles for how to plan, organize and control project work; or the descriptive, entailing war stories about what happens on projects.

A project is defined as a unique, once-in-a-lifetime task consisting of a number of complex and/or interdependent activities constrained by a predetermined completion date and subject to at least one performance goal to do with cost or quality or both (Project Management Book of Knowledge, 1987; referred to hereafter as PMBOK). Project Management is the art of directing and coordinating human and material resources throughout the life of a project by using modern management techniques to achieve predetermined objectives of scope, cost, time, quality, and participant satisfaction. While general management attempts to eliminate bottlenecks in repeated serial processes and manages by exception, Project Management deals with complex inter-relations of parallel and unique activities.

Modern Project Management attempts to manage highly uncertain and typically large scale projects involving teams, in temporary undertakings, focusing on a specific task with predefined completion dates, as well as cost and performance

standards (Ford & Randolph, 1992). Project Management research is part of a stream of inquiry into management techniques designed to more efficiently rationalize organizational operations (such as operations research areas). The problem became how to efficiently coordinate and control the efforts of many individuals to meet strict time, cost and results criteria. The term "Project Management" describes the process of planning, organizing, directing and controlling staff for the relatively short-term objective of meeting externally established goals and objectives (Kerzner, 1994).

The underlying assumption of this literature is that the primary function of Project Management is to get something done on time, on budget and to a specified level of quality or functionality. Emphasizing the importance of formalization and rationality, the message is that successful Project Management requires high performance in project planning, proper choice of organizational structure, and formalized operating and management procedures (Archibald 1976, Cleland & King 1972, Frame 1987, Kerzner 1979, Lock 1977, Stuckenbruck 1982, *et al.*). Success is believed to be a result of efficiency in the project process accomplished through rationalistic Project Management procedures.

The great majority of the literature deals with techniques and procedures rather than management practice. Project Management from this perspective can clearly be perceived as positivistic, technocentric and rationalistic. Project Management entails planning work in small measurable tasks and tracking effort against outcomes. By dividing work into small tasks and monitoring activity through the subdivision of time and the temporal elaboration of activities, Project

Management is a blend of disciplinary practices aimed at making project work predictable, calculable and manageable (Foucault 1977, Townley 1995). It is associated with a belief in linear progress, absolute truths, the rational planning of ideal social orders, and the commodification of knowledge and production (Harvey 1990). The application of Project Management to uncertain tasks is a way of imposing a scientific, rational control that increases the predictability of the outcomes. In this way, it is a prototypical example of the rationalization and technocratization of management – a theory of control.

There are two ways to view Project Management within this framework of control. One way is to frame Project Management (the traditional model) as a one size fits all solution to all problems arising from temporary undertakings. A second framing of Project Management (the contingency perspective) incorporates the realization that not all projects are alike and recognizes that because of this Project Management principles must adapt to these contingent circumstances. This approach no longer looks for one best way to manage all projects, focusing instead on identifying the contingencies that matter and what to do about them. Sections 2.1.1 and 2.2.2 reviews these streams of research. Table 2.1 summarizes the research streams and the theoretical constructs they encompass.

Table 2-1 Examining Project Management as a Matter of Control

Major Assumption(s):

- Primary objective is to manage time, budget and quality
- Planning, structure, and formal procedures key to success

Major Theories

<u>One Right Way</u>

Major Assumptions:

- A project has a clear and unambiguously defined task
  (Burke 1992, Frame 1987, Kerzner 1994, Lock 1992)
- Project management is an ideal form of organizing project tasks

Key Areas of research and constructs examined:

- Project planning and planning tools
- Project control
  - Identifying boundaries of projects
    (Ford & Randolf 1992, Knight 1976)
  - Conflict resulting from matrix organizational form
    (Archibald 1992; Thamhain & Wilemon 1975; Wilemon & Baker 1983;
    Barker, Tjosvold & Andrews 1988; Butler 1973, Dinsmore 1983
    Hill 1975, 1977, 1983; Stinchcombe 1985b)
  - Monitoring progress of project
    - Methods for comparing plans and budgets to outcomes
      (Ritz 1990)
- Project Evaluation
  - Critical success factors for project implementation
    (Cooper & Kleinschmidt 1987, Lechler 1997, Pinto & Slevin 1989)
  - Reasons why projects fail
    (Hall 1980, Janis 1972, Kharbanda & Stallworthy 1983, Morris & Hough 1987, Persson 1979, Sapolsky 1972, Wilensky 1967, Kerzner 1994)

<u>Contingency Theory</u>

Major Assumptions

- All projects are not alike.
  (Pinto and Slevin 1989)

Key Areas of research and constructs examined:

- Types of projects
  (Shenhar 1993, 1995; Hartman 1995; Packendor 1994)
- Match between type of project and project management practice
  (Hartman 1995)
- Match between type of project and project success factors
  (Wideman and Shenhar 1996)
- Different levels of understanding project management
  (Morris 1994)

2.1.1 The Traditional Model of Project Management -- One Right Way

Much of the research on projects and Project Management is based on the traditional Project Management model. This model describes the process of planning, organizing, directing and controlling professional staff for the relatively short-term objective of meeting externally established goals and objectives (Kerzner 1994). The fundamental assumption that a project has a clearly and unambiguously defined task (Burke 1992, Frame 1987, Kerzner 1994, Lock 1992) allows Project Management to build on the premise that the efforts of the project manager (and team) can be directed to the efficient use of resources and techniques. Thus, planning and control are two key components of Project Management research. Planning includes the preparation of plans and the operation of the tracking system. The organizing systems track appropriate activities against the plan and report deviations to management. Project control provides for control and projection of the critical elements of the project and its process (change control mechanisms) (Humphrey 1990). A second important, although often implicit, assumption is that Project Management is an ideal form of organizing for project tasks and increases the probability of project success. Hence, project evaluation forms a third key area of research.

Most of the early work on Project Management centered on the development of *planning models* in Operations Research areas in the 1960's. Later researchers sought to develop concepts such as life cycle planning, risk analysis and project valuation. The most commonly used planning techniques are: the work break down structure, the Gantt Chart, the critical path method, the program evaluation

and review technique, and the graphical evaluation and review technique. Table 2.2 provides an overview and definition of the most commonly used Project Management techniques.

Table 2-2 Introduction to Key Project Management Tools

Technique	Description and Assumptions	Origin and History
Work Breakdown Structure (WBS)	Is the fundamental tool in Project Management Divides the project into progressively smaller and smaller elements until the degree of detail meets the planning needs of the project Identifies activities (work packages) that must be performed to complete the project Aids in defining and managing the scope of the project.	Serves the same purpose as specialization and division of labor in mass production planning. That is, the WBS assigns different tasks to different people by identifying controllable amounts of work. Is directly related to the tenets of Taylorism (1911)
Gantt Chart	Shows when different activities take place in time Recognized as the first and most widely used planning technique (Higgins & Watts, 1986; Liberatore & Titus, 1983)	Originated in 1915 Developed by Henry Gantt (a disciple of Taylor) Originally it was an expensive and time consuming activity. Few project managers cared to re-draw it on a regular basis. It tended to become "cast in bronze" until the project was well off schedule (Webster, 1994). Now most software Project Management products prepare Gantt diagrams quickly and easily so this is no longer an issue. The remaining problem of the Gantt chart is its inability to deal with resource allocation and the resulting interdependencies between activities. For instance, if two activities require the same resource of person, the Gantt chart has no way to display the need for coordination between these activities.
Critical Path Method (CPM)	Involves analyzing the precedence relationships between activities, the single estimate of the activity's duration, and the calculation of early and late start and completion times and total slack. Assumes that the duration of all activities can be known in advance and that these completion times can be altered through a reallocation of resources among activities. Reducing the resources to an activity will increase its duration and reduce it's variable cost, however if the project completion date is extended, the fixed costs will increase. The mathematical problem of the critical path is to find the optimal ratio between fixed and variable costs not exceeding the time limits (Wiest & Levy, 1969)	Developed in the stable industrial setting of the DuPont Chemical giant in the 1950s. Originated to address the remaining problem of the Gantt chart described above.

Program Evaluation and Review Technique (PERT)		Evolved in the 1950's on the very successful Polaris Missile project by a team representing the Naval Weapons Research Laboratory and Booze-Allen consultants. Polaris involved over 9000 different contractors and sub contractors. The success of the Polaris project rubbed off on the technique and it gained an extraordinary reputation right from the beginning because many attributed the success of this project to this new management technique. For instance, Admiral Rayborn credited the PERT technique with shaving a year out of the development of the project (Malcolm, Rosboom, Clark & Fazar, 1959)

While most of these tools originated before 1960, work on enhancing them remains an on-going effort of operations research typically pursued under the heading *of* ***project planning.*** Research on models and techniques of project planning is now a highly developed discipline where further discoveries are expected to be expensive relative to the effort necessary to uncover them (Packendorff 1994). However, many still view the Project Management field as composed almost solely of planning and control techniques. The advent of cheap and reasonably user friendly and sophisticated Project Management software for personal computers in the 1980's made it possible for project managers to apply the techniques to a wider scale of projects. Increased interest in planning (as evidenced in trends towards TQM and Re-engineering) coupled with efforts to develop Project Management expert systems (Schelle 1990) contributes to a renewed focus on Project Management as a technical discipline. Thus, work continues in this area primarily into ways to implement the planning models using computer software (Thamhain 1987).

There are two important streams of research literature dealing explicitly with ***project control***. These include work concerned with identifying the boundaries of the project with respect to the parent organization, and those concerned with monitoring the project's progress against the plan. The boundaries issue usually arises out of the research on the matrix organizational form (cf. reviews in Ford & Randolph 1992, Knight 1976). Much of this work focuses on the conflict that arises as a result of the use of the matrix structure. The common understanding is that conflict is dysfunctional (Archibald 1992, Thamhain & Wilemon 1975, Wilemon & Baker 1983). Some, however, suggest that small doses of conflict stimulate creativity and innovation (Barker, Tjosvold & Andrews 1988, Butler 1973, Dinsmore 1984, Hill 1975, 1977, 1983, Stinchcombe 1985b). The second topic, the monitoring and follow-up on plans and budgets, gives rise to research on methods of comparing plans and budgets to outcomes. Creating functioning routines for cost control enjoy great importance in this literature. Most of these routines demand a highly structured organizational form and the use of high frequency information capture and examinations (Ritz 1990).

Very few theories of ***project evaluation*** exist. Evaluation is typically operationalized as degree of goal fulfillment. Studies using this measure aim to determine factors that influence good and bad performance on projects. They often seek to identify critical success factors for project implementation (Cooper & Kleinschmidt 1987, Lechler 1997, Pinto & Slevin 1989). Included in such universal lists of critical success factors are project mission, project planning and control, top management support, customer involvement, etc. The role of the

project manager is seen as ensuring that these essential conditions are present and applying the traditional Project Management practices appropriately to manage the project risks arising out of the weakness of any of these conditions.

Studies addressing the underlying reasons for the success of the project are noticeably absent. It seems that successful projects are not in need of evaluation. The underlying assumption is that the success was due to the use of effective Project Management techniques. Project evaluation occurs much more frequently when projects fail. The key to preventing failure is assumed to reside in the application of the literature. Early work generally ascribed project failure to one of two causes: 1) non-rational decision making, and/or 2) the ineffective implementation of Project Management planning and controls (Hall 1980, Janis 1972, Kharbanda & Stallworthy 1983, Morris & Hough 1987, Persson 1979, Sapolsky 1972, Wilensky 1967). Many practitioners and researchers adhere to the belief that more stringent application of Project Management approaches or development of better methods will result in more successful projects (Kerzner 1994). More recent research (Hartman, 1996) describes communication failure and unmet expectations as the primary causes of project failure. In general, these studies tend to provide case descriptions but superficial and atheoretical analysis.

From the above it is easy to see that there is a flourishing research agenda in he planning and control areas of Project Management based on an identifiable and extendible theoretical base. This may lead one to think that there is no need for further theoretical development in the Project Management arena and that only

refinement and compilation of existing knowledge remains. However, projects often fail (cf. Kharbanda & Stallworthy 1983, Morris & Hough 1987). In addition, findings that only the most basic Project Management models are used in practice (Liberatore & Titus 1983, Link & Zmud 1986) and that they are often not used as the existing Project Management literature leads one to believe (Nathan 1991, Sapolsky 1972). This evidence in itself should be enough to warrant further research.

A technical review of the empirical literature turns up three critical faults in existing research that also need to be addressed. First, there is very little rigourous empirical research. Second, Project Management tends to be seen as a general theory applicable in all circumstances. Third, Project Management research tends to adopt a very mechanistic approach which limits insights into important areas. Each of these gaps is examined in the sections that follow.

A. Lack Of Empirical Research The Project Management literature provides a basis for an assumed understanding of how to manage successful projects. Reading this large, and primarily prescriptive, literature would give you the impression that we know how to manage projects. This impression is false on two counts. First, very little of this work is empirical in nature. Most is prescriptive, normative or speculative. Empirical results are not nearly as supportive of the project rhetoric as the more abundant narrative literatures might lead you to believe.

Existing empirical studies tend to employ one of three methods: 1) survey (Pinto & Slevin, 1989, 1990); 2) longitudinal case-studies (usually based on action research or consulting involvement (Benghozi, 1990; Ekstedt, Lundin & Wirdenius, 1992; Goodman & Goodman, 1972; Goodman & Goodman, 1976; Lundin & Wirdenius, 1989; Sahlin-Andersson, 1992); and, 3) retrospective case studies reconstructed after completion of the project (Borum & Christiansen, 1993; Chadha, 1981; Engwall, 1992; Goodman, 1981; Hadjikhani, 1984; Hellgren & Stjernberg, 1987; Katz, 1982a; Morris & Hough, 1987; Sapolsky, 1972; Stinchcombe, 1985a; Stinchcombe, 1985b). Most of these studies, in one way or another, use the matrix structure as a point of departure; in-depth studies on "pure" project organizations (such as Morris & Hough, 1987; Stinchcombe, 1985a; Stinchcombe, 1985b) are quite exceptional (Packendorff, 1994). Furthermore, empirical effectiveness studies often result in contradictory results.

Second, the fact that projects continue to fail (Buchanan, 1991) suggests that: 1) we do not have as good an understanding of Project Management as we might hope for or 2) we are not transfering that knowledge successfully to project managers in the field. Morris & Hough (1987) found cost overruns between 40 and 200 percent to be the rule rather than the exception. They state "Curiously, despite the enormous attention Project Management and analysis have received over the years, the track record of projects is fundamentally poor, particularly for the larger and more difficult ones. Overruns are common. Many projects appear as failures, particularly in the public view." These same sorts of statistics

continue to be reported in today's press (Globe & Mail, Sept 4, 1996; KPMG study, 1997).

Very few theoretical explanations of these deviations from plan, cost overruns, goal obsolescence and conflicts within projects or their environment exist. Deviations in project outcomes seem to be ignored in favor of stressing the alleged similarities in planning and implementing the project process. Without an understanding of these differences in outcomes, project planning and control seems doomed repeat the cycles of the past. To get at the practice of Project Management requires in-depth study of experienced project participants views on what Project Management is and how it contributes to organizations. Consequently, empirical studies assessing the practises and meanings of project reality using the narration of the project members the main source of data on "project reality" are needed (Packendorff, 1994).

B. Project Management is seen as general theory This research tends to be dominated by mechanistic understandings of organizations and projects. In most cases it follows closed model reasoning, based on the idea that a general theory of Project Management should exist and every project should be managed in this way. The underlying assumption that Project Management knowledge is applicable to all sorts of projects in all industries and environments (Engwell, 1992), is the basis for the development of the PMBOK and the drive to create a Project Management profession. This means that procedures for planning, controlling and leading projects are (or at least are supposed to be) the same regardless of the nature of the projects. Thus, construction, research and

organizational change projects are expected to be managed using the same methods.

In this way, 'Project Management' is seen as a generic concept under which different disciplines and theories contribute to our understanding of project work. Given the application of theories from a wide variety of origins, and the empirical phenomena of co-ordinated human action for the accomplishment of time limited goals, many believe that Project Management is a nascent scientific field in its own right (Packendorff, 1994).

The field is tied together by the assumption of process rationality and the existence of a consistent, unambiguous phenomenon of 'the project'. However, recent empirical work has come to question the uniformity of projects (Shenhar, 1995). Adopting a contingent approach to projects requires abandoning this basic tenet of Project Management theory. Exploring projects as socially constructed phenomenon requires an even more critical reassessment.

C. Projects viewed as tools Project Management literature tends to adopt an 'organization as machine' (Morgan, 1986) metaphor that assigns the project the role of tool. Adhering to General Systems Theory (see, for example, Kerzner, 1994), the project is a means to attain ends at higher levels in the system. This in effect explains the existence of the project in terms of its outcomes and causes; other important characteristics of the project (such as the reasons for its initiation, its internal dynamics or the motives of the individuals for participating) are overlooked or ignored. Goodman & Goodman (1976) state the issue this

way "Since a temporary system operates over a limited period of time, there is not much motivation to investigate the management problem in itself; instead the focus is on the task problem....." (494).

Most Project Management literature assumes that the reason for using a project is to get something done on time, on budget, at an adequate level of quality. This is based on the assumption of rational management decision making. However, organization theory provides abundant evidence that projects can be undertaken for unclear reasons (Sahlin-Andersson, 1992), started with the process in mind rather than the outcomes (Buchanan, 1991; Kanter, 1983), and pursued despite environmental changes that make the project objectives unattainable, obsolete or even undesired (Benghozi, 1990). By ignoring the possibility of an irrational side of organizations (Brunsson, 1989), Project Management literature's stated purpose may be more a pipe dream than an empirical reality.

Project literature also ignores the possibility that individuals engaging in project work have their own goals and interests at stake. Traditionally, individuals come to the project with skill but motivation is left to the project manager (Archibald, 1992). Consequently, projects are dealt with as virgin territory where the project manager shapes all attitudes, etc. Viewed as tools, project research ignores the impact of culture, conceptions (and misconceptions), relations to the environment and longitudinal processes. Most researchers tend to treat projects as a physical thing resembling a Work Breakdown Structure rather than a human system.

Summary The great majority of traditional Project Management literature deals with techniques and procedures rather than management practice. Project Management from this perspective can clearly be perceived as positivistic, technocentric and rationalistic. Project Management entails planning work in small measurable tasks and tracking effort against outcomes. By dividing work into small tasks and monitoring activity through the subdivision of time and the temporal elaboration of activities, Project Management is a nexus of disciplinary practices aimed at making project work predictable, calculable and manageable (Foucault, 1977; Townley, 1995). It is associated with a belief in linear progress, absolute truths, the rational planning of ideal social orders, and the commodification of knowledge and production (Harvey, 1990). The application of Project Management to uncertain tasks is a way of imposing a scientific, rational control that increases the predictability of the outcomes. In this way, it is a prototypical example of the rationalization and technocratization of management -- a theory of control.

The research tends to be non empirical and dominated by mechanistic understandings of organizations and projects. In most cases it follows closed model reasoning, based on the idea that a general theory of Project Management should exist and every project should be managed in this way.

At the same time, there exists a small but growing body of contradictory empirical research showing that:

- plans are not stable (Archibald 1992, Thamhain 1987),

- planning procedures often serve to legitimate the project rather than guide it(Sapolsky 1972),
- new and sophisticated planning tools are rarely used by practitioners (Higgins & Watts 1986, Liberatore & Titus 1983), and
- precise plans are not always the most useful management tools (Engwall 1992, Sahlin-Andersson 1992).

Clearly, evidence exists to support the claim that "the discipline as normally described is often incapable of fulfilling its objectives' (Morris 1994). Contingency approaches to the study of Project Management arose in the early 1990's as a direct response to recognition of these weaknesses in the model's explanatory power.

2.1.2 The Contingency Perspective of Project Management -- It Depends

The contingency model of Project Management is in its infancy. While still focussing on control of projects, it originates out of the empirical recognition that not all projects are alike and that we must resist the tendency to characterize all projects as fundamentally similar (Pinto & Slevin 1989). This results in an effort to identify critical contingencies and project characteristics in order to better apply appropriate Project Management tools and techniques.

The primary thrust of research based on the contingency approach has been the generation of ideal types (typologies) of projects. The largest sample study develops a taxonomy of types of projects. This taxonomy is based on a large and detailed project database of 127 projects and two data collection methods

(Shenhar 1993, 1995). It suggests that the most important variable in classifying projects is their initial level of technological uncertainty. He describes the four types of projects as those using established technology, mostly established technology, advanced technology and highly advanced technology. Shenhar suggests that these varying projects are typically found in different industries. Another classification scheme categorizes projects by the level of complexity and by the uncertainty of the outcome (Hartman 1995). Complexity is measured in terms of the number of organizations or groups involved in the project. The range or volatility of the expected outcomes measures uncertainty of outcomes. Four major classifications are suggested, representing the four quadrants created by high and low measures on each of these two dimensions (complexity and uncertainty of outcomes). Finally, Packendorff (1994) suggests that not all of what are named projects fit a traditional project definition. He explicitly views projects as temporary organizations and categorizes them on the basis of their individual and structural characteristics. He suggests that projects need to be classified according to their level of formalized structure (explicit vs. emerging) and the degree to which the individual describes him- or herself as dependent on the project or the permanent organization in completing their work. This typology produces four ideal type projects: the "pure" task force, the functional matrix organization, the action group, and the internal renewal project.

The first and most important implication of recognizing the differences among projects is that this recognition provides further reason to question the

usefulness of the efforts to derive a universal Project Management theory. This implication is explored next.

The researchers deriving these contingent typologies observed that not only does a difference in the nature of these projects exist, but that this difference also requires differences in how traditional Project Management practises are applied. Consequently, there began a move towards contingent application of the traditional Project Management model. For instance, Hartman (1995) asserts that projects with high levels of complexity and uncertainty were poorly served by traditional Project Management theory. He derived a new model of Project Management and tested its use on several projects using an action research methodology. On this small sample of projects, the new model appears to be quite successful, and further testing is planned to examine its validity (Hartman 1996). Wideman and Shenhar (1996) suggest that project success factors should match the type of project. They identify four primary categories of project success:

Internal Project Objectives –

(1) efficiency during project;

Benefit to Customer –

(2) effectiveness in the short term;

(3) effectiveness in the medium term; and,

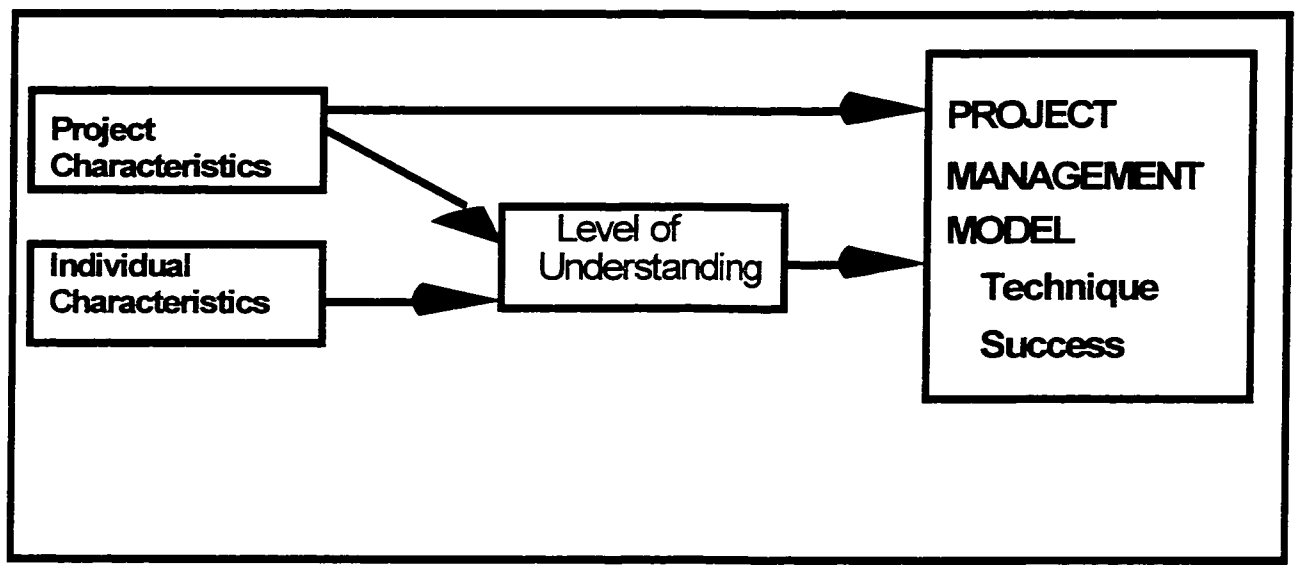
(4) effectiveness in the long term.

Initial empirical results show some correlation between these term-based success criteria and project types. These researchers provide recommendations for how to apply Project Management practices given these differences however, they restrict themselves to existing planning and control techniques.

Finally, Morris (1994) suggests that there are three different levels of understanding of Project Management. At its most basic, Project Management is a deceptively simple discipline based on integrating everything that needs to be done as the project evolves in order to ensure that its objectives are met. From this perspective, Project Management uses management practices (planning, organizing, controlling etc.) similar to other forms of management; the only difference being that it is time constrained and moves through a predetermined life cycle. A second level of understanding incorporates the first level and complicates it with additional tasks which have greater complexity (project definition, contracting, planning, measurement and team leadership issues). At its third and most complex level, Project Management includes the more strategic issues of project definition, policy, strategy, technology, legal, financial, environmental, community and others. At this level the project is no longer focusing solely on the task to be completed but also recognizing the environment in which the task must be completed. Morris (1994) suggests that most people's understanding of Project Management may go no deeper that the second level. This idea is based on the experiential knowledge of the author but lacks a basis in empirical evidence. The implications of these differing levels of understanding to the Project Management process have not been explored. The contingency

approach makes four contributions to the study of Project Management. First, projects vary on a range of significant criteria. Second, Project Management practises should vary with project type. Third, project success criteria should vary with project type. Finally, different project participants may have different levels of understanding of Project Management. Figure 2.1 synthesizes these findings pictorially.

Figure 2-1 Project Management Contingencies



The contingency approach arose due to attempts to address the lack of empirical studies on the nature of projects and Project Management. It addresses issues of how to improve Project Management *within* traditional Project Management boundaries. That is, it attempts to identify the small number of significant contingencies and the related changes required to traditional Project Management. However, it continues to pursue a few key contingencies which if identified in advance can be used to select and apply the appropriate predefined

model of Project Management. Thus, the contingency model continues the mechanistic view of projects inherent in the traditional model of Project Management. The contingency view of Project Management also continues to ignore the contradictory empirical evidence of Project Management practise's relationship to project success.

The preceding two sections explored the status of the more traditional approaches to the study of Project Management. The next section introduces a new theoretical approach to the study of Project Management and poses research questions to enrich our understanding of these important practises.

2.2 EXAMINING PROJECT MANAGEMENT AS A MATTER OF MAKING SENSE

Much organizational theory now recognizes organizational experience as a social construction of reality, institutionalized and reproduced by the human actor (Berger & Luckmann 1967). Under this approach, projects, like their surroundings, are assumed to be institutions created out of the expectations, inter-subjective understandings and reproductive actions undertaken by the humans involved in them. Adjusting the methods and theories of Project Management research to these assumptions will require studying the individual conceptions of project reality rather than searching for universal truths and mechanisms of the unambiguous phenomenon of "projects". Such research explores understandings of Project Management's role in organizations other than those connected to rational efficiency goals. Table 2.3 summarizes these streams of research and the theoretical costructs they encompass.

Table 2-3 Examining Project Management as a Matter of Making Sense

➢ **Alternative roles for project management**
- Legitimation (Saplosky 1977; Lundin 1994)
- Action generation (Starbuck 1984; Packendorff 1994)
- As a form of organizing (Lundin 1994; Packendorff 1994)

➢ **Sensemaking**

Sensemaking can be applied in two ways:
1) to explain how people interpret things, and
2) to imply a process that individuals and group use to make sense of new situations

Areas of research and constructs examined:

➢ **General understanding of theoretical foundations**

- Combinations of ethnomethodology and cognitive psychology (Schutz 1969; Weick 1977, 1995; Berger & Luckman 1967; Gephart 1979; Garfinkel 1967)
- Cognitive psychology

– Implications of using a given interpretive scheme or knowledge structure (Walsh 1995; Axelrod 1976; Argyris & Schon 1978; Brunsson 1982; Meyer 1982; Fahey & Narayanban 1989; Huff 1982; March & Simon 1958; Ranson, Hinings & Greenwood 1980; Thorngate 1980; Mischel 1981; Gioia 1986, Weick 1977)

– Cognitive dissonance theory (Weick 1995; Festinger 1957)

➢ **Levels of sensemaking** – (Wiley 1988)

- Individual level sensemaking (Wiley 1988; Walsh 1988)
- Inter-subjective sensemaking (Wiley 1988; Bittner 1967)
- Generic subjectivity (Barley 1986; Ranson, Hinings & Greenwood 1980; Gephart 1993; Walsh 1995)
- Extra-subjective (Weick 1995; Berger & Luckmann 1967; DiMaggio & Powell 1984)

➢ **Sensemaking as a process** (Weick 1995)

- Action vs. Belief Driven Sensemaking
- Triggers for Sensemaking (Louis & Sutton, 1991, Weick, 1995)

2.2.1 Alternative Roles for Project Management

The alternative roles suggested for Project Management include legitimization; action generation; and organizing versus organization. As early as 1972, Sapolsky suggested that the *primary role of Project Management might be legitimization*; therefore formal Project Management tools simply provide a facade that symbolizes control, rationalism, power and efficiency (Sapolsky 1972). Work by Lundin and Soderholm (1995) and others using institutional theory to understand differences in the application of Project Management practises furthers this line of research.

Others have suggested that *Project Management's role in generating action* in organizations (Starbuck 1983) needs further investigation. The primary purpose of projects is to accomplish action. Studying projects as action systems means spending less time on what was meant to happen and more on what actually happens. It is the enactment of individuals rather than the behavior of individuals that is of interest; action can not be studied without also investigating the expectations forming the action base and the learning occurring as a result of the action taking place (Packendorff 1994).

Finally, some suggest (Lundin and Soderholm 1995; Packendorff 1994) that we should explore *Project Management as a form of organizing* rather than a form of organization. Rather than organization's focus on structure, 'organizing' views the actions of individuals and the processes they can form as the basic elements of inquiry. Weick (1979) defined 'organizing' as "*...a consensually validated grammar for reducing equivocality by means of sensible interlocked behaviors.*

To organize is to assemble ongoing interdependent actions into sensible sequences that generate sensible outcomes" (1979: p. 3; Italics from original). This is very similar to how the word "project" is sometimes defined today:

> "Project: ...a temporary process composed of constantly changing collection of technicalities/operations involving the close coordination of heterogeneous resources to produce one or a few units of a unique product/service ..... The essential characteristic of the process by which a project is performed is the progressive elaboration of requirements/specification." (Webster 1994: p. 22-8)

Each of these three perspectives on the role of Project Management serves to question the rational mechanism underlying management action. They represent a fundamental re-thinking of Project Management in organizations, and how to evaluate project success. Packendorff (1994) suggests that it may be time for Project Management to incorporate a broader view of Project Management in organizations but he warns that "Abandoning the notion of the project manager as a Homo economicus would be to question the very foundation of present knowledge on project planning and control" (1994: p. 212). To date these perspectives are considered radical, and have not received much acceptance in either the mainstream academic or practitioners' realm. However, they do indicate that Project Management theory could be on the verge of major changes in its underlying assumptions.

These three perspectives have two things in common. The first commonality is a view of projects as emerging phenomenon; and of Project Management as a means of clarifying what needs to be done and when; or for justifying what was done rather than just a means of controlling a project. For instance, Packendorff

(1994) explicitly suggests that understanding the cognitive functioning around Project Management has a high potential to contribute to our understandings of Project Management. Engwall (1994) also suggests that "Project Management theory might be instrumental as talk for some practitioners when they try to interpret and explain their organizational lives" (Engwall 1994). This comment signals a need to view Project Management as an open and emergent process of sensemaking rather than a determinant and closed process of following prescriptions and rules.

The second commonality is that each of these new perspectives of Project Management strives to increase the complexity of our understandings of projects and Project Management. It changes our perspective of projects from rational to natural to open systems. In doing so, more ambiguity in structures, processes and environments is introduced. As the level of ambiguity increases, there is a greater need for sensemaking (Weick 1995). The next section provides an overview of key sensemaking concepts outlines a sensemaking theoretical framework (Garfinkel 1967, Gephart 1978, 1993, Walsh 1995, Weick 1979, 1995) to synthesize these commonalities and examine the kinds of research agenda such a framework would encourage.

2.2.2 The Sensemaking Perspective

The term sensemaking is commonly used in two ways. First, there is the theory of sensemaking that is about the ways people generate what they interpret (Weick 1995). The second use of the term refers to sensemaking as a process. From this perspective, sensemaking includes the efforts of individuals and social

groups as they seek, process and construct information to negotiate through new situations. This use of the term highlights the actions, activity, and creating – i.e., the process of sensemaking -- that lays down the events that are interpreted and then reinterpreted. Both approaches to sensemaking can make important contributions to our understanding of Project Management.

Sensemaking theory explains how people construct meaning in their everyday lives and is derived from Schutz's (1967) phenomenology. It combines research from the areas of ethnomethodology and cognitive psychology. *Ethnomethodology* emphasizes accounting for what one does in the presence of others to prove social competence and the rationality of actions. To ethnomethodologists, sensemaking means reasoning in ways that differ from those practices associated with rational decision-making (Weick 1995). Social psychologists view sensemaking as making sense of actions that did not follow from beliefs and self-concepts (Weick 1995). This approach assumes that social reality is essentially socially constructed on an on-going basis (Berger & Luckmann 1967). It is the sociological investigation of every day life and social practises that form the basis for individuals to socially construct a sense of shared meanings (Gephart 1993). Thus, sensemaking is the verbal, inter-subjective process of interpreting actions and events (Weick 1979, Gephart 1978).

Sensemaking practices are based on assumptions that participants:

a) share a common perspective on the world (reciprocity of perspectives);

b) employ recognizable words and terms (normal forms);

c) will interpret comments if they are vague and that the comments can be clarified later in the conversation (the etceteras principle); and,

d) will attempt to understand any unclear aspect of conversation by using background knowledge (descriptive vocabularies as indexical expressions) (Gephart 1993).

These practices form the basis for constructing interpretive schemes that assist members in making sense of the world. When sensemaking practices break down, situations become confusing or meaningless (Gephart 1978). This suggests that the reason for the frequent breakdowns in communication on projects could result from failures of these sensemaking practises.

Cognitive psychology makes two main contributions to sensemaking theory. The first is to delineate the implications of using a given interpretive scheme or knowledge structure (Walsh 1995). *[Note that knowledge structures are studied under a wide variety of names including: Cognitive Maps (Axelrod 1976); Theory of Action (Argyris & Schon 1978); Organizational Ideologies (Brunsson 1982, Meyer 1982); Causal Maps (Fahey & Narayanan 1989); Strategic Frame (Huff 1982); Frames (March & Simon 1958); Interpretive Schemes (Ranson, Hinings &*

Greenwood 1980).] This body of research suggests that knowledge structures are templates consisting of organized information about an information domain. These templates simplify and speed problem solving by providing a basis for evaluating information. The basic premise of this research is that "individuals create knowledge structures to help them process information and make decisions" (Walsh 1995: p. 286). Knowledge structures are "a mental template consisting of organized knowledge about an information environment that enables interpretation and action in that environment." (Walsh 1995: p. 286). These knowledge structures serve the purpose of transforming complex information environments into tractable ones. Knowledge structures encompass both content and structure, and are both enabling and limiting at the same time. The key advantages associated with the use of knowledge structures are that they improve the effectiveness and efficiency of information processing (Thorngate 1980) and so increase cognitive efficiency (Mischel 1981). On the other hand, in simplifying the information domain to allow processing some of the complexity is inevitably lost (Gioia 1986, Weick 1979).

The second major contribution of cognitive psychology arises out of cognitive dissonance theory (Weick 1995). Cognitive dissonance theory incorporates the idea that outcomes develop prior to definitions of the situation (Festinger 1957). In order to reduce the dissonance an individual feels surrounding the choice of one alternative over another, the individual enhances the positive attributes of the chosen solution and increases the negative features of the non-chosen alternative. In this way, the individual retrospectively changes the meaning of the

decision by altering the nature of the alternatives. Thus, the outcome of the decision is made sensible by constructing a plausible story to account for it. From a dissonance perspective, sensemaking often equates to self-justification. The individual chooses what to justify through retrospective sensemaking. The discrepancies between what should and what does happen as a result of action on the part of the individual creates an occasion for sensemaking.

2.2.3 Levels of Sense-making

Wiley (1988) identifies four levels of sensemaking: individual, inter-subjective, generic subjective and extra subjective. While we could argue over whether these are levels or simply aspects of sensemaking, conceptualizing sensemaking as being composed of different characteristics at different levels of analysis provides a means to integrate somewhat the theoretical insights described in the previous section. The following describes each level of sensemaking, identifies the key theoretical influences associated with each level, and presents some ideas of how these sensemaking concepts will prove useful in the study of Project Management.

The first level of sense-making is referred to as *Individual level sensemaking*. This level concentrates on discovering the ways individuals build or use existing knowledge structures to make sense of information and situations. Both structures of knowledge and content are relevant at this level of sensemaking. It involves the creation and use of knowledge structures to make sense. Thus, social cognition and information processing theories have a strong influence here.

At the individual level, project managers' models of Project Management can be viewed as a knowledge structure that "orders an information environment in a way that enables subsequent interpretation and action" (Walsh 1995: p. 281). Understanding how project managers' individually make sense of Project Management requires surfacing their knowledge structures and causal beliefs around the concept. Examples of research questions which would focus on this level of sensemaking include:

> What do individually constructed knowledge structures pertaining to Project Management contain and how are they structured?
>
> What impact do these structures have on reflections of practises and post-project evaluations?

The second level of sensemaking is called *Inter-subjective sensemaking.* It involves the processes by which individuals construct social reality interactively, the primary focus of ethnomethodology. Inter-subjective sensemaking is distinct from individual sensemaking because it emerges from the interchange and synthesis of two or more communicating individuals creating a level of social reality (Wiley 1988). Inter-subjectivity facilitates 1) the perception of complex events, and 2) innovations to manage the complexity. Cognitive dissonance theory also come into play in exploring how individuals make sense of discrepancies between their individual sensemaking of Project Management and the inter-subjective understandings that arise.

Exploring Project Management at the inter-subjective level requires that we determine its meaning in real scenes of action (Bittner 1967). Identifying the

"taken for granted" background stock of knowledge necessary to make Project Management sensible will start to surface the important factors of Project Management not traditionally dealt with in the literature. Research questions grounded in the inter-subjective level of sensemaking include:

> How do project participants use sensemaking practises to create a sense of shared understanding of Project Management?
>
> How do project participants justify differences between Project Management models and Project Management practise?

The third level of sensemaking is *generic subjectivity.* This level takes the form of 'scripts' (Barley 1986), 'interpretive schemes' (Ranson, Hinings & Greenwood 1980) or 'sensemaking resources' (Gephart 1993) which allow people to substitute for one another and share an understanding of a situation. Generic subjectivity operates at the level of structure. The reification of previously negotiated inter-subjective understandings of roles and rules allow individuals to take action without having to re-negotiate their understanding of the situation on an on-going basis. This allows individuals to act without continually making sense of familiar objects and circumstances. Generic subjectivity facilitates control through the mindless application of routines independent of individual or intersubjectivity. Generic sensemaking is built upon ideology, third order controls, paradigms, theories of action, tradition, stories (Weick 1995).

These theoretical constructs generate interest in determining if project managers' share a common knowledge structure recognized as "Project Management". Identification of this generic sensemaking structure would go a long way to address the question of generic practices and terminology that frequently arises

in the Project Management field (Morris 1994, Packendorff 1994, Wideman and Shenhar 1996). Walsh (1995) also suggests that an important question yet to be answered by organizational cognition is "how accurate a knowledge structure must be in order to be useful to the person employing it?....i.e. administrative scientists need to discover the nature of useful simplicity." (p. 303) He suggests that this must be done through post-decision assessments. By looking at post-decision project outcomes (judgments of success and failure) and assessing the generic and individual models of Project Management in place, one can explore: a) whether more complicated or simpler models are more often associated with perceived success or failure; and b) whether the sharing of Project Management models influences perceived success or failure of projects. Research questions of interest at this level of sensemaking include:

> What role do local shared understandings of Project Management have in how individuals make sense of Project Management?
>
> How accurate are generic knowledge structures? What impact do they have on Project Management and its outcomes?

The fourth level of sensemaking is the extra-subjective level. The *Extra-subjective* level of sensemaking involves an abstract institutional field derived from previous interaction. These are almost cultural beliefs that exist without need for reconstitution on a regular basis. Weick (1995) describes this as 'a level of symbolic reality such as we might associate with capitalism or mathematics' (p. 72). This level of sensemaking derives from institutional theory (Berger and Luckmann 1967, DiMaggio and Powell 1984). Finding common Project Management knowledge structures across project types and organizations would indicate the operation of institutional influences on Project

Management practices. Given the unitary and generic assumptions of traditional Project Management model, the extra-subjective level's influence on sensemaking around Project Management practises and definitions of success are bound to be important. Research questions of interest here include:

> What influence do institutional factors (PMI, PMBOK) have on individual's constructions of Project Management and project success criteria?

For an individual, sensemaking is the process of creating and applying knowledge structures, negotiating their inter-subjective meaning and applying generic and extra-subjective sensemaking tools where appropriate. All four levels of sensemaking interact in the individual sensemaking process to build a model of Project Management and project success criteria. Understanding how members are influenced by these different levels of sensemaking in building models of Project Management has implications for improving.

The primary orienting research question is then: "How do project participants make sense of Project Management?" The following table summarizes the key concepts associated with each level of sensemaking as described above and identifies research questions associated with each.

Table 2-4 Making Sense Concepts and Related Potential Research Questions

Orienting Research Question: How do project participants make sense of Project Management ?		
Level of Sensemaking	**Key Concepts**	**Example Research Questions**
Individual	Knowledge Structures Content Structure Information Processing	What do individually constructed knowledge structures pertaining to Project Management contain and how are they structured? What impact do these structures have on reflections on practises and post-project evaluations?

Inter-subjective	Sensemaking Practices Reciprocity Normal forms Etceteras principle Descriptive Vocabularies Cognitive Dissonance	How do project participants use sensemaking practises to create a sense of shared understanding of Project Management? How do project participants justify differences between Project Management models and Project Management practise?
Generic	Sensemaking Resources	What role do local shared understandings of Project Management have in how individual's make sense of Project Management?
Extra-subjective	Institutional Influences	What influence do institutional factors (PMI, PMBOK) have on individual's constructions of Project Management and project success criteria?

In addition, there are important theoretical questions with respect to the relationship between cognitions, actions, amended cognitions and redirected actions; and, the importance of knowledge structure veridicality (Walsh, 1995). Exploring the actual practice of Project Management on a project and comparing it to the stated purpose and function of Project Management will begin to tie differences in Project Management practice to differences in Project Management models of understanding. Examining the impact of these models on the perceived successful or unsuccessful project outcomes is a beginning toward assessing the functional utility of the knowledge representation. This study addresses these issues, analyzing what are judged to be successful and unsuccessful projects and practices, and looking at the existence of different uses and understandings of Project Management across projects, organizations and industries.

2.2.4 Project Management As A Sense-making Process

Viewed as a process, sensemaking includes the efforts of individuals and social groups as they seek, process and construct information to negotiate through

problem situations. This use of the term highlights the actions, activity, and creating – the process of sensemaking – that lays down the traces that are interpreted and then reinterpreted (Weick 1995). The key research question of interest here is:

> **How do understandings of Project Management influence the actions taken on projects, their outcomes and the judgments of these outcomes??**

Another process involved is "organizational sensemaking" (Weick 1995). Organizational sensemaking occurs at the intersection of inter-subjective and generic subjectivity where interactions that try to manage uncertainty require a mixture of the inter subjective and generic subjective. Periods of stability reflect periods where generic subjectivity is the primary sensemaking activity. Weick suggests that sensemaking through generic subjectivity is a mainstay of organizational analysis. In times of stability, generic subjectivity takes many forms including rules and scripts. Inter-subjectivity is largely irrelevant as long as the script fits the situation. Turbulence or change requires more inter-subjective activity and the use of modified scripts. If the situation changes such that the script no longer fits and generic subjectivity is no longer sufficient to make sense of the circumstances, inter subjectivity is invoked to fill the gaps. Individuals interact to synthesize new meaning. This inter-subjective activity does not completely replace generic subjectivity. In fact, generic scripts of how to modify understandings may be invoked.

Organizational sensemaking begins with either the action or the outcome and results in alteration of beliefs to create a sensible explanation for the action or

the outcome (Weick 1995: p. 168). *Belief-driven sensemaking* is based in beliefs arising from ideology or paradigms and occurs either through arguing or expecting. Arguing enables sensemaking by putting forth opposing ideas and negotiating some common understanding. Expecting engenders sensemaking through a sort of self-fulfilling prophecy. What is expected, and worked towards, happens. *Action driven sensemaking* starts with an action for which an individual is responsible (commitment), or which has happened and that requires explanation (manipulation). Committing again facilitates accomplishing expectations because people strive to a) achieve what they have committed to, and b) make sense of the world in terms of these commitments. In this case, sensemaking focuses on the question of why the action occurred. Finally, organizational sensemaking can occur through a process of manipulating expectations to arrive at an expected goal. Here, sensemaking focuses on defining what did occur. The research questions generated by these issues include:

> How do Project Management constructs provide opportunities for arguing or setting expectations that make sense of project reality or outcomes?
>
> How do Project Management constructs allow project participants to explain *what* did, in fact, happen; or to explain *why* a particular occurrence happened?
>
> Do different models of Project Management rely on different sensemaking drivers? That is, do true believers use Project Management beliefs to justify or set expectations for future actions, while more politically driven managers use Project Management to explain actions already taken?

The following table summarizes the key concepts I associate with sensemaking processes and identifies research questions for each.

Table 2-5 Sensemaking Concepts and Related Research Questions

Orienting Research Question: **How do understandings of Project Management influence the actions taken on projects, their outcomes and the judgments of these outcomes?**		
Theoretical Origin	**Concept**	**Research Questions**
Ethnomethodology	Sensemaking Resources	How do project participants use Project Management constructs to make sense of practices used on projects and project outcomes?
Organizational Sensemaking	Belief-Driven Action-Driven	How do Project Management constructs provide opportunities for arguing or setting expectations that make sense of project reality or outcomes? How do Project Management constructs allow project participants to explain why a particular occurrence happened or what did in fact happen? Do different models of Project Management rely on different sensemaking drivers? i.e., Do true believers use Project Management beliefs to justify or set expectations for future actions, while more **Politically** driven managers use Project Management to explain actions already taken?

Common understanding and some research discussed earlier, claim that unmet expectations or communication failures are the root cause of project failure. The sensemaking approach provides tools to assist in examining the operation of Project Management in organizations, and to understand why expectations are unmet or communications fail. Expectations and communication rely on the existence of a common underlying understanding of key concepts. This inter-subjective or cultural world is constructed or produced through sensemaking (Leiter 1980). If something disrupts the process and practice of sensemaking, meaning begins to disintegrate (Garfinkel 1967) and both communication and expectations fail to be shared. In the traditional Project Management model, issues of failure of sensemaking have largely been ignored by assuming a

generic and unitary model of Project Management that applies in all situations. Consequently, project success criteria can universally be assumed to be based on schedule, budget and specification measures. However, if we throw out the generic, unitary view and turn to a socially constructed (Berger & Luckmann 1967) view of the world, it becomes necessary to understand Project Management through the experience of project participants, and to recognize the possibility of multiple realities, understandings of Project Management and success criterian.

2.3 CONCLUSION

The fundamental difference between the control and the sensemaking orientation for the study of projects and Project Management resides in their underlying assumptions. The control model views projects as a form of organization while the sensemaking approach views projects as a means of organizing.

Using 'organization' as a foundational concept, the control perspective views a project as a relatively closed system, guided by objectives, managed through work division and specialization, and distinguishable from its environment. This concept of "organization" relates to rationalism and to tools. The basic idea inherent in the "organization" concept is to design, optimize, and be prepared for all eventualities before they occur. It is this concept that forms the foundation for most research on planning and control and Project Management in general. The implications for management and research based on this view is that there is a

"best" way (or a few best ways) to manage projects; the sooner we discover and apply them the sooner we will have more project success.

'Organizing', on the other hand, refers to the deliberate social interaction occurring between humans working together to accomplish a certain task. Rather than organization's focus on structure, 'organizing' views the actions of individuals and the processes they can form as the basic elements of inquiry. Thus, a sensemaking focus on Project Management directs us to look at the processes of action and interaction that enable individuals to make sense of organizational activities and to act. Managers are advised to be aware of the sensemaking processes at work and how they interact to effect the emergent projects. Researchers are directed to explore ways to facilitate the inter-subjective sensemaking to reduce communication failure and confusion.

Each perspective has a different set of implications which can be seen to be in direct conflict. Yet, each contributes in some unique way to our understanding of Project Management. The traditional model provides the tools and direction to begin a project. The contingency model reminds us to learn from the past and adapt the traditional model to fit the contextual details of the existing project. The sensemaking models incorporate the socially negotiated order of human action and stress the complex and emergent nature of project activity.

Much research is currently underway in the control perspective of Project Management. What is needed now is research that adopts a sensemaking perspective exploring the theory of Project Management as a process for making

sense of organizational activity, and the levels of sensemaking as they apply to Project Management. For an individual, sensemaking is the process of creating and applying knowledge structures, negotiating their inter-subjective meaning and applying generic and extra-subjective sensemaking tools where appropriate. All four levels of sensemaking interact in the individual sensemaking process to build an understanding of Project Management and project success criteria which the individual then uses to make sense of events on projects.

Projects continue to fail, and the control-orientation towards Project Management fails to adequately explain why they do. If, as discussed earlier, projects are becoming a fundamental structural component in organizations; then it is imperative to understand how to effectively avoid this outcome.

Moreover, if chaos is the law of nature and order is the dream of man as professed by Henry Adams, then it is time to recognize that man's dream of order as reflected in the pursuit of 'best' Project Management practices be over shadowed by accepting nature's law of chaos. Applying a sensemaking approach may allow us to understand projects more fully and make better use of the many Project Management tools and practices we have already defined.

Thus, developing an empirically based understanding of how project team members are influenced by these different sensemaking processes in building understandings of Project Management forms the basis for a significantly different research agenda on Project Management as illustrated by the breadth and depth of research questions this approach stimulates.

This chapter has presented the (traditional) control and (emerging) sensemaking approaches to understanding Project Management. In addition, it provides an exploration of key sensemaking concepts and illustrates the type of research agenda such a perspective would drive. The next chapter describes the empirical study that forms the basis of this thesis. This study is meant to provide the initial empirical data and findings to substantiate the importance of such an agenda. In particular, it is designed to assess the potential sensemaking causes of communication failure and unmet expectations on projects.

3 THE STUDY

This chapter provides descriptive information on the empirical study that informs this dissertation. Section 3.1 sets out the scope and preliminary conceptual framework that was used for initial coding of the data. Section 3.2 presents the rationale for use of a qualitative approach and phenomenological method. Section 3.3 discusses the research procedures utilized. Section 3.4 presents a descriptive overview of the data set summarizing the data collected and providing some preliminary descriptive analysis. The chapter concludes with the story of the research process (Section 3.5). I explain the mechanics of the analysis process and provide examples of how I derived the results I present in the concluding chapters.

3.1 SCOPE OF THE EMPIRICAL STUDY

As presented in Chapter 2, the application of sensemaking theory to the study of projects in itself provides enough research questions to fuel an entire research agenda. At the same time, Project Management as a phenomenon provides a rich ground from which to explore and extend our understanding of sensemaking processes in practise. The trick for this researcher was to focus on a small enough subset of these interesting questions to define a do-able project. In Project Management terms, I had to apply some "scope control" both before the start of the project and on an ongoing basis throughout the data collection and analysis in order to meet the fundamental goal of any student (to be finished).

The purpose of this study is to empirically ground our understanding of how Project Management concepts are used in practise and to illustrate how the use of these concepts contribute to the communication and expectation problems so prevalent in project failures. To do this I needed to address the two orienting questions raised above. First, I must address the question of "**How do project participants make sense of Project Management**? In doing this I expect to find some shared understandings and possibly fundamental discrepancies that will help us to understand sensemaking breakdowns on projects. I expect that at a minimum I would find understandings of Project Management reflective of both the control and sensemaking Project Management perspectives.

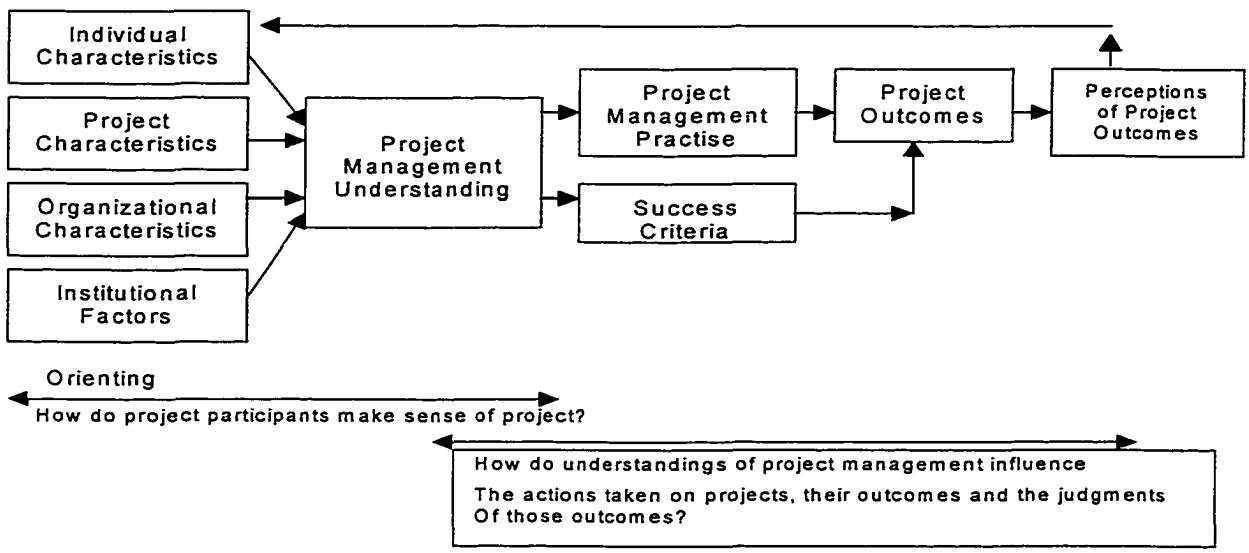
Once I can show how project participants make sense of Project Management, I can use this understanding to assess whether or not Project Management understandings held by individuals influence their practises and judgments of outcomes. Thus the second orienting question is **"How do understandings of Project Management influence the actions taken on projects, their outcomes and the judgments of these outcomes??"**

I use a subset of the sensemaking concepts introduced above to build a framework for studying how project managers make sense of Project Management and how they use Project Management practices to make sense of organizational action. For the purposes of this study, I am most interested in the interpretations, understandings and meanings related to Project Management and in the link between these cognitive aspects of sensemaking and action. In the interests of time and space, the more technical aspects of sensemaking

theory are give rather short shrift. However, wherever appropriate flags are raised in the analysis where further study could provide insights into the process of sensemaking.

Figure 3.1 depicts the preliminary conceptual framework. It incorporates the contingency elements of Project Management knowledge structure development with cognitive aspects of sensemaking theory and process concepts discussed in Chapter 2 to provide an orienting framework for organizing data collection and beginning analysis.

Figure 3-1 Preliminary Conceptual Framework



The five left most boxes in the diagram address the first orienting question: **How do project participants make sense of Project Management**? The four vertically staxed boxes overlay the influence contingency factors (individual and project characteristics) identified in Project Management literature, with the four

characteristics of sensemaking involved in developing Project Management understandings. The generic and extra subjective sensemaking are represented by organizational and institutional factors respectively. As stated earlier the interaction of these four aspects of sensemaking result in the individual's interpretive schema of Project Management used to make sense of Project Management. The box labeled Project Management Understandings represents the knowledge content and structure (or interpretive schemas) of Project Management models in use.

The five right most boxes address the second orienting questions, namely, **How do understandings of Project Management influence the actions taken on projects, their outcomes and the judgments of these outcomes?** Here, I relate the knowledge structure of Project Management with the outcomes of Project Management practice. The feedback loop reflects the interaction of making sense and sensemaking illustrated by the fact that knowledge structures are in turn changed to reflect the experience of projects.

The interview protocol included in Appendix B contains a list of all the research questions important to this study sorted by function of the question. At the highest level are the two orienting questions. Beneath their respective orienting question are the research questions I am seeking to gather data to answer. The questions that were actually asked of the participants to gather the appropriate data are listed next.

No two dimensional diagram can hope to represent the complexity of sensemaking processes at work. The preceding diagram is no exception. It is not meant to be taken literally as a causal model. The diagram is simply a tool to identify the constructs of interest and the strongest of relationships to facilitate research design. Given the grounded nature of this study, the conceptual framework and diagram are meant to provide a starting theoretical sensitivity that will be modified as needed to ensure that understanding is derived from the practise of Project Management. In this way, I expect to contribute, both empirically and theoretically, to the two base literatures that provide orienting concepts.

3.2 THE QUALITATIVE APPROACH

In order to build a theory grounded in the experience of project managers, the research design is qualitative in nature (Cresswell, 1994). The following sections justify the choice of the qualitative approach, describe the methods adopted, and examine the implications of using myself as the primary research instrument.

3.2.1 Justification

Qualitative research entails an interpretive, naturalistic approach to the subject matter. Interpretive research is based on the social construction of reality and recognizes the possibility of multiple realities. Naturalistic research requires studying phenomenon in their natural settings, and attempting to make sense of them in terms of the meaning that people bring to them on a daily basis. These two characteristics of qualitative research require the researcher to recognize the complexity inherent in the phenomenon and deal with data in a holistic manner.

There are four reasons for the choice of the qualitative paradigm for this study. First, exploratory theory, empirically grounded in the experience of "normally competent individuals in ordinary situations" (Bittner, 1967) is missing in the existing Project Management literature and still relatively rare in the sensemaking literature. The way that Project Management models are constructed and influence project process and perceptions of outcomes has been neglected in project research. The linkage between how people make sense of the world and the actions and outcomes this results in has likewise been largely ignored in organization theory(Walsh, 1995; Weick, 1995). Second, previous Project Management research has not addressed fundamental questions concerning the use of Project Management in organizations. Specifically, Project Management literature has failed to address questions such as What is Project Management? and How is it produced? Third, qualitative research is under-represented in Project Management literature. Therefore, adoption of this approach makes a methodological contribution to the field. Finally, the qualitative paradigm's emphasis on the holistic nature of phenomena and the inherent complexity of everyday life fits well with my own views on the nature of organizations and projects.

3.2.2 Method

In choosing an analytical approach for this study, three qualitative methods were explored in some depth: phenomenology, ethnography and grounded theory. I was strongly encouraged to pick one method to apply to this study. However, as I conducted the study and analyzed the data I found elements of all three

methods creeping into the study. Thus, I think it is fair to say that the ultimate method applied in this study originated as an attempt to produce grounded theory and evolved into a qualitative assessment of surfaced meanings using elements of all three of these approaches. The following describes how techniques from each of these methods were adopted for the purposes of this study.

The data is collected using techniques associated with conducting a cross sectional field study (Werner & Schoepfle, 1987) or focused ethnography. This approach means that it is a time-limited exploratory study within a fairly discrete group or organization. Data is collected through selected episodes of participant observation combined with unstructured and semi-structured interviews with persons knowledgeable about the problem of study. While this is not an appropriate method for conducting a full scale ethnography of an organizational context, it is considered an adequate approach to describe selected aspects of a practice (Spradley, 1979). The results of this approach are a data set rich in description of the culture of Project Management and the meaning systems project managers use to organize their behavior.

A phenomenological approach is the primary analytic approach used to address the first orienting research question. In this case, a phenomenological analysis would address the unstructured responses to the question 'What is Project Management?'. Good phenomenological analysis provides multiple interpretations of the phenomena, illustrating both uniqueness and diversity (Wilson & Hutchinson, 1991). In this case, a phenomenological analysis of

unstructured responses to questions about project management generates common themes and shared meanings which form the basis of developing understandings of project management.

The second orienting research question calls for identifying Project Management constructs evident in the data, comparing them to those from the literature, and capturing the relationships between these constructs and the understandings of Project Management surfaced through the phenomenological analysis. Grounded theory (Glaser & Strauss, 1967; Strauss & Corbin, 1990) tools associated with theoretical sampling, basic coding techniques, indexing, constant comparative analysis, and summarizing processes where useful here.

The grounded theory method results in concepts and constructs grounded in data that reflect theoretical sensitivity and have imagery and contextual validity for those involved in the experience. A grounded theory approach produces interpretive analysis and conceptual schemes which depict, explain and predict the variations of behavior given certain contextual conditions. The resulting findings link contextual factors to the formation of knowledge structures with respect to Project Management theory and explain how these in turn impact on the Project Management process and judgements of outcomes.

I adopt two modifications from Glaser & Strauss' (1967) original formulation. First, this study builds on a "Straussian" adaptation of grounded theory (Strauss & Corbin, 1990). Under this approach, I explicitly provide a preliminary theoretical framework on which to base the early data collection and analysis.

This preliminary framework takes explicit account of my project experience and acknowledges key concepts from both the Project Management and sensemaking literatures. My intent is to ground project management theory in the experience of project participants while surfacing new meaning themes and applications not necessarily evident in the literature. I make no pretense of being able to leave my experience and exposure to the technical literatures out of the process. A second, and related, modification entails incorporating an awareness of the existence and operation of structural phenomenon and remaining open to broader social theory (Layder, 1994). This entails attending to the macro sociological world (institutions, formal organization, power and authority) at the same time as the micro world of situated action. Applying Wiley's (1978) four levels of sensemaking in constructing an analysis of Project Management understandings is evidence of this approach. Other technical components of grounded theory (e.g. theoretical sampling, constant comparison, saturation and analysis of data as data collection proceeds will be incorporated into the research procedures discussed below.

3.2.3 Researcher as Instrument

In qualitative research, the researcher often is the primary instrument. As with any research, it is important to understand as much as possible about the instrument used in order to judge the quality of the results. Thus, the qualitative approach requires explicit acknowledgment of my relationship to the topic under study to make known my pre-suppositions about the phenomenon understood and to identify potential areas of bias. The most fundamental challenge to

researchers using qualitative methods to get at the subject's knowledge and experience of a phenomenon is to ensure that they are not measuring their own knowledge and experience (Morris, 1994).

I do not come to this project with a blank slate. My interests, values and project experience shape my motivation to do this study. Prior to undertaking my Ph.D., I worked as a management consultant for over eight years on more than twenty projects in a variety of profit and not-for-profit organizations. The roles I played on these projects ranged from junior analyst to project manager or Project Management coach.

My experience of projects suggests that Project Management judged on the rational grounds it professes usually fails miserably. One of my goals in coming back to school was to understand why this happens. I currently believe that at least part of the reason for this is that our understanding of the role of Project Management in organizations has been restricted to its application as a technical rational tool. However, empirical evidence suggests that other understandings and uses of Project Management practices exist. Thus, this study is motivated by dissonance between rational management models and my experience of projects.

I have in a sense a vested interest in the outcome of the study. This interest does not mean that I wish to find specific outcomes or prove a point but rather that the energy developed through concerns raised in my own experience of projects fuel my interest in the topic. I do not see this as a limitation in that I

believe that all scientific inquiry begins with a biased curiosity on the part of the researcher. It is not possible to keep one's own experience, values and interests from contributing to our analysis of phenomenon. Rather, I think that it is important to search for, recognize and state such bias and to be aware of how they might influence the analysis.

One step towards addressing this issue is to acknowledge my own background and potential biases and to remain aware of these throughout the analysis. Prior to each interview, I will attempt to bracket my experiential knowledge in order to focus on the empirical reality of the subjects. There is also some support for drawing on my years of project experience as an ethnographic resource (Wetherell and Potter, 1992). This experience not only explains my interest in the topic but also provides enough of an understanding of the language and situations under study to appreciate the often subtle nuances in the use of the language.

3.2.4 Conclusion

The preceding justified the choice of a qualitative, phenomenological and grounded approach utilizing myself as the primary research instrument. Once these decisions are made, it becomes necessary to balance the requirements of an inductive methodology with the logistics of doing research into managerial activity across both organizations and projects. Inductive methods tend to be time consuming, costly, and intrusive upon all parties involved in the research. This study is constrained by the need to sample informants from projects varying by the nature of the organization and the outcome; the desire to complete the

study in a realistic time frame in order to disseminate information on practices that still exist; and; the importance of minimizing intrusion upon participating project managers and organizations. I address these issues in the following section.

3.3 RESEARCH DESIGN

This study explores for differences in the project participant's understandings of Project Management. Section 3.3.1 reviews the sampling strategy, the choices made in establishing the initial mix of projects and organizations to be sampled, the strategy for gaining access to these sites, and the rational for multiple cases. Section 3.3.2 discusses the types of data collected. Section 3.3.3 presents the research procedures used in data collection and preparation.

3.3.1 Sampling Strategy

The sampling strategy is based on applying a theoretical sampling frame. Theoretical sampling entails sampling on the basis of concepts that have theoretical relevance to the emerging theory. That is the sampling strategy was designed to ensure collection of data relevant to the theory as it is developed. Initial sampling decisions were made based on the preliminary conceptual framework illustrated in Figure 3.1. Subsequent sampling ensured that the concepts arising out of the data are adequately covered. Data collection continued until the concepts and relationships did not differ between sampling incidents (i.e., saturation is reached).

Construction and information system project types were selected because they represent a relatively common form of project, they are similar in that they are

each involved in a building process, they are dissimilar in that Project Management use in construction is well established and relatively successful while Project Management use in information technology is still early in its adoption, its usefulness is debated and there seem to be a high proportion of failures. They also represent widely dispersed points on either Shenhar's (1995) technological uncertainty or Hartman's (1996) uncertainty of outcomes project typologies. Within each organization and project typification, a minimum of one successful and one less successful project was studied to maximize similarities and dissimilarities.

In choosing the organizations to include in the study, I chose to restrict this study to organizations for which projects are a fact of life. Within this type of organization, I chose to look at engineering consulting and information system departments in order to gain access to the types of projects discussed above. This should produce significant differences in project experience, uniqueness and frequency across organizations.

One of the key issues in studying elites is the negotiation of access. Purposeful sampling through personal contacts is recognized as the most successful way to accomplish this. Thus, organizations likely to be involved in projects of the types described above were identified based on personal experience, interviews with practicing project managers and academic researchers. The sample of organizations was chosen such that it was geographically accessible on an ongoing basis, was replicable in other regions for future comparison basis, the individual organizations have not been over-researched and, finally, the

organizations and industries are personally interesting to the researcher to sustain long-term intensive interest. Wherever possible, the identification of organizations came with a personal reference to an individual having responsibility for projects in the organization with whom to start negotiating entry.

The next step was to contact identified individuals within organizations likely to employ projects with the characteristics of interest. In the interests of time conservation, I began by attempting to contact identified actors by phone. The phone contact elicited an initial interview to discuss the purpose of the research and to gain entry into the organization. The opportunity was taken to gather information on the importance of Project Management to the organization and specific concerns with it. This information provides contextual background to the individual project manager's perceptions.

Once permission to proceed was gained, two specific projects within each organization were examined -- one considered to be highly successful and one much less so. I did not impose a success criterion on the projects. I asked each participant to define project success and to evaluate the project on this basis. One stage of analysis was to examine how success is constructed and used to evaluate the projects. I interviewed the project manager in all cases. The senior manager introduced me to these individuals and supported my research intentions. The exact number of informants per project type was determined using a process called snowball sampling. At the end of each interview, a decision was made as to whether there are additional people that should be interviewed in light of the information gained in the interview.

To summarize, this study began with two organizations and sets of successful and unsuccessful projects. Within each organization, at least one successful and one less successful project was studied. For purposes of holding the context the same, one project of each outcome was studied within each firm. This minimum of four projects forms the basis of an analysis of the different sensemaking involved in successful and unsuccessful Project Management practises across project and organization types. A maximum of nine and a minimum of five interviews was conducted for each project. In all but one case[2], all those identified as key participants on the project were interviewed.

There are basically three reasons to compare multiple cases (Yin, 1984). The first is to increase the generalizability as much as possible. Findings from one case can be compared to another to see if they make sense beyond a single case. Second, through comparison we can better understand how Project Management practices are influenced by contextual differences. Finally, using multiple cases allows me to test the robustness of the concepts and linkages (Miles & Huberman, 1994). While no assumption is made that the projects are directly comparable, I attempt to provide some general interpretations about Project Management practices which are grounded in all the cases.

3.3.2 Types of Data

The primary source of data for this study is transcripts of interviews with project

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[2] In this case, the individual in question had been identified as a marginal participant and asked the researcher for payment at his normal consulting rates to participate in the study.

participants. These interviews were composed of an unstructured component and a semi-structured component. This research analyzes the understanding of Project Management held by those involved in projects, their experience of Project Management methods in practice on a specific project, their judgment of project outcomes, and the relationship understandings of Project Management have to the definitions and construction of project success. Interviews lasted between one and three hours.

The unstructured portion of the interviews allows theorizing on how members produce sensible descriptions. It was important to allow respondents to decide what to report and to minimize researcher effect on the content and structure of their descriptions. Also, since this research effort involves theory generation, a rigid theoretical framework on which to base a structured interview was not available. At the same time, there are some theoretical concepts guiding this research and I am interested in the contextual impacts on how respondents make sense of Project Management, therefore, I concluded each interview with a set of semi-structured questions to provide a baseline of comparable data for each respondent.

The unstructured portion of the interview began by asking the respondent to define Project Management. That is, respond to the question: What is Project Management? The second unstructured portion of the interview probed the participant's most recent Project Management experience (i.e., tell me about the project you have most recently completed). These questions followed Spradley's (1979) approach to conducting ethnographic interviews. The interview started

with descriptive questions of the form "Please describe your most recent project experience for me?" Later interviews incorporated understandings gleaned from earlier interviews to provide a basis for asking structural and contrast questions. Finally, I pointed out what I see to be contradictions between the respondent's prescribed and experienced versions of Project Management and asked for explanations. Drawing on Wetherell & Potter's (1992) approach, this portion of the interview was slightly more directed and challenging than would normally be appropriate in an ethnographic interview. These questions were included to try to tease out the informant's explanations of the discrepancies (i.e. to get at the informants reasoning process rather than simply explanation).

The semi-structured portion of the interview explored the participant's experience with Project Management and contextual descriptions of the project. Respondent validation was useful in highlighting the issues that participants take to be of higher or lesser importance.

Beyond transcripts of actual interviews, the study is informed by interview notes, notes on site visits, company documents, project files, media clippings on the award-winning project and notes from project meetings that I attended in each of the two sponsoring organizations. The interview and site notes, and notes from meetings in the sponsoring organizations, provide contextual and observational data not immediately evident from the transcribed tapes. By far the most important of the in-house documentary supplements were the project files that provided access to the memos, status reports, plans and schedules existing for the projects under study. As the projects were studied retrospectively, the

project meetings I attended in sponsoring organizations were not related to the projects under study. Nevertheless, they provided contextual clues as to the nature and climate of Project Management in these organizations.

3.3.3 Data Collection and Preparation

All interviews were conducted in the home setting of the interviewee whenever possible. With the permission of the respondents, all interviews were taped. I did not experience any resistance to taping as the information being requested is not expected to be of a sensitive nature.

A three-section field note protocol (Cresswell, 1994) was filled out immediately after each interview (See example in Appendix B). One section was used to record observations of the interview site. The second section describes the interview process. The third section record my reflections (i.e., speculation, feelings, impressions (Cresswell, 1994)) on the interview and on how the information from various interviews is related. These reflections serve as an additional source of data and facilitate the ongoing interplay between data collection, analysis and evolving understanding (Glaser & Strauss, 1967; Strauss & Corbin, 1990). See Appendix C for an example of a fieldnote, an interview summary and a transcript.

I listened to each interview within three days of conducting it. My goal was to transcribe each interview as soon as possible after conducting it. This goal slipped a little to accommodate the realities of data collection, analysis and working. I transcribed the early interviews myself but decided after the first ten

or so that this was a task I could delegate. All the data for the first project was collected and prepared before beginning data collection on another project. After that data collection, preparation, and analysis was an ongoing and inter related activity. Data collection on the last two projects proceed apace with transcription.

All interviews were input into a computer software designed to facilitate the analysis of qualitative data (NUDIST: Richards & Richards, 1990, 1994). Supplementary documents were indexed to interviews or entered into NUDIST where appropriate. I used NUDIST to organize, sort and retrieve data in a timely fashion. The Nudist software simply facilitated the qualitative processes of indexing, searching and theorizing.

The use of the computer for analysis facilitates far more, and far more complex, analysis than would be possible using manual systems. It provides an easy and Sophisticated system for searching for patterns in data. The primary benefit of this system over a manual approach is the ease of reorganization, re-classifying, deleting and combining categories. I modified the index and create new categories on an ongoing basis. In theory, using the command writing facility the researcher can save particular analyses to be carried out on new data. In this way the analysis of one interview can be duplicated on any other. I did not find this to be a useful use of time in the analysis process.

3.4 THE DATA SET

In total I examined five projects, conducting a total of 37 interviews with 27 key participants. Projects, interviews and participants are described below.

3.4.1 The Projects

My goal was to collect data on four projects – two engineering consulting/construction projects and two information technology design and build projects. I wanted two projects, one considered successful and one considered less successful (a failure), from each of two organizations. I did not give any criteria for success or failure. I simply asked for projects reflecting these outcomes. In the interview process I asked participants to define success and failure and to judge the projects on a scale of 1 – 10 with 10 representing ultimate success. This variation in project outcomes was included as a way to explore the possibility of linking cognitive structures to actions and outcomes on projects.

Given my experience and exposure to information technology types of projects, I chose to begin the research cycle by exploring the engineering. Through personal contacts, I was introduced to a company interested in participating in the research and it became my first research site. I began by looking at a project identified initially as a failure. When I had completed the interviewing for that project, I began interviewing for the successful project. It soon became clear that my research organization played little to no role in the Project Management of this project. After conducting four interviews on this project, I raised my concerns with the organization's management who confirmed my impressions. I

was then given another project to study. Thus, I looked at three projects in this firm. I conducted 21 interviews in this organization (9 on the first project, 4 on the second and 8 on the third).

Gaining access to the information technology projects proved to be a little more work. The first two companies I spoke to expressed interest in the research but could not participate in the timeframe I had for data collection. Through another contact, I was introduced to a third organization that was interested in participating in the study. This organization had a project they considered a complete success, which was being considered for the Top, IS project in Canada Award by the Canadian Information Processing Association (they subsequently were chosen as runner up). They also identified a project that they considered a great failure for my study. In total, I conducted 16 interviews in this organization, 8 with respect to each project.

Each project is briefly described on the following pages.

Computer Facility - In 1989, ADW was asked to manage the design and construction of a $3 million dollar building to house the computer and the information system professionals on a multi-million dollar industrial site. The project was completed 4 months late after 3 delays and approximately 20% over budget. The client specifications changed continually over the course of the project.

The design had begun in the industrial company's internal engineering department some months before ADW was sought out. A new manager of

projects quickly caught on that the project was being designed to industrial standards which are significantly higher than commercial building standards. Given that the function of the building was more commercial than industrial, he hired ASW with the explicit goal of capturing these savings, which should amount to approximately 15% of the cost of the building.

ADW management first identified this project as a failure to be investigated. According to them, the Project Management process was sloppy; the project came in late and over-budget, and failed to meet its most significant objective (realizing the savings of building to commercial standards). However, after the first meeting with the primary client, where he expressed high satisfaction with the project and judged it a success, the attitude of ADW changed and the judgement of the project became ambiguous.

Tire Warehouse - ADW was hired in early 1993 to provide engineering and Project Management support to build a Tire Warehouse. The total size of the project was approximately $6 million. While the client had built numerous of these warehouses across the country, this warehouse was to be larger and use new operational technology and so it was considered slightly more complex than a simple design and build project. The project came in 1.5 months early on a seven-month schedule and 10% under-budget. The client specifications were set at the start of the project and were not changed. Both ADW and the client were very happy with the operation of this project.

However, it became clear very early in my investigation of this project that while it was a successful project, the engineering consulting company had very little of a role to play in the management of this project. It was managed by the owner organization. I kept the data because it was a successfully managed project but asked for another project to analyze with respect to the engineering consulting company.

Operations Room Refit - In early 1995, ADW was approached to provide some expert advice on the impact of reorganizing and designing the operations room for a major rail operation. Shortly there after, they were hired to provide the engineering and Project Management talent to realize the refit. The construction and design was expected to take a total of nine months at a cost of approximately $2.5 million. The project came in on time and on budget and both sides expressed satisfaction with the project.

The primary challenge faced by this project was to refit the operations room without ever shutting down the operations of the rail line. This meant that the project had serious logistical constraints. Work in one part of the floor could only take place after the workers had been successfully relocated for the interim. Also, the project, via noise and dust for instance, could not be allowed to interfere with the operations. These logistical constraints caused numerous specification and schedule changes over the course of the project.

Price Worksheet - In 1987, CP RAIL, driven by deregulation pressures, identified a need to have the contracting and costing work of its marketing and

accounting departments automated. This project was originally expected to take roughly two years at a cost of approximately $2 million. After three iterations, more than ten years and more than 15 million dollars, the project is still not complete. While the company has successfully automated the business requirements, they have yet to make the system run efficiently enough to actually be used by the end users. All management parties consider this to be a significant failure. However, most feel that if it can be implemented it has potential through sales to other rail organizations to recoup the development costs and potentially turn into a success. It seems that participants hold out hope for redemption of even the most unsuccessful of the projects studied leading some to classify this as a total failure with the potential of moderate success in the long term. Thus, this project is coded as a total failure/moderate success.

The first phase of the project (estimated at 2 years and $2 million) was a highly ambitious effort to use state of the art technology to automate highly complex and undocumented business practises. After spending almost 7 years and roughly 10 million dollars, the project delivered dramatically scaled back but working results. Unfortunately, when the system was put into production, the new technology could not service the load. It ran far too slowly to be used in production.

The second phase of the project (estimated at 9 months and 2 million dollars) was designed to upgrade the technology to enable the system to run fast enough

to be useful. Today, 2 years and almost 5 million dollars later, the system has been rolled out to the users but has found little acceptance to date.

The third phase of the project is estimated to last less than one year and to cost roughly $700,000. The objective of this phase is to clean up the operations of the system and speed it up so that it can be made commercially available to other railroads. It is motivated by the amount of recognition the system has received for automating extremely complex business practises and in an effort to recoup some of the huge development costs incurred to date. The ultimate success of the project may depend on this phase, which should be completed in the next year or so.

Iron Highway - The Iron Highway project began as a joint effort of the commercial and operations departments initiating a major effort to get back some of the short haul rail traffic they had lost to trucking companies. It had become clear that their service to transport trucks from one depot to another was not meeting the trucker's needs predominantly because of the wait time involved in registering the loads and in picking up the loads at the other end. This team recognized that something had to be done to master the paper work and speed up the process. At this point they brought in the IS people to develop a system to support this new product.

The project was defined as a pioneering effort to use a new technology to support new and evolving requirements in a two-year time frame with a budget of 1.5 million dollars. It came in slightly over budget and slightly late but a huge

success. The project has been recognized internally as a major success and has received national external recognition. In November of 1998, it was recognized as the Canadian Information Processing Association's information technology project of the year.

Comparative Summaries of Projects Studied

Thus, in total, I examined five projects. Three were identified as successes and two as failures. All five projects started out as expenditures of $2 to $6M and expected to be completed in less than two years. Budget variance ranged from –10% to 100%+. Schedule variance ranged from –20% to almost 300%. Surprisingly, customer satisfaction with the end product appears to have been high in all but one case. In all but one project, the specifications changed constantly over the life of the project and in one case that was a recognized requirement of the project up front.

Table 3.1 summarizes the key characteristics of these projects.

Table 3-1 Project Summaries

Project	Product	Type	Bud. $	Actual $	Schedule	Duration	Client Satis-faction	Specific-ations	Outcome	# Inter-views
A. 1989	Computer Facility	Eng	$3M	$3.6M	9mon	13mon	High	Changed Constantly	Failure	9
B. 1993	Tire Warehouse	Eng	$6M	$5.4M	7mon	5.5mon	High	Did not change	Success	4
C. 1995-1996	Operations Control Room	Eng	$2.5M	$2.5M	1.5yrs 6 mon	2 yrs 6mon	High	Changed Constantly	Success	8
D. 1987-	Price Worksheet	IT	$4.5M $2M $.7M	$10M $5M ($1M+)	2yrs 9mon 1yr	7 yrs 2 yrs (1 yr+)	Low Low/ Med ?	Changed by owner Changed by IS	Total Failure (Mod. Success?)	8
E. 1993-	Iron Highway	IT	$1.5M Includes 15%Cont	$1.8M	2yrs	26mon	High	Evolved	Success	8
										37

Note: See Appendix D for 2 to 3-page summaries of each project.

3.4.2 The Interviews

For each project, I interviewed the person the project managers reported to: the Vice President of Operations in one organization and the Director of Systems Development in the other organization. In this interview I asked for their perspective on the project and a list of key players to be interviewed. This list of key players always included the project manager, the project owner and at least one other key project participant from both sides. Typically as the interviews proceeded, other key players to be interviewed were identified. In general, I was very well received by all I asked to interview. The only exception was a consultant on one of the projects who did not exactly decline to be interviewed but wanted to know who would be paying for his time. Given the constraints of

the study and his relatively minor role on the management of the project, I did not pursue obtaining that interview.

In total, I conducted 37 interviews. Twenty-seven were conducted in the participants' office or place of work; the remaining ten were conducted over the telephone, with participants located in Michigan, Toronto, and Halifax. Thirty-three of these interviews were recorded in approximately 60 hours of tapes. Each interview was transcribed verbatim which resulted in over 400 pages and 19,000 lines of transcript. In addition, 4 interviews, which were not taped because of technical problems (faulty tapes, noisy phone lines, or in one case operator error), were analyzed based on interview notes made during and immediately after the interviews. Interview details are provided in Table 3.2.

Table 3-2 Summary of Interviews

Participant	Project	Type	Org'n	Role	Pages	Lines	Mode
Belsyck	A	ENG	Dow	Site Superintendent	14	809	
Cullen	A	ENG	ADW	Observer	14	585	
Devine	A	ENG	ADW	VP	Not taped	200	
Gillis	A	ENG	ADW	Consul PM	13	804	
Jensen	A	ENG	ADW	Resource Coordinator	12	701	
Moore	A	ENG	Dow	Owner	12	651	Telephone
Murdock	A	ENG	Dow	Owner PM	14	784	
Peters	A	ENG	Poole	Construction PM	Not taped	207	
Ryder	A	ENG	Arch	Arch PM	12	736	
Bingley	B	ENG	Mich	Owner PM	20	989	Telephone
Devine	B	ENG	ADW	VP	5	204	
Gillis	B	ENG	ADW	Consul PM	15	773	
Jensen	B	ENG	ADW	Resource Coordinator	5	283	
Devine	C	ENG	ADW	VP	12	669	
Gillis	C	ENG	ADW	Contributor	6	276	
Greg	C	ENG	CNRAIL	Construction Supe	4	169	
Jensen	C	ENG	ADW	Resource Coordinator	6	335	
Roberts	C	ENG	CNRAIL	Construction PM	15	853	
Smith	C	ENG	CNRAIL	Owner	9	550	Telephone
Vanderwal	C	ENG	Arch	Arch PM	9	478	
Wilkinson	C	ENG	Contr	Consul PM	9	513	
Banham	D	IS	CPRail	Owner PM3	4	66	
Blackwell	D	IS	CPRail	Owner	5	73	
Godman	D	IS	CPRail	Owner PM1	9	575	Telephone
McKay	D	IS	CPRail	IS PM	27	926	
Nash	D	IS	Contr	Owner PM2	25	853	Telephone
Savard	D	IS	CPRail	Contributor	15	515	
Walker	D	IS	CPRail	Owner	10	467	Telephone
Werner	D	IS	CPRail	IS Director	12	595	
Banham	E	IS	CPRail	Observer	5	157	
Blackwell	E	IS	CPRail	Owner	16	705	
Caroline	E	IS	CPRail	PR Manager	Not taped	155	
Miller	E	IS	CPRail	Owner PM	17	568	Telephone
Parry	E	IS	CPRail	Owner PM	20	653	Telephone
Tien	E	IS	CPRail	IS PM	19	639	Telephone
Turner	E	IS	CIPA	Outside observer	Not taped	295	Telephone
Werner	E	IS	CPRail	IS Director	9	565	
Total	5	2	10		399	19376	

Once the participant gave informed consent to participate in the study, the tape was turned on and he/she was asked "What is Project Management?" and "What

is project success?" Each was encouraged to share all the thoughts, perceptions and feelings they had with respect to these two concepts. The initial questions were open-ended. I encouraged their responses through encouraging comments like "right", but did not direct the conversation until they had run out of comments. The second set of questions dealt with the specific project understudy. I asked each participant to "Tell me the story of the project" and "Judge the success of the project.

Before concluding the interview, I asked some directive questions to get at information interviewees may not have addressed or more particularly why such information was omitted. In some cases I asked a project manager specific questions about the tools and techniques used to manage the project if these had not been forthcoming. In other cases, I asked the participant to reconcile the success criteria they had proposed with their judgments on the success of the project in question. For instance, I asked one project manager supporting traditional measures of project success based on time, budget and specifications, to reconcile the discrepancy between the use of these criteria and his judgment of his project as success even though it came in 20% over budget and 4 months late after being postponed twice. For the most part, the directive questions forced participants to "make sense" in real time of the differences between what they professed about Project Management and the actual practises they described using on projects.

3.4.3 The Participants

In total, I interviewed 27 different individuals from five projects, involving ten organizations. The participants ranged in age from their early 30s to late 50s. The least experienced interviewee had never actually been involved in a project but had played a key role in documenting the project's success for external review. The next least experienced participant had managed 3 projects over the last 8 years. The most experienced participant had managed thousands of projects over the last 25 years. Years of work experience ranged from 5 to 30. Most of those interviewed had over 20 years of work experience, much of it in a project environment. The entire sample, except two individuals, had higher than high school education. A slight majority of those interviewed (19 of 37) had at least one university degree. Eight of those interviewed held engineering degrees. Five held commerce degrees and one held both an engineering degree and an MBA.

In comparing and contrasting the participants across types of projects (IS vs. Eng.), the biggest difference between the two samples appears to be in the number of projects worked on average and, not surprisingly, the education of the participants. The engineering sample claims more project experience than the IS sample. I expect that this is due to the nature of the project work these two samples engage in. In many cases, the engineers work on only the early planning phases of projects and, thus, work on many projects over the course of a year. The IS projects, on the other hand, are typically multi-year projects requiring consistent involvement. This may also be due to the fact that the

engineering sample comes out of an explicitly consulting organization while the IS sample comes out of an internally based consulting organization. The education discrepancy is not surprising. The engineering sample contains a majority of those trained as engineers while the IS sample has a more varied educational background, ranging from math to geography, engineering to commerce.

Five interviewees were interviewed twice due to his/her involvement in more than one of the projects under study. Where I interviewed the same participant more than once, interviews beyond the first focussed only on the project itself and the participant was not asked to define Project Management or project success again. Demographic descriptions of the participants are presented in Table 3.3.

Table 3-3 Participant Summary

Participant	Projec	Type	Org'n	Position	Yrs Exp	Yr Grad	Education	# Projs	Mng'd?	PM Training
Belsyck	A	ENG	Dow	Site Supervisor	23	1976	Beng	100's	50%	lots of short seminars
Cullen	A	ENG	ADW	Project Manager	7	1990	Beng	100	10%	enrolled in PMI training
Devine	A,B,C	ENG	ADW	VP Operations	20	1977	Beng	100's		None
Gillis	A,B,C	ENG	ADW	Project Manager	26	1976	Beng	1000's	5%	None
Jensen	A,B,C	ENG	ADW	Resource Coordinator	20	1973	Nait Eng Design	100's/yr	20%	None
Moore	A	ENG	Dow	Director, IS Operations	23	1974	Math	200	50%	None
Murdock	A	ENG	Dow	Director, Proj. Mgers	20	1975	BEng, Mgt Certificate	50	100%	None- teaches PM at UofA
Ryder	A	ENG	Arch	Partner	30	1966/ 1968	BArch, MPM	100	75%	Masters in Project Mgt
Bingley	B	ENG	Mich	Project Mngr, Construction	25	1973	HS, Land Surveyor	3-5/year	100%	2 or 3 2 day seminars
Greg	C	ENG	CNRAIL	Supervisor, Construction	15	1983	HS, Const. Appr	Many		None
Roberts	C	ENG	CNRAIL	Project Mngr, Construction	27	1970	HS, Eng Technician	1000	100%	6 month PM at college
Smith	C	ENG	CNRAIL	Manager, Operations	20					None
Vanderwal	C	ENG	Arch	Partner	22	1968 /1976	BA, MA (Archi)	1000	10%	None
Wilkinson	C	ENG	Contr	Project Manager	30	1970	Eng Technician	100's	75%	None
Banham	D,E	IS	CPRail	PM, Commercial	8	1990	Bcom	3	100%	None
Blackwell	D,E	IS	CPRail	Director, Commercial	20	1979	BCom, Marketing	50's	80%	3 day Uof C Inhouse
Godman	D	IS	CPRail	Manager, Accounting	23	1976	BCom, Accounting	10	5%	None
McKay	D	IS	CPRail	Project Manager, IS	20	1979	Math	20	15%	2
Nash	D	IS	Contr	PM, Commercial	8	1990	Jt Eng and Com	15	50%	2 seminars
Savard	D	IS	CPRail	Technical Architect	20	1977	HS	12	0%	a few 2 day seminars
Walker	D	IS	CPRail	Director, Accounting?	20		Math	60	70%	1 3 day seminar
Werner	D,E	IS	CPRail	Director, IS Operations	28	1967 /1970	Math/Elec Eng			None
Caroline	E	IS	CPRail	Manager, IS Public Rel.	5	1993	BA	0	0%	None
Miller	E	IS	CPRail	Director, Iron Highway	18	1980	BCom, Marketing	10	30%	A couple of seminars
Parry	E	IS	CPRail	Director, Iron Highway	20		BA/MA Geography			None
Tien	E	IS	CPRail	Project Manager, IS	8	1990/ 1998	Eng/MBA	12	100%	Self study for PMP
Turner	E	IS	CIPA?	Selection Committee	30			100's	70%	Many PM Seminars

3.5 ANALYSIS PROCESS

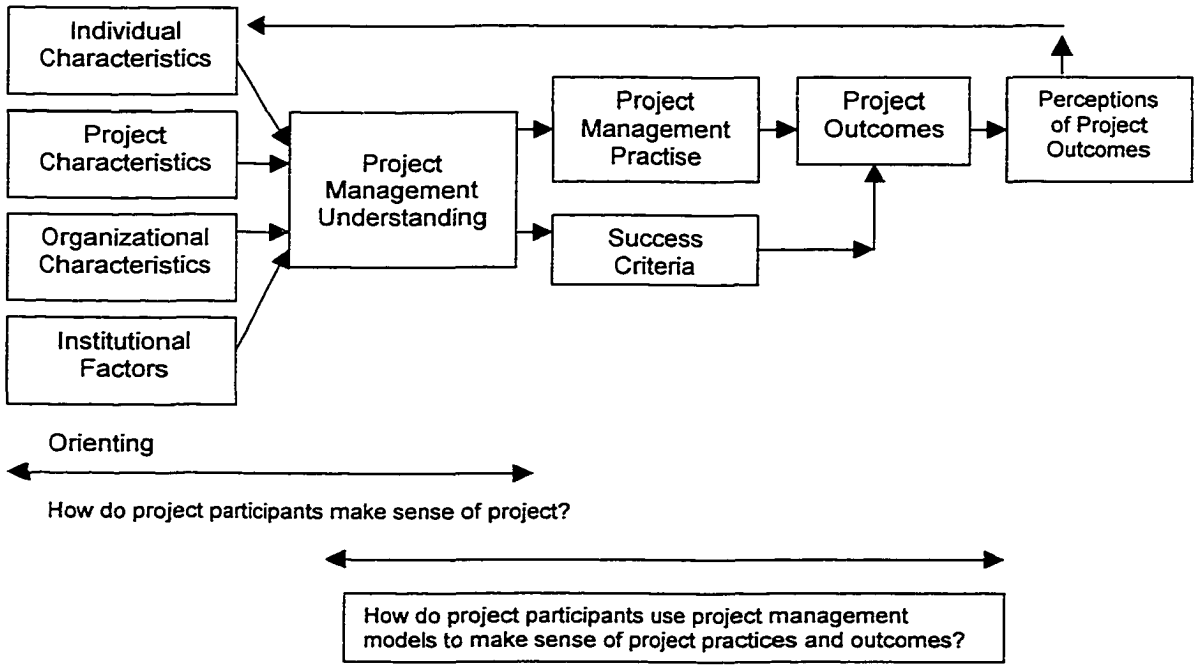
Collecting the data was a relatively straightforward exercise. The real work, as with any research effort, is in determining what the data tells you; ironically enough for this study, in the "sensemaking" process. In a sincere effort to analyze the data using a constant comparative method, each interview was reviewed and an initial analysis attempted as soon as possible after the data was collected. This began what I call Phase I of data analysis described below. After spending an inordinate amount of time sifting data and trying to determine how to structure an analysis that did justice to the wealth of information, I took a break and revisited the preliminary conceptual framework, selected methods appropriate to each orienting question to shape the analysis and went back to work with renewed focus and success.

After all the interviews for one project were collected, I attempted to immerse myself in the data from that project, code it and analyze it. I produced an amazing amount of output from this work, including the interview summaries, project summaries, and analysis tables I provided examples of in the appendix. The problem was that much as the paper was mounting, I did not feel like I was making any progress. I began to get frustrated. I found myself inundated with codes about all manner of interesting concepts and constructs found hidden in the data. The only problem was that the more I coded and the more I revised the codes the more lost I got in the detail of the data and I lost sight of the questions I set out to address.

The true and beneficial outcomes of this phase of data analysis was a thorough immersion in the data, an awareness of the wealth of detail available for analysis and ever increasing respect for those of you who have gone before me down this trail.

When data collection was completed, I revisited the original 'preliminary conceptual framework' developed in Chapter 3 (and repeated below), and devised an analysis strategy based on the two-stage nature of the research framework. I call this the second phase of data analysis. This section outlines this two-stage approach and tries to explicate the nature of the analysis I carried out on this data.

Figure 3-2 Preliminary Conceptual Framework (reproduction of Figure 2.1)



In order to address the two orienting questions formulated in Chapter 2, I realized I had to look at the data in two different ways. The first question "How do project participants make sense of Project Management?" must be addressed through a phenomenological analysis aimed at accurately describing and interpreting participants' understandings of Project Management. The results of this analysis are reported in Chapter 4 – Empirical Understandings of Project Management.

This analysis provides the grounding for a more content based analysis of the data aimed at examining the processes underlying the formation of these understandings and the relationships between these understandings and the practise of Project Management as described by the participants on these specific projects. Chapter 5 presents the results of an analysis aimed at describing and explaining how the understandings defined in Chapter 4 affect the practices and outcomes of Project Management.

The following sections outline the analytical processes used in deriving the results reported in the next two chapters. One point that must be stressed is that these are rather linear descriptions of the analysis process which in fact could be more closely described as improvisation, iteration and managing complexity while trying to simplify presentation. Another key point is that these two analytical processes happened simultaneously and iteratively. Data was collected and in the grounded theory tradition, analysis and coding began immediately and was used to modify some of the collection processes etc. Once all the data was collected, I was frustrated by the massive amounts of data and

the lack of a cohesive picture coming out of the coding process. At that point, as described above, I took a break in the grounded theory analysis to conduct a more phenomenological analysis of the meanings of Project Management and project success. This analysis then formed input to ongoing grounded theory analysis.

3.5.1 Phenomenological Analysis

The main objective of phenomenological analysis is to examine and describe phenomenon as they are consciously experienced. To accomplish this, each transcript of the project participant's oral definitions of Project Management and project success was analyzed. From the 130 statements made by participants defining Project Management, the analysis generated 60 formulated meanings, which were condensed into 12 theme clusters. These 12 theme clusters were further categorized into three distinct models.

The following provides an abbreviated illustration of how I moved from significant statements from the transcripts to my own interpretations and from these, through a sorting process to selected theme clusters and ultimately derived models of Project Management understanding. I followed the following steps in conducting this portion of the analysis.

1. I read the entire set of transcripts numerous times to get a feel for the whole. This approach is called textual immersion, requiring reading and rereading the interviews to clarify themes.

2. From each transcript, I extracted significant statements and phrases that directly pertain to Project Management. Selected examples of

these types of statements can be seen in column one of Table 3.4. For more detail on this process, see the example coding table provided in Appendix E.

Table 3-4 Examples of Significant Statments on Project Management and Formulated Meanings

Significant Statements	Formulated Meaning
PM is a skill set that is applied to a project.	PM is a specific set of skills.
PM is a planned approach to complete a set of tasks in a given set of time and meet the requirements that have been set in front of you.	Project Management is about getting things done on time and on specifications.
I define Project Management as the art of controlling business systems and processes to meet defined objectives.	Project Management is an art whose function is control.
But the one thing I think that uh, is crucial for whoever is proposing to practise or talk about Project Management is to really have their own definition of what it is as it seems to be all things to all people a lot of the time.	The definition of Project Management is an individual thing. There is no one definition.
Project Management comes in when you can't have it 100% planned – where you've got to make immediate changes.	Project Management is useful when you can't plan everything.
. . .	

3. I then interpreted and developed meanings from these significant statements and phrases. This entails a form of expansion analysis in which I develop a written interpretation of a segment of discourse assuming that the meaning of the discourse is not self-evident (Cicourel, 1980). See column two of Table 3.4 above for examples.

4. Next I organized these meanings into clusters of statements where those in the cluster were more similar to each other than to other statements. These clusters denoted major themes running through the data. This entailed an iterative process of grouping and regrouping the interpretations until I felt comfortable that each interpreted meaning was categorized appropriately. Determining the boundaries between the cluster contents turned out to require a significant amount

of repetitive and seemingly redundant analysis. In the initial categorization, interpretive statements were moved from theme to theme until they settled into an appropriate theme. Sometimes dictionary meanings of key terms in the statements were used to help establish which cluster they were most related to. Other times initial classifications were challenged by my colleagues during the review process and the ensuing discussion determined a different home cluster. See Table 3.5 for examples of theme clusters.

Table 3-5 Examples of Theme Clusters with their Subsumed Meanings

Project Management is about control. Good Project Management provides control over events PM is about exerting control to meet objectives. The project plan is about control. PM is about controlling, regulations, standards, consistency
Project Management is about generating understanding. PM is about selling the approach and the product PM is about mobilizing people to buy into a vision of an objective Objectives must be mutually agreed to Identifying and accepting a goal / clear objective PM is dependent on judgment calls
Project Management is about getting something done. PM is a way of accomplishing work PM is about making a vision happen Managing activities to manage objectives PM is about hoping for the best, surviving PM is about delivering within a reasonable range . . .

5. Finally, I analyzed the themes to determine any patterns that might relate the various themes. At the same time, I reviewed the differences in the three streams of Project Management literature (traditional, contingent, and sensemaking) and the potential differences that Morris (1994) proposed for his different levels of Project Management understanding. Reflecting on the themes arising from the data and classifying them according to the differences arising from the three different streams of research into Project Management resulted in three distinct groupings of themes that reflected internally

consistent and different understandings of Project Management. See Section 4.1.1.

6. Once I generated what I considered to be internally consistent models of Project Management, I went back to the transcripts and categorized each participant's responses to determine if they could be classified as holding predominantly one model of Project Management or another. This was a form of test of the models to see whether participants' understandings fit into these models. This analysis is reported in Section 4.1.2.

7. Finally, I compared the individual participant's understandings to contextual factors to explore what experiences influence holding different models of Project Management understanding. See Section 4.1.3.

To obtain a form of validation, two colleagues (one an expert in Organization and Group behavior, the other an expert in Project Management in Information Technology Projects) acted as a sounding board for the interpretation of meanings from the transcripts and in the development of themes from these meanings. These two colleagues allowed me to achieve inter-subjective agreement between myself as the primary researcher and these two independent judges on the most complex and trying interpretations at each phase of the data analysis.

This phenomenological analysis process forms the basis for an analysis of how project participants make sense of Project Management presented in Chapter 6. The first part of the chapter focuses on the individual level sensemaking involved in developing different understandings of Project Management. The second part

of the chapter examines the other levels of sensemaking (inter-subjective, generic and institutional) that influence these individually generated understandings.

3.5.2 Grounded Theory Analysis

The modified and iterative grounded theory method described above was used to examine how the participants view Project Management in relation to project practises and outcomes, how they interact and how these processes change. This method was applied in the following manner.

1. Each line, phrase, sentence and paragraph from the transcribed interviews and field notes were reviewed to decide what concepts the data reflected and to code the data. This resulted in vivo or substantive codes coming out of the interviews combined with a priori codes identified from the literature review that provided the preliminary Conceptual framework for the study. This first coding effort allowed me to identify those lines of transcript having relevance to the research question and to focus the analysis on this smaller subset of the data. Other interesting data was physically excluded to reduce distractions.

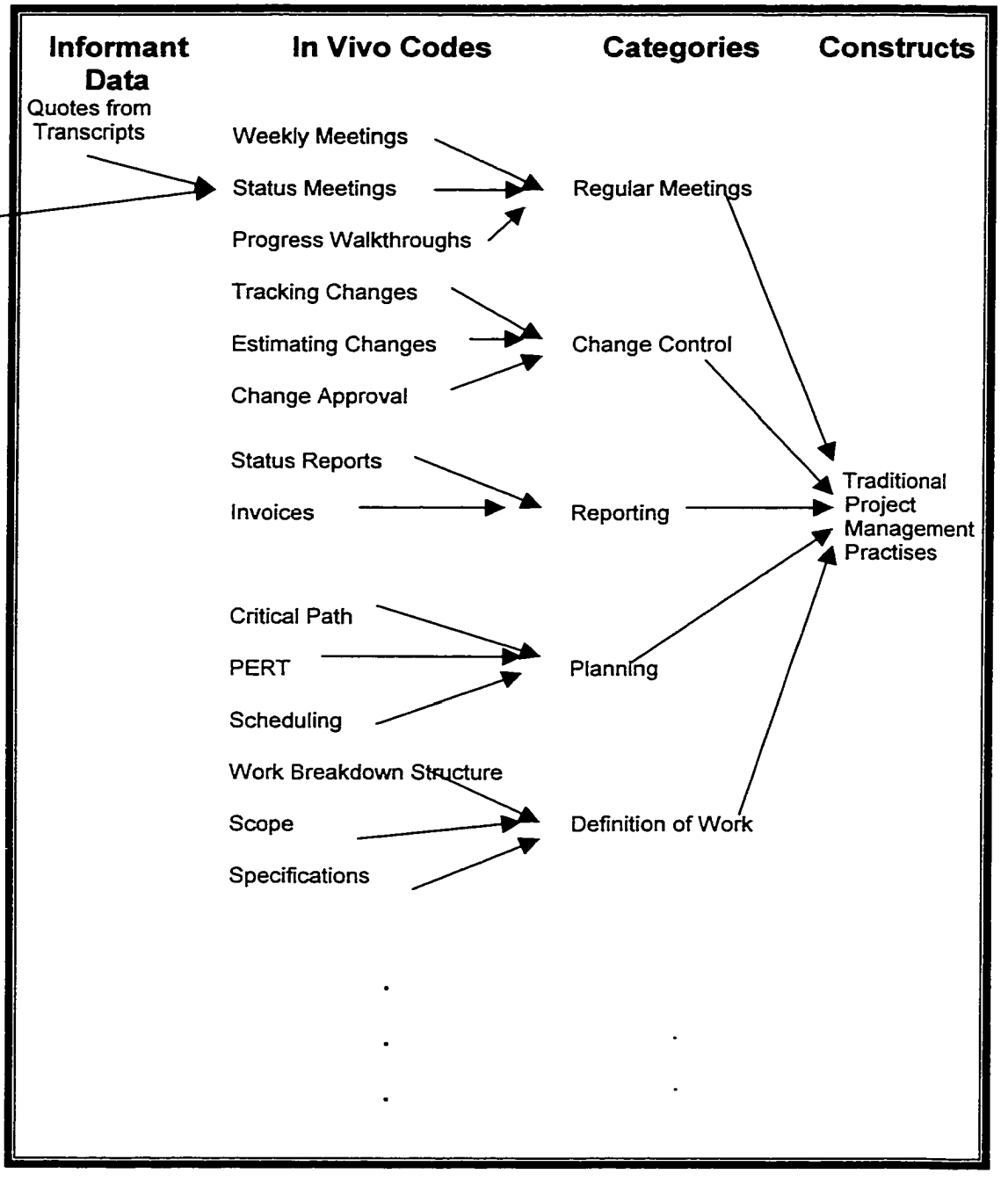
2. Each code was compared to all other codes. Comparisons for similarities, differences, and general patterns were made. This resulted in level 1 codes being condensed into categories, or level 2 codes, by the constant comparative method where each incident is compared to every other. For instance, all references to meetings (Weekly meetings, Status Meetings,

Progress walk throughs) as Project Management tools and techniques were condensed into a category entitled "regular meetings" (see Figure 3.2).A second level of coding was used to move the data to a more abstract level through the compilation of categories. Some of the level one codes are subsumed in level two codes. For instance, any time a participant mentioned a group of 2 or more project participants got together, I coded this as some form of meeting. Using the invivo codes I ended up with a long list of meeting types. I then had to categorize this list and reduce it to meeting types present in project management literature and others.

3. Finally, posteriori codes or theoretical coding was developed to link the categories' relations to one another -- for example, conditions, strategies and consequences. Level 3 codes or theoretical codes are at a conceptual level of analysis and evolved either from the conceptual framework derived from the theoretical review conducted earlier or from rigorous thought and interpretation of narrative data. Further pursuing the example started above, all mention of traditional Project Management practises (such as regular meetings, change control procedures, reporting, planning and definition of work to name a few) where coded accordingly (See Figure 3.3).

4.

Figure 3-3 Partial Audit Trail for Construct of Project Management Practises



5. I used memoing to facilitate the ongoing data analysis. Memoing requires writing thoughts about each code/category/concept and their relationships. Ideas about properties of codes and phases of the

processes are documented. All interpretive work is based on the data, however, and is not a logico-deductive or speculative process. I repetitively returned to the data to "check out" hunches. For instance, as I coded one of the last project manager's transcripts, I came to believe that those holding the most sophisticated understanding of Project Management also were the most rigorous (and rigid) in their application of Project Management tools. I noted this idea and then went back through all the transcripts to see if I could confirm or refute this hunch.

6. Finally, I checked the validity of my proposed framework/substantive theory by presenting my findings to key participants and colleagues and discussing their responses. These peer debriefings and participant checks are meant to increase the credibility or the confidence one can have in the findings. Peer debriefing was accomplished by sharing the data and ongoing analysis with my two colleagues, identified above. Member checks were conducted with a few key participants. I shared the data analysis, interpretation and conclusions with these participants to clarify my findings.

This grounded theory analysis forms the basis of the results presented in Chapter 7 addressing the question of how different understandings of Project Management influence the actions taken on projects.

3.6 Conclusion

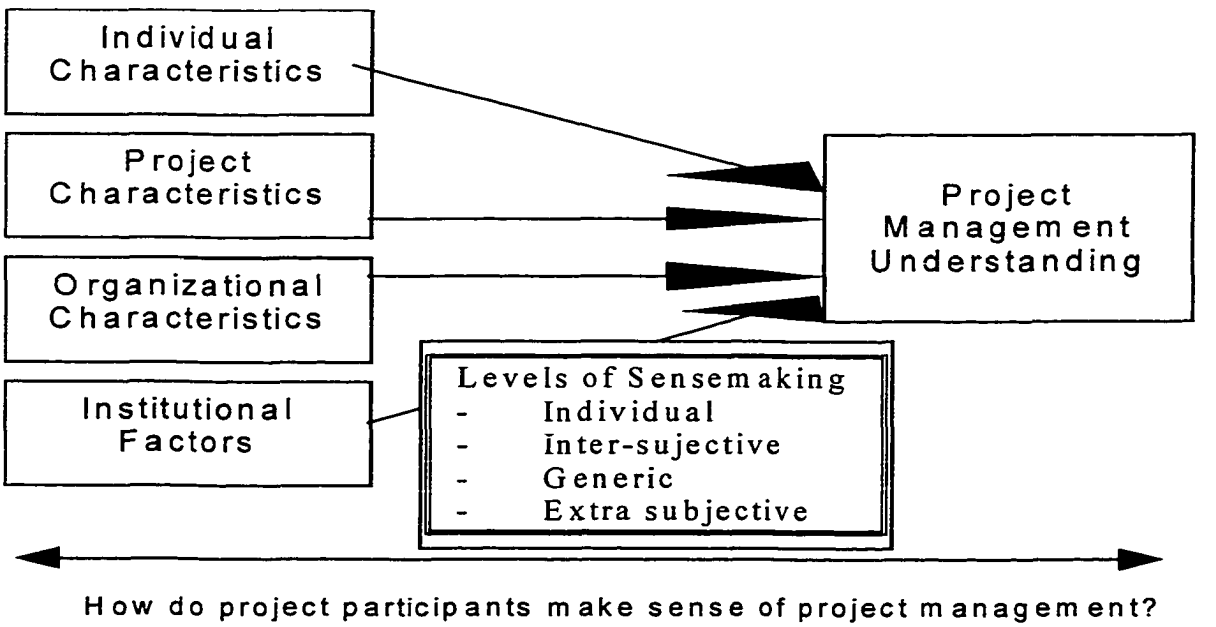
This chapter provided a rational and description of the methods chosen to pursue this study and provides a bridge from the theory and methods to the realities of data collection and analysis. As in all qualitative work, the amount of paperwork generated in preliminary analysis and the iterative process is almost impossible to show the reader the process of analysis and the depth of the analytical work that goes into drawing conclusions from the data. The purpose of this chapter was to provide the reader with a feel for the data and the nature of the analysis used to arrive at the results presented in the following two chapters. I hope it will help ground the reader in the study and begin to establish the dependability and confirmability of both the data and the following analysis.

The findings presented in the next two chapters are grounded in detail driven analysis which is much to cumbersome to include in this thesis. In the interests of space, the following chapters present generalized findings arising out of this mass of data and analysis tables similar to the excerpts and examples provided in this chapter and in Appendix E. Individual subject level examples are provided to illustrate key points. These quotes were chosen as representative of the kind of data that support the accompanying claim.

4 UNDERSTANDINGS OF PROJECT MANAGEMENT

Using the conceptual framework developed in Chapter 3 to orient the analysis, this chapter addresses the first half of the diagram (See Figure 4.1), in particular, the research question "How do project participants make sense of Project Management?" Theoretically, individual understandings are developed through processes of individual level sensemaking that take into account personal characteristics and experience, and these definitions are also influenced by project realities negotiated at the inter-subjective, generic and extra subjective levels of sensemaking. That is, how do key participants define Project Management and what factors seem to influence these definitions at the individual level. Figure 4.1 provides a pictorial representation of this first half of the conceptual framework.

Figure 4-1 Conceptualizing Project Management Understandings



The first part of the chapter addresses how key project participants define project management and how demographic factors seem to be influencing adoption of the different models, and the practical theoretical assumptions project participants use to make individual sense of Project Management. As such, the individual or transcript is the primary unit of analysis and the majority of the analysis occurs at the individual level. The second part of the chapter explores the process by which these individuals construct this sense at the inter-subjective, generic and extra-subjective levels. Here the unit of analysis is still the individual but we begin the explore the interplay of individual understandings at the level of the project. The chapter concludes by synthesizing the import of these multi-level analyses of the meanings of Project Management used in practise.

4.1 AT THE INDIVIDUAL LEVEL

The purpose of this section of the analysis is to identify the defining features of the frameworks project participants use to make sense of Project Management. To do this, I analyzed participant's responses to the following question: "What is Project Management?"

4.1.1 Empirically Derived Models

The participants provided a wide range of definitions of Project Management. From these definitions, I extracted significant statements, interpreting them in a consistent fashion to facilitate comparisons across definitions (See Appendix E for a example of the tables generated in this process. From approximately 1000 lines of transcript dealing with defining Project Management, I identified almost

130 key statements. For each of these statements I wrote an interpretation aimed a generating a consistent focal point for analysis. Next, each of the interpretive statements was further categorized into 12 themes for further analysis. Section 3.2.1 describes this process of synthesis.

After reviewing the themes several times, I decided to present them in roughly the order of frequency of statements per theme – a sort of quantitative ordering of the relative significance of the various themes. After completing this sort, I began to see some order inherent in the themes themselves. The themes range from a very rational control orientation to a much looser definition of what Project Management entails, focussing on the changeable and uncontrollable nature of project events. Using this insight, I sorted them into a continuum from having a primary control function to having a more shaping function. Using this approach, the themes and the interpretive statements supporting them are shown in Table 4.1. The numbers in brackets after each statement indicate the number of similar quotations that were combined into each interpretive statement.

Table 4-1 Project Management Theme Clusters and Interpretations

1. Project Management is about control.	
Good Project Management provides control over events	(8)
PM is about exerting control to meet objectives.	(4)
The project plan is about control.	(3)
PM is about controlling, regulations, standards, consistency	(2)
2. PM is about getting something done on time, on budget, on spec.	
Ensuring that a project meets a defined set of goals	(3)
Orchestrating resources to meet objectives	(3)
PM is meeting expectations on schedule, on budget.	(2)
A timely and cost effective process to efficiently meet requirements	(2)
3. Project Management is a set of skills or steps to employ (recipe).	
PM is a set of skills or practises	(5)
Managing scope, schedule, risk, expectations, communications	(5)
Defines PM by listing steps or activities	(4)
4. PM is about planning	

It's a planned approach	(4)
PM is a set of planning steps	(3)
A planned approach to meeting requirements	(2)
The first half of Project Management is putting in place a blueprint	(1)
PM is about time and action planning	(1)
5. Project Management is fundamentally about communication.	
PM is about communicating	(4)
Communication is the biggest thing in Project Management	(3)
PM must communicate how projects evolve	(1)
Keeping people informed	(1)
PM is about translating a vision into something that excites people	(1)
PM is about keeping it simple so all stakeholders can understand it	(1)
6. PM is about managing people	
Putting the right people in place	(5)
Mobilizing a bunch of people to some objective	(3)
PM is about coaching and enabling talented people	(2)
7. Project Management is about getting something done.	
PM is about making a vision happen	(3)
PM is about delivering within a reasonable range	(3)
PM is a way of accomplishing work	(2)
Managing activities to meet objectives	(1)
PM is about hoping for the best, surviving	(1)
8. Project Management changes depending on the circumstances (contingency).	
PM is about applying experience to use the tools that make sense	(2)
PM definition depends on the background of the person wearing the title.	(2)
Not every project is the same therefore PM cannot be applied like a recipe	(2)
Only about ½ of PM tools and practises apply in any given situation	(1)
9. Project Management requires a holistic attitude to all project activities.	
PM is about understanding how all the aspects of the project go together.	(3)
Being able to see the big picture, both lt and st goals and the end results	(3)
PM is stewardship.	(2)
All encompassing, a holistic view	(2)
PM is both an Art and a Science	(1)
10. Project Management is about generating understanding.	
PM is about managing expectations	(4)
PM is about selling the approach and the product	(3)
PM is about mobilizing people to buy into a vision of an objective	(3)
11. PM is about managing change	
Projects evolve over time	(5)
PM is about managing in a situation that will change	(3)
Project Management is about watching the process unfold	(1)
PM is about confronting and clarifying changes and issues	(1)
PM is a matter of weighing alternatives	(1)
Project Management being clear about everything that can change in the project process	(1)
12. PM is over and above "real" project work	
Project Management is overhead	(5)
Project Management does not add value in itself	(3)

Working from this ordered list, and referring back to the review of Project Management literature in Chapter 2, it seems that these themes can be grouped into three distinct models of Project Management understanding which reflect the three streams evident in the literature and reinforce Morris' (1994) speculation on the existence of levels of understanding of Project Management. The first four

themes can be directly related to a credulous belief in traditional Project Management doctrine. To recognize this wholehearted and unquestioning belief, I've labeled this empirically generated understanding of Project Management as the **Naive** model. This label is not in any way meant to cast aspersions on the holders of this understanding but only to acknowledge the uncritical way these individuals tend to accept the tenets of the traditional model of Project Management. These are the true believers. The following quote perhaps helps the reader to understand the justification for this label.

> "I heard about PMI...It's really been an eye opener to see that there is a set of skills and knowledge that have noting to do with engineering that are strictly project related...<Implementing Project Management> gives me a better sense of control over the project." Cullen

The next four themes speak to more recent attempts to elaborate on Project Management theory particularly to incorporate the human aspects of Project Management and to recognize the contingent nature of projects. This group of themes I've called the **Political** model in that it recognizes the multiple realities of projects caused by the active involvement of many participants. This label is given to recognize the emphasis these practitioners put on dealing tactfully and diplomatically with "ticklish" and complicated situations. Their emphasis on being able to deal with others in non irritating and expedient fashions leads me to think of people characterized by a shrewdness in managing directing, contriving or dealing with events. This behavior tends to be characteristic of those with **Political** skills.

The next three themes seem to encompass an approach to Project Management which incorporates a thorough understanding of the **Naive** and **Political** models but moderates these rational models with a more **Sophisticated** and contextual or perhaps, post-modern view of organizations in general and projects in particular. For the moment, I have labeled this the **Sophisticated** understanding of Project Management. Again this label is meant to evoke a more highly evolved, complicated and refined understanding of the Project Management construct rather than to make any comment on the individual's holding this understanding.

The twelfth theme does not appear to fit intuitively into any of these models and its meaning will be analyzed later. The themes are grouped into these models in Table 4.2. Representative definitions provided by project participants are included in the table as well.

Table 4-2 Grouping Themes into Project Management Understandings

	Naive	Political	Sophisticated
Themes	Control On time, on budget, on spec Set of Skills/tools Planning	Communication Managing People Getting something done Change with circumstances	Holistic approach Understanding Managing change
Representative Definitions	"I would say it is a set of processes or practises used to enable,. Ensure, assist the successful completion of a project. A successful completion of a set of tasks. Where success is defined in terms of meeting expectations on schedule, on budget." Walker, 207-212 Project Management is ideally..."the successful orchestrating of the project resources in a cohesive fashion to sort of keep a control both on the project budget, project quality and successfully complete the project within its objectives." Cullen, lines 44-49 (15)	Project Management is about mobilizing people to buy into a vision to meet an objective. (799-904 paraphrased).... And then basically watching the process as it unfolds....and coaching them and directing them." Mckay 808-825 PM is "identifying or accepting a goal or objective that's been put in front of you and its basically for the most part it's the planning and then execution to achieve those goals. Within that simple phrase of planning and execution there really are a whole spectrum of strategy versus tactics....the real art versus science of it is identifying an approach that keeps people ...and then essentially coaching people along the way to achieve those...my vision of a successful project is something that's so simple it can be communicated to anybody" Nash (303-318) (8)	"...Project Management is to manage the activities required to meet the stated objective of the project.....(It entails) managing expectations... schedule...risk, communications... to deliver within a reasonable range " (394-413) "...it's a matter of working out or weighing the alternatives..." (496-507) It's about confronting changes and issues and clarifying them and moving on (paraphrased lines 523-524) "I only use it when it makes sense. And to be able to do that you have to be able to apply some experience...The other half is a lot more dependent on judgment calls that you make." (lines 569-579) Tien (4)

These themes were surfaced from the data without any links to individuals. That is I took all the statements defining project management and analyzed that data independently. In this way, I can say that these understandings have been

compiled from and categorized independently of the data. As a form of verification of the usefulness of these models, I returned to the Project Management definitions of each participant and classified each according to the understandings identified. I believed that if these understandings of Project Management exist and drive actions in practise, participants would make statements primarily derived from one of the three understandings. Thus, I went back to the transcripts of each individual and examined the second level coding of each of their project management definitional statements.

In almost all the participant's definitions, the initial statements provided some traditional form of definition of Project Management that fits with a Naïve understanding as defined above. That is, while all participants included a small number (under 3) of Naïve definitional statements, in all but 5 cases the additional statements they made clearly fit into one of the other two understandings. Thus those classified as Naïve made no more than 1 non Naïve definitional statement. However, in all but five cases, the majority of the remaining definitional statements clearly fit within one or the other of the models. In the five 'contested' cases, the participants primarily gave definitions that fit in primarily in the **Naive** frame but gave significant indications of a **Political** awareness. In these cases, I classified the participants as exhibiting a **Political** Project Management model. In total, this classification process resulted in identifying 15 participants holding a predominantly **Naive** understanding of Project Management, 8 holding a **Political** understanding and 4 holding a

Sophisticated understanding[3]. This categorization is not meant to be a determinant and lasting process. It is simply a heuristic analytical devise that allows me to explore how the presence of different understandings impacts project management.

Thus, three different understandings are derived from thematic analysis of Project Management definitions provided by the participants. These frames of reference were then tested against the Project Management definitions provided by the study participants to establish their usefulness in understanding how these project participants make sense of Project Management. In general, the models provided good classificatory relevance when applied to the data. This iterative process serves as a test of face validity for the existence of these understandings.

To determine how these different understandings come to be held by project participants, I turn to an exploratory analysis of the demographic characteristics of those holding the different understandings. If each understanding appears to generate a pattern of demographic characteristics, it may be that these characteristics influence the development of the different frameworks. In looking at the influences on the formation of these understandings, I am also looking for

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[3] Note that there are 37 interviews were conducted with 27 participants on 5 projects. Several of the participants were interviewed more than once as they were involved in more than one project. When looking at individual understandings, there are 27 units of analysis. When analyzing the projects there are 37 different stories to look at.

evidence to support or refute Morris' (1994) speculation that people hold different levels of understanding with some sort of progression through them.

4.1.2 Demographic Influences

Before trying to develop a theoretical understanding of these models, I examined the individual characteristics of participants trying to identify any potential influence these might have on the model of Project Management held by the participants. This purely descriptive analysis does not provide statistically significant indications of co-relations or causation. It does, however, raise some interesting ideas about how demographics influence the formation of individual understandings of Project Management. The results of this simple cross-referencing of the three models with demographic information collected on all participants is shown in Table 4.3. This purely descriptive analysis of the data seems to indicate that there may be some individual characteristics influencing the Project Management models held by individuals.

Table 4-3 Relating Individual Characteristics to Project Management Understandings

Characteristics		Naive	Political	Sophisticated
Years Experience				
Less than 10	5	3	1	1
11-20	11	8	3	
Over 20	11	4	4	3
Proj. Experience				
Less than 50	9	5	3	1
50 to 100	3		2	1
Over 100	13	8	3	2
PM Experience				
0-25%	7	6	1	
26-50%	4	3	1	
51-75%	5	2	1	2
76-100%	6		4	2
Education level				
High School	1	1		
College	5	3	1	1
University				
Eng	4	4		
Mgt	4	2	2	
Other	8	4	2	2
Eng & Mgt	3		2	1
PM Training				
None	8	3	4	1
1-2 Seminars	11	8	3	
Many Seminars	4	3	1	
PMI	2	1		1
More	2			2`

Specifically, participants holding a **Naive** understanding of Project Management tended to have either low or high levels of project experience, and relatively lower levels of Project Management experience and education. As a group they had attended proportionately more short Project Management training seminars. This may indicate that those participants that frame their understanding of Project Management in this way derive a large part of their understanding of the concept from short seminar training and observing projects in action rather than from the managing them. Thus much of their understanding may come from

book learning rather than experience. In addition, more than half this group had engineering based training either at the college or university level. The engineering orientation towards problem solving and viewing the world in mechanistic manner may also influence their proclivity for the traditional engineering oriented Project Management model.

Those participant's holding a **Political** understanding of Project Management tended to have more years of experience, more Project Management experience, higher levels of education, and less formal Project Management training. In general, these participants tended to have university level education in something other than engineering, or in engineering plus something else like management. This gives some indication that a political understanding of Project Management may be built more from hands on experience in projects and perhaps from exposure to something other than the "scientific" paradigm of education.

Those holding a **Sophisticated** view of Project Management tended to have more experience managing projects, more experience in general, higher educational levels and higher levels of Project Management training. Although there seems to be one exception to each of these statements (a self taught project manager involved in mostly operations/building oriented projects). Thus there seems to be a trend towards the both higher levels of education and higher levels of formal Project Management training in this group.

Looking at the data in this way seems to indicate an evolution of Project Management understandings as individual's achieve greater levels of experience, education, etc. This may imply that as project participants grow in experience in general and Project Management in particular, or engage in higher levels of education, there is some indication that their understanding of Project Management expands to become more complex and sophisticated.

This could be explained as a process of schema elaboration and modification. Over time, as more stimulus relevant information is encountered, the schema for that stimulus becomes more complex, abstract, and organized. The development of expertise in the form of highly elaborate schemas resulting from the incorporation of information from many experiences with a particular issue or areas of concern is one example of this form of schema modification.

This evolution process provides some support for Morris' (1994) speculation on levels of Project Management understanding. It seems to imply that the models of understanding identified could be not so much different models but different levels in an evolution of the individual's framework. It also provides some empirical support for recent research attempting to identify Project Management competencies and how they evolve (Hartman, 1998; Lynn, 1998).

This descriptive analysis of the demographics of the participants provides some weak ideas about some of the influences that may determine which model is held in practise. Given that I have some empirical evidence that these models exist, and what sort of individual characteristics influence their adoption, it is time

to explore the content and assumptions of these frameworks. This content serves as the mental frameworks which enable project participants to locate themselves, and work successfully within their experiential terrain (Louis, 1980; Weick, 1979).

4.1.3 Practical and Theoretical foundations of these Schemas

Considering what each schema focuses attention on with respect to managing, generating and the primary techniques used to do so provides insights into the types of logic and rationality that form their theoretical basis. Each of the schemas identified incorporates different assumptions about how the world works. This section explores each understanding through the definitions provided by participants from the perspective of first the practical and then the theoretical assumptions it encompasses.

Naive understanding - The practical drivers of the **Naive** understanding focus on managing tasks to generate control primarily through the application of what could be largely construed as planning techniques. This model defines specific steps for developing requirements, defining work phases, specifying tasks, estimating costs, scheduling reviews and task deliverables and tracking project activities. This focus on tasks, activities and techniques constitute an off-the-shelf system of control and evaluation designed to get work done at maximum efficiency and effectiveness. The value of planning, tracking controlling and coordinating is seen as self-evident.

Study participants holding this understanding of Project Management tended to define it in one of two ways. Either they used a classic "on time, on budget, on spec" definition

> "...its controlling and regulating your own forces" Wilkinson
>
> "It's being in control" Jensen
>
> "...it's the successful orchestrating of the project resources in a cohesive fashion to sort of keep control both on the project budget, project quality and successfully complete the project within its objectives" Cullen

or they defined it in terms of a list of tasks needed to complete a project combined with comments on control.

> "I'll start by saying properly identifying and communicating what it is that you are building. As statement of work that we talked about. Ensuring that there are benefits related to the project that you are building. And the proper checkpoints and balances are in place to ensure that you are building what you said you were going to build. If you're not, then adjust. Finding the right mix of people to develop the project. And then I would say facilitating and coordinating the development of the application from that point on. ....(he continues to list 10 more tasks) Savard (lines 265-287)

Interestingly enough, **Naive** project managers also tend to be those most likely to judge the time and effort involved in rigorously planning and tracking projects as of questionable value. These also tend to be the individuals making statements consistent with Theme 12 identified above. These statements refer to Project Management tasks as overhead, and as over and above "the real work" of the project. Thus, while they have rather credulously adopted these practises, their experience in trying to implement them lead to questions about their efficacy. The way they wholeheartedly accepted these maxims plays a large role in the venom of their critique (see section 7.4).

This understanding of Project Management embodies particular understandings and expectations of linearity, transparency and predictability that are reflections of the model's basis in linear logic and formal rationality. The primary tools of this model (represented visually in PERT drawings, Gantt charts or "waterfall" or tree structures[4]) reflect the underlying linearity of the cognitive models that support them. This linearity of reasoning transforms into mechanistic expectations of the levels of exactitude project managers should be able to achieve in planning and managing projects. Formal rationality refers to the extent of impersonal quantitative calculation (risk assessment) that is possible and applied in human activity (Weber, 1962). Based on the premise that application of rigorous analysis makes management more reasonable and predictable, it also supports and encourages the development of expectations around the exactitude of planning possible. Given that these levels of exactitude are rarely possible in organizational life, and that the model assumes away conflicts and uncertainty as unusual occurrences rather than reflective of project reality, it becomes apparent why those holding this understanding of Project Management would be faced with trying to explain the high failure rates associated with such undertakings.

Comparing this empirically derived understanding of Project Management to the traditional model derived from the literature in Chapter 2 shows that the two are clearly aligned. The **Naive** understanding clearly represents a rather uncritical

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[4] These Project Management tools and techniques are described in Chapter 2.

adoption of the Traditional model of project. Participants holding this view of Project Management share the premise that application of Project Management to uncertain tasks is a way of imposing a scientific, rational approach to increase the predictability of the outcomes. Projects entail planning work in small measurable tasks and tracking effort against outcomes. Project Management's focus is on dividing work into small tasks and monitoring activity through the subdivision of time and the temporal elaboration of activities. This process is clearly aimed at increasing control over the tasks by making project work more predictable, calculable and manageable. As such, application of this model of Project Management can be seen as a prototypical example of the rationalization and technocratization of social practises (Giddens, 1971).

Political Model - The practical drivers of the **Political** understanding focus on managing people to generate action primarily by motivating individuals to buy into the project. Holders of this understanding focus on the importance of communication, managing people, getting something done, and the flexibility to change with the circumstances. These individuals tend to look at the broader context within which projects operate and focus on the interactions and reactions of stakeholders as important to Project Management. They are aware of the political context of the organizations within which they operate and take it into account in their decision making.

Study participants holding a **Political** understanding of Project Management tended to stress the importance of communication, motivation and fit with organizational goals. Selected definitions are included below:

"It's communication" Banham (526-527)

"I guess I think of it as a mobilization of a bunch of people to some objective, like finding some kind of objective that our vision that people buy into and mobilizing people to go for it and hitting the objective. Mckay (799-892)

These individuals seem to recognize the limitations of the traditional model of Project Management and discount it almost entirely as a way to get projects done. Many of them seem almost cynical in their approach to Project Management tools and techniques. A couple of representative project managers stated it this way:

"You do what the owner wants you to do and justify it with Project Management tools" McKay (835-840?)

"I asked a guy for a schedule and he said well I'll fax it over to you if you want it, but bear in mind that none of the dates are right on it anymore" Bingley (519-522)

These individuals value planning, tracking, controlling and coordinating tasks primarily as a means of communication about the project if they value them at all.

"What I use the most is the project plan itself. Okay? I use it not only to plan and control but also to communicate. So that you can communicate outside the project....You never have the resources to keep the plan up to date for planning and control so it is more of a communication tool" Walker (347-377)

Without the "hard" tools to legitimize their approach, the **Political** project managers may be viewed as too flexible and too influenced by talk and desires than those applying a more "scientific" approach. Project managers holding the **Political** understanding of Project Management tend to be judged harshly by project participants holding either of the other two understandings. These judgements occur because the **Political** project manager seems likely to focus

on the soft side of Project Management to the exclusion of the more technical side. This criticism can be seen in the comments from two different project managers:

> "He had a lot of **Political** pressure to tell people what they wanted to hear." **Sophisticated** PM

> "His definition of Project Management was a little less of the classic definition. I think it was more or less, uh, you have a bag of money and you use it up until its gone.....All BS aside, I don't think he really had a clear plan." **Naive** PM

The **Political** model of Project Management is based on assumptions of a type of linear logic that allows branching to deal with changes in circumstances. Here there are no simple assumptions of straight forward predictability of outcomes. Rather, there is a belief that transparency in the process will motivate and include people enough to generate action. Once action is undertaken, it will be adjusted along branches of the tree as necessary. The belief in tree like reasoning allows the project participants to continue to believe in the forward progress of activity as managed in this manner without having to commit to the levels of exactitude that are implied in the **Naive** model.

Two forms of rationality appear embedded in this understanding of Project Management: action rationality (Brunsen, 1982) and procedural rationality (Weber, 1962). Action rationality involves a biased examination of the options in order to increase motivation above the level presumed to occur if choice is preceded by more deliberation (Brunsen, 1982). Action rationality tends to trade deliberation and accuracy for implementation and action. People operating within this form of rationality tend to highlight only the positive aspects of an alternative, treat actual outcomes as goals, use shortcuts to build enthusiasm

and increase the efforts expanded to carry out decisions. Participant's holding a **Political** understanding tend to focus on generating commitment and action and these are likely driven by this form of rationality.

Procedural rationality focuses on the extent to which the decision-making process reflects a desire to make the best decision possible under the circumstances (Simon, 1978). This "intendedly rational" behavior is characterized by an attempt to collect the information necessary to form expectations about various alternatives, and the use of this information in the final decision. Based on the realization that management decisions are rarely calculable and predictable, this form of rationality is assessed on the basis of how rational the decisions appear to be. Thus, while both **Naïve** and **Political** project managers behave in an intendedly rational fashion, **Naïve** project managers have more faith in the possibility of totally rational behavior and endeavour to manage projects this calculable and predicable way while **Political** project managers spend considerable effort in appearing rational. A second difference between this model and the **Naive** understanding is that a project manager using this model of understanding would devote more time to collecting the "softer" less quantifiable kinds of information and using this data in the decision making process.

Comparing this empirically derived **Political** model of Project Management to the contingent model derived from the literature in Chapter 2 shows that they share some similarities but are different in some important ways. The **Political** model

is clearly comparable to the Contingency model of Project Management existing in the literature in that both focus on the necessity to adapt Project Management practises to the contingencies and context of the particular projects in question. The two models share the premise that no two projects are the same. The main difference between the two is the emphasis placed on the people side of Project Management. Most of the contingency literature is dealing with relatively "hard" and "measurable" contingencies such as technological innovation and uncertainty while the **Political** model focuses most on the "people" factor and the potential impact of unknown contingencies on the outcome of the project.

Sophisticated understanding - The **Sophisticated** understanding, tends to balance the tools and techniques of the **Naive** model with the people sense of the **Political** model without incorporating a cynicism against either model. The focus is on managing the expectations of all project participants to generate a shared understanding of the nature of the project by emphasizing accomplishment of objectives. It is based on a sophisticated understanding of projects as human activities impacted by the people involved, the tasks undertaken, chance and the unexpected consequences of the interaction between all three of these factors. It is a very contextual model in that Project Management shape-shifts to include a wide array of tools and techniques depending on the circumstances which change both through space and time.

Only four project participants held this understanding of Project Management they tended to be more experienced, hold more Project Management experience and more PMI or university level Project Management training. In fact. All of

them tended to define Project Management in definite terms that had little to do with tasks, tools or techniques. For example:

"Project Management is simple"	Nash
"Project Management is stewardship"	Werner
"It's all about common sense"	Ryder

This more sophisticated understanding of Project Management is based on an iterative logic where tools, techniques and actions are tried and evaluated on an on going basis. In this way it incorporates a form of "double loop learning" missing in the other two models. Tools and techniques are tested and adopted or discarded as they are judged useful in the circumstances in question. No tools are taken for granted as absolutely necessary for each project but if they are deemed necessary, they are applied in a rigorous way. These project managers appear more thoughtful and reflective in their choices of tools and judgements on practises.

Incorporating a more substantive rationality (Weber, 1962) measured against underlying value judgments, this understanding of Project Management tends to focus on the value of the ends or the outcomes and finding the best way to accomplish this. This is as opposed to the **Naïve** project managers focus on the formal rationality of the process and the **Political** project managers focus on the action rationality or perceived procedural rationality of both the process and the outcomes.

This model draws upon some of the emerging Project Management literature, particularly around the use of Project Management as an action generation

facility or as a legitimating rhetoric. However, it seems to be more of a synthesis of the two prior models meshing them together through the use of rhetoric and action to keep the project moving. This will be explored in greater detail when we look at the sensemaking processes underlying this understanding of Project Management.

4.1.4 Conclusion re Individual Level Understandings

This section has identified three different levels of understanding of Project Management concepts arising from a phenomenological analysis of definitions of Project Management provided by project participants. Thematic analysis and synthesis were used to summarize and compress the large amount of transcript data into internally consistent and recognizable understandings of Project Management.

Examination of the demographic characteristics of individuals adopting these different models shows some tendency for the complexity of Project Management models to evolve over time given sufficient exposure to disparate experiences. While this supposition requires further empirical testing to clarify and substantiate the assertion, it does provide some insights into how these understandings develop.

The practical and theoretical assumptions underlying these models were defined and explored. These findings are summarized in Table 4.4.

Table 4-4 Assumptions underlying Project Management Understandings

Assumptions with respect to:	Naive	Political	Sophisticated
Practical			
Manages	Tasks	People	Expectations
Generates	Control	Action	Understanding
Techniques	Planning	Motivation	Accomplishment
Theoretical			
Logic	Linear	Linear but tree like	Iterative
Rationality	Formal	Action	Substantive
		Procedural	

In general, these understandings show some similarities to the models found in the theoretical literature and discussed in Chapter 2. However there are a few interesting differences that point to the need to expand our theorizing to cover the realities of Project Management in practise. In general, the Naïve Project Management model accurately reflects a majority of participants understandings of Project Management or, as I consider more likely, is accurately reflected in participant's understandings of Project Management. However, the **Political** model derived from participants definitions of PM differs from that found in the literature. The contingency model tends to focus on critical contingencies associated with the project or the technology of the end product, or the level of uncertainty associated with the technology while participants in this study tended to build their contingencies on the uncertainties inherent in people's actions and the unexpected consequences of well planned actions. The theoretical literature tends to focus on "measurable" uncertainties while the participant's understanding seems to be based on an attempt to recognize and deal with the un-measurable. Finally, the **Sophisticated** understanding of Project

Management held by participants tends to incorporate a balancing of the traditional Project Management model with a more political understanding at the same time incorporating some of the insights from the new perspectives emerging in the literature. Rather than throw out the origins of Project Management, these participants recognized both the limitations and the achievements of traditional Project Management and attempt to incorporate the strengths while recognizing the realities of power, multiple realities and the need to negotiate meaning as part of the Project Management job.

We turn now to analysis of the inter-subjective, generic and extra- subjective processes influencing the development and use of these models of Project Management.

4.2 AT THE INTER-SUBJECTIVE LEVEL

To date I have investigated the content of individual's understandings of Project Management. However, individuals engaged in project work cannot 'make sense' independently. They bring their individual frameworks and understandings of Project Management to work in an interdependent arena shared with other individuals. In order to work together these individuals attempt to develop common understandings that provide a basis for action. These joint efforts to make sense are called inter-subjective sensemaking. This is the level of sensemaking I turn to now.

Ethnomethodology examines this level of sensemaking, defined as the verbal, inter-subjective process of interpreting actions and events, and so provides the

tools for this analysis. Ethnomethodologists focus on the way individual's construct and order their understandings of concepts in conversation with others. These joint attempts to build understanding are the meat of inter-subjective sensemaking.

Examining how individuals make sense of the Project Management concept inter-subjectively, required that I determine how they defined the concept to others. Ideally, this would entail catching them in the act of defining Project Management to others in a project situation. This was not feasible for this study and so I conducted two types of analysis on the participant's attempts to make sense of Project Management to me. The first analysis entailed examining the structure of the definitions they presented to me to see if there were patterns in how they constructed the definitions that in turn may be influenced by the model of understanding of Project Management held by the participant. The second analysis highlighted the sensemaking practises they engaged in, in the intersubjective process of explaining their definition of Project Management to me. I conclude this section examining how holding different understandings of Project Management impact individual's abilities to generate an inter-subjective understanding of Project Management and the implications of this failure.

4.2.1 Exploring the Structure of Project Management Definitions

Every study participant was asked "what is Project Management?", the way they structured their answer to this question provides insight into how they make sense of the concept and the approach they take in negotiating the inter-

subjective meaning of the concept. Table 4.5 summarizes the ways the participants structured their definitions of Project Management.

Table 4-5 Initial Structures of Project Management Definitions

Qualified their answer as a guess or opinion	
I guess it's...	(8)
PM is to me; my definition...	(11)
Qualified their answer by suggesting that it was not something they had thought much about.	
You're getting me off the cuff here now	(3)
PM, uh, give me a second (3)	
Hedged for time by questioning the nature of the question.	
Wow. Now you're getting really theoretical....	(2)
That sounds like a question you'd get at university.	(1)
That's a fairly broad question; That's a tough one.	(2)
Qualified their answer by referring to their own or a higher authority.	
My Definition? You understand I teach PM.....	(1)
You are aware of PMI and their Book of Knowledge?	(2)
Stated their answer as a fact.	
Project Management is stewardship	(1)
Project Management is simple	(1)
Qualified as coming from a particular point of view.	
From a construction (consultant's etc) perspective its...	(2)

It seems that most participants were caught off guard by the nature of the question. They seemed to be surprised to be asked for a definition of the topic they knew we were scheduled to discuss. In many ways, I think the question represented a breach in their sense-making of our meeting as my first (in many interviews) question, asked for a definition of something they felt had some generally acceptable and taken for granted meanings. Forcing them to think about the concept in this way meant they needed to "make sense" on the spot. Something many people find unusual. A few participants gave a very definite answer as to what the definition was, but acknowledged their answer as a guess or off the cuff or coming from a particular perspective. This structure of answer could be driven by one of at least two motivations. First, it may represent an implicit recognition of the potential variability of definitions across individuals.

Perhaps a naïve attempt to acknowledge the social construction of such constructs. Second, it could be that the participants believed that a "right" definition of the construct exists and that they were not sure they could reproduce it on command. In an effort to save face if possible, they qualified their responses.

I went on to sort these intellectual structures by the understanding of Project Management held by the participant. The Table 4.6 shows that there seems to be a relationship between the model of Project Management that is most salient to the participant and the way in which they chose to begin to define the concept.

Table 4-6 Initial Structure of Definitions by Project Management Understanding

Initial Structures	Naive	Political	Sophisticated
Guess	10		
Off the cuff	3	2	1
Questioned nature of question	2	3	
Referred to higher authority		2	1
Particular point of view		2	
Stated as fact			2

Those holding a **Naive** understanding seemed least at ease with being put on the spot to define the concept. They tended to frame their responses as guesses or only their own opinion. I can think of at least two reasons why this may be the case. The first reason may relate to their comfort level with the concepts. If their model of Project Management is primarily adopted from the institutional or extra subjective influence of organizations such as PMI, they may not have confidence in their understanding of Project Management. At the same time, proponents of

this model of Project Management are most likely to believe that there is one true definition and fear making a mistake in defining it.

Those holding a **Political** understanding tended to qualify their answer as coming from a particular authority or perspective or as being something they had not thought of much. These approaches tend to leave the definition open for evaluation and discussion. It was very much as if these individuals wanted to engage in a discussion of what it meant and to define it intersubjectively between the two of us or perhaps wanted a definition provided to them that they could then work around.

Finally, the holders of a **Sophisticated** understanding of Project Management either stated their definition simply as a fact or indicated they had not thought about it much. These individuals seemed comfortable in their understanding of the concept. They were willing to debate concepts and the usefulness of tools and techniques but showed no indication of being willing or able to present or accept "one right" approach from any authority.

The existence of different ways of structuring answers to the Project Management question adds to the evidence that these understandings are fundamentally different. Not only are they based on different assumptions and seem to be influenced by different individual characteristics, but they also imply different approaches to intersubjective sensemaking. This finding in itself has significant import for the ability of key project participants holding differing understandings of Project Management to communicate effectively and build

common expectations. Implications of this finding are explored in greater detail in section 6.2.3.

4.2.2 Participants use of Sensemaking practises

Ethnomethodology identifies four sensemaking practices which make speech acts comprehensible and sustain a sense of shared meaning during interaction (Gephart, 1992 p.118). These four basic sensemaking practises are: reciprocity of perspectives; the construction and use of normal forms; the use of the etceteras principle; and, the use of descriptive vocabularies as indexical expressions (Gephart, 1993) These practises are defined in Table 4.7 and examples from the transcripts are provided to show how participants used these practises in making sense of Project Management for the researcher.

Table 4-7 Definitions and Examples of Sensemaking Practises in Use

Practises	Definition	Examples
Reciprocity	The practise of generating a reciprocity of perspectives arises when two or more parties to an interaction achieve an agreement that they understand one another. Each party to a conversation assumes that the other could exchange places with him or her and experience the same perspective on the world. This practise is sustained in conversation with responses that show one party has heard the other.	"I guess it's a skill set that is applied to a project, you know..." Here the participant uses the "you know" to ensure that I am following and to assure himself that I have the experience to exchange places with him.
Normal Forms	The practise of normal forms arises when parties to an interaction use and recognize common symbols, terms, objects and meanings. Participants construct and use normal forms. They employ recognizable words and terms to describe features of the world, and they expect others will do so as well.	"A successful completion of a set of tasks. Where success is defined in terms of meeting expectations on schedule and budget" Here the participant assumes that schedule and budget are non-problematic normal forms for discussions of Project Management.
Etceteras Principle	The etceteras principle is used when parties to an interaction encounter vague or unclear statements or objects and assume that the unclear statements and objects of discussion will be clarified later. Members sustain the normal form appearance of the often vague and incomplete aspects of conversation by using the etceteras principle – the assumption that what others are saying will be filled in or interpreted by the hearer and clarified later on in the conversation.	"Um, from a consultant's point of view? Here the participant extrapolates from earlier topics of conversation to ensure that his answer to my question properly reflects earlier discussion.
Indexicality	The indexicality principle is employed when actors assume that unclear statements can be interpreted using background knowledge and knowledge of context. Members use descriptive vocabularies as indexical expressions. That is, they assume any given feature of conversation or action, such as a single word, might not be inherently sensible. If something is not sensible, they assume the hearer will use his or her general background knowledge and knowledge of the context of the statement or action to interpret it.	" You are aware of PMI and PMBOK" Here again the participant makes use of normal forms but in addition, he assumes that background in PMI and PMBOK will allow me to interpret his definition of Project Management appropriately.

Definitions adopted from Gephart, 1993 Table 1 page 1472-1473

Study participant's used all four sensemaking practises in defining Project Management to the researcher. However, only rarely did the participants seek to clarify my understanding of their response. They seemed satisfied to focus only on clarifying their understanding. In most cases they acted as if there was only one definition and if they came close to it then I would know what they were

talking about. On occasion a participant recognized that different people have different understandings of Project Management but even then they seemed comfortable providing a rather definite definition of the concept. Only one participant explicitly stated that:

> "...the one thing I think that uh, is crucial for whoever is proposing to practise or talk about Project Management is to really have their own definition of what it is as it seems to be all things to all people a lot of the time. Nobody really defines it quite the same way. I'm not sure there is a real specific definition to it (1-15)... Ryder

He then went on to provide his own working definition of Project Management that fit relatively well with the Traditional models identified earlier.

Individuals holding common understandings use these four sensemaking practises to develop a shared concept of what is being done and what needs to be done. All four sensemaking practices must be operative in any social situation for social actors to share a common sense of issues or events. In Project Management terms, when the four sensemaking practises are operative related to project activities, the project participants share common knowledge of tasks and deliverables, the meaning of the issues and risks, and often strategies to contain or reduce these problems.

Individuals with different frameworks assign different meanings to the same issue or event. Where one or more of the sensemaking practises are not operative, social actors do not share the same perceptions, meanings and interpretations of project activity and hence are likely to have different views of the appropriate responses. Further, the greater the disruption of sensemaking

practise, the more divergent the sensemaking, the greater the risk of failed communication and missed expectations.

Finally, when all the sensemaking practises are disrupted, meaning begins to disintegrate and conversation becomes senseless (Gephart, 1992 p.118). When this disruption is sustained, social actors encounter meaningless situations of social disorder resulting in anxiety. Members can then demand and engage in "repair" practises to restore the sense of shared social order. However, for this to happen the nature and location of the breach must be identified. This means that participants must recognize that they are dealing with multiple understandings of what "good" Project Management is and that their judgments may not be "right" but only different from other participants. Further exploration of this data looking for breakdowns and repairs in sensemaking around problems on projects appears like a fruitful later study.

4.2.3 Implications of Multiple understandings on Participant's Ability to make sense

Given that different understandings of Project Management seem to exist within the sampled project participants, it appears inevitable that communication fails and expectations based on these differing models of Project Management will not all be met. At the same time, only one interviewee explicitly recognized the variable understandings of Project Management likely to be held by project participants, it seems very likely that participants on the same project could be carrying on discussions around the project without holding a shared understanding of the social activities underway. It is also likely that these

individuals would have little or no indication that the sensemaking processes are being seriously breached until late in project execution when recovery from these breaches may be difficult if not impossible.

For instance, lets look at an example of how the different definitions of Project Management held by the key participants on the least successful of the study projects. Table 4.8 provides this data. I then elaborate on how these different understandings led to serious communication and management problems on this project.

Table 4-8 Interactions of Differing Project Management Understandings

Project Participant	Project Management Definition	PM Understanding
Manager of Project Managers	"Project Management is Stewardship" Werner line 698	Sophisticated
Project Manager1	"I guess I think its the mobilization of a bunch of people to some objective, like finding some kind of objective that our vision, that people buy into and mobilizing people to go for it and hitting the objective. Hitting it on the mark and then going on to something else." Mckay lines 799-804	Political
Project Manager2	"My approach to Project Management is quite simple...a simple time and action plan, where each component of the project is broken down..." Nash lines 117-121 "the real art vs. the science of it, I think is identifying an approach that keeps people informed and that lets people know where they stand, what their objectives are and then essentially coaching people along the way to achieve those...." Nash lines 306-310	Sophisticated
Project Owner	"I guess it's an understanding of the steps of accomplishing something that is required or needed. And its I guess defining what is needed. Why and how you are going to approach it and then defining the milestones along the way and making sure its delivered." Blackwell lines 509-520	Naive
Technical Consultant	Project Management is...<<long list of tasks and objectives>>...I think the areas that I touched on are probably the areas that are most important to me." Savard lines 265-287	Naive

Holding these disparate views of what it means to manage a project is likely to cause confusing or senseless conversations as each participant tries to make sense of project events through their own schema. For instance, changing the schedule may be seen by Project Manager1 as a normal and responsible action in response to contextual changes particularly if some group of relatively important people makes it clear that this is an important change for the future of the project. The manager of project managers may be able to see the importance of the change from a **Political** perspective and be willing to bend the use of traditional Project Management tools and techniques to accommodate it.

However, the project owner may or may not see the importance of the change and may believe it is poor Project Management to have to revise the carefully devised plan yet again. The technician may see it as bad Project Management and an unexpected complication to his work. The interaction of these multiple models can lead to personal and project distress at the least. Ultimately, the first project manager was removed from the project and the second project manager took over. There were still significant problems in finishing the project.

Given the fact that none of the projects were made up entirely of participants holding similar understandings of Project Management and in light of the discussion above about how these differences can lead to misunderstandings and problems on projects, How then do some projects manage to succeed?

Taking the most successful project from the research set (Project E) as a basis of analysis, I returned to the data with this question. What I found was that the two senior managers involved with this project held a **Sophisticated** understanding of Project Management while the next two key players held a **Political** understanding. Both these understandings emphasize the importance of communication and motivation in successfully managing projects. I think we can assume that the focus of these key players on the importance of communication meant that they paid more attention to the need to "make sense" interactively rather than assume that they were understood. By creating occasions for collective thinking and communicating, these managers triggered occasions for active sensemaking (Weick, 1995) that facilitated the creation of

joint understandings and mutually held expectations, thus increasing the potential for the project to be universally judged a success.

4.3 AT THE GENERIC LEVEL

This section seeks to answer the question "What role do local shared understandings of Project Management have in how individual's make sense of Project Management?" Local shared understandings of Project Management could occur at either the project or organization level if for instance there are local Project Management guidelines or training. Individuals on projects or from specific organizations sharing common understandings of Project Management would provide evidence of effective generic level sensemaking.

Weick (1995) defines generic sensemaking as "interlocking routines which are developed in the interests of premise control and interchangeability of people" (p. 170). He suggests that "pressures to move toward generic sensemaking are strong in organizations" because of the increased efficiency such controlling structures impose on organizational actions. Generic sensemaking tends to increase people's ability to substitute for one another by providing the means for swift socialization, control over dispersed resources, increased legitimacy in the eyes of stakeholders and measurable outcomes and accountability. It is easy to see how a consistent understanding of Project Management shared at the project or even better the organizational level would facilitate organizational and project action.

The goal of generic subjectivity is to create and identify events that recur to make their environment more stable and predictable by making events resemble something that has come before. Given man's dream of order, generic subjectivity is something that is prized in most organizations and is in fact a prized component of organizational sensemaking. Thus, we might expect it to play a significant role in influencing project participant's understandings of Project Management.

Generic sensemaking should influence participant's models of Project Management in two ways. First, theory has it that individual's schemas become similar as a result of shared experience and shared exposure to social cues regarding other's constructions of reality. Sharing experiential space and time and the challenges rooted in communicating, interacting and sharing common problems should encourage and facilitate development of shared schemas (Schein, 1985). Second, local understandings of concepts as derived in specific organizations or organizational subgroups should influence individual participant's schemas to develop a resemblance to those of others in the group. That is, generic level understandings of Project Management as developed at the project or organization level through training or policy development, should mean that project participant's Project Management schemas show some resemblance to each other.

Examining the understandings held by study participants and comparing across contextual factors does not provide much evidence of a strong generic level influence on individual's models of Project Management. Table 4.9 documents

the number of participants holding the three different understandings of project management within a given set of contextual factors that might influence or encourage intersubjective negotiation of meaning.

Table 4-9 Understandings of Project Management across Contexts

Contexts	Naive	Political	Sophisticated
Across Projects			
A	6	1	1
B	3	1	1
C	5	2	1
D	3	4	2
E	4	2	
Note this analysis is based on # of interviews not # of participants			
Across Organizations			
ENG	**7**	**4**	**2**
Eng Employees	IIII	I	
Consultants		I	I
Clients	III	II	I
IS	**8**	**4**	**2**
IS Dept Employees	II	I	II
PM Consultants	I	I	
Clients	IIIII	II	
Across Roles			
Project Manager	1	3	2+2*
Owner	5	2	
Consultant /technical contributor	9	3	* PM consultants

The different Project Management models seem to be distributed relatively equally across all five projects studied. That is, at the highest level, organization/ project types (IS vs. Eng) do not seem to impact the model of Project Management held by participants. This seems to imply that Project Management understandings are not shaped by difference in the types of projects individuals work on or the industries within which they work. This may be explained by the "push" by organizations such as PMI to "sell" Project Management as a generic class of professional skills applicable to all types of projects.

When you look at the level of understanding of Project Management displayed by key participants in the study across organization type, there does seem to be a trend. In the engineering construction projects, the engineering consultants tended to hold a rather naïve understanding of Project Management. This could perhaps be attributed to their training in the "rational" and "scientific" applied science of engineering and their traditionally limited role in managing the entire project. At the same time, the clients and technical consultants on these projects tended to have a more political or sophisticated understanding of Project Management. These clients and consultants had been involved in many construction projects from start to finish and perhaps had a more worldly (and accurate?) view of the process.

The participants in the IS projects demonstrate a different tendency. In this case, there is more variety in the understandings exhibited by the IS department project participants and more concentration of Naïve understandings resident with their clients. Here the IS people had been involved on more projects than the clients who may only have ever been involved in one.

This in turn implies that these organizations and projects do not have strong generically derived rules for how PM was to be done in specific contexts. This is supported by the fact that only one of the participants mentioned organizational or project level Project Management guidelines or training.

The only characteristic that seems to suggest that different contextual factors influence the project model held by participants comes when we look at the role

the participant played on the project. It seems that proportionally more project managers hold **Political** or **Sophisticated** views of Project Management than the **Naive**. At the same time, the **Naive** model is held by the majority of project owners and technical contributors in this study. This can perhaps be explained by the experience of project managers with the realities of projects versus the dreams of owners and technicians about how projects should unfold. In many ways, this seems to direct us back to the influence of individual characteristics on PM understanding formation rather than suggesting a generic level influence.

In a final search for influences of generic sensemaking, each interview transcript was searched for mention of organizational or project level guidelines or training models, but only one such reference was found. This reference was made by the manager of project managers in the IS study organization who stated that they provide organization level Project Management training, that he himself stresses Project Management and coaches his managers in his approach, and that they have their own guidelines for Project Management activities. However, participant's models of Project Management understanding varied more widely within that organization. This may imply that the generic influences of training serve to increase the complexity of understanding of Project Management of those exposed to it and cause a shift in their complexity of models. Perhaps over time participants from this organization would demonstrate more consolidation in their understandings of Project Management.

This analysis seems to indicate that there are few generic level forces shaping the content of Project Management models. This is consistent with Weick's

(1995) assessment of the likely usefulness of generic sensemaking in transitory organizations. He speculated that as organizations move away from bureaucracy towards projects the extent to which generic subjectivity will remain a distinctive a quality of organizations (174) should decrease. Intersubjective sensemaking with less taken for granted will become more relevant because of the relationship between the influence of interpretation, sensemaking and social construction and settings of uncertainty (p. 177). He further suggests that this will result in a greater need for controlled information processing that makes increasing demands on individual's limited attention. This may result in more cues going unnoticed or more opportunities for sensemaking to breakdown.

This points the way to more interesting research questions. For instance, what role does company level training, institution of PM offices, and PM guidelines play in influencing the model of PM held by participants? This type of analysis would help to evaluate the effectiveness of these initiatives and perhaps be able to identify where and why they are falling down.

4.4 AT THE EXTRA SUBJECTIVE LEVEL

At the extra subjective level of sensemaking, we look for institutional or societal level factors that influence the models of Project Management that participants hold. In particular, I try to answer the question "What influence do institutional factors have on individual's construction of Project Management?"

Extra subjective level influences on Project Management understandings come from three sources. First, the Project Management Institute is the premier

institution promulgating traditional Project Management theories and practises. It is a body with international membership of close to 40,000 worldwide and a growth rate approaching 40% per annum. PMI devotes significant effort to getting Project Management recognized as a profession in its own right and in developing the Project Management Body of Knowledge (PMBOK) to support its claims of professionalism. The PMBOK began by promulgating a very traditional "one size fits all" understanding of Project Management practice (1986). However, its most recent edition (1997) starts to include the human side and recognize the more contingent aspects of Project Management. PMI clearly has the strongest influence on the development of Project Management understandings worldwide. Second, traditional Project Management theory dominates the research, publishing and teaching of Project Management world wide. These institutionalized "best practises" receive enough air time to significantly influence both Project Management practitioners and the general public's understanding of Project Management. Third, with the growth in interest in project management tools and techniques a whole industry has arisen aimed at supplying educational seminars to this market. With few exceptions this training machine delivers standard, traditional Project Management doctrine. In fact, most sessions make clear reference to PMI and PMBOK standards as being the basis for their training.

Only 3 participants explicitly mentioned any of these institutions - PMI: one was a recently certified Project Management Professional; one was in the process of taking PMI training towards PMI certification, and one was a long-term member

of PMI. These 3 participants referenced PMI and initially gave definitions that reflected PMBOK definitions. However, all three went on to question this definition and elaborate a more comprehensive definition.

While the rest of the participants did not explicitly refer to PMI or PMBOK, most provided definitions or descriptions of Project Management that indicated an awareness of traditional Project Management as promulgated by this organization. That is most of the participants paid homage to the idea that Project Management was somehow linked to getting something done while meeting objectives that usually included time, budget, specifications and quality constraints. Thus, the traditional Project Management model seems to have an institutional or extra-subjective quality that probably explains why it is by far the most well recognized and used understanding of Project Management.

Theory provides us with a couple of explanations for this influence. First, we know that social information and external legitimization tend to have a profound impact on the individual's understandings of events and situations (Dutton & Jackson, 1987; Lord and Maher, 1991; Salancik and Pfeffer, 1978). This means that the more often an individual is exposed to ideas or slogans, the more salient these schemas become. This may be a kind of recency effect or maybe a bandwagon effect as the last message you heard or the one presented loudest by the most parties is likely to be accepted. Second, our own goals and motives can serve to make some understandings more salient than others (Fiske & Taylor, 1984). If our goal is to successfully manage projects and we are

exposed to enough messages exhorting how using PMBOK will increase project success, the salience of the traditional model is likely to be enhanced.

Thus, there seems to be a significant extra subjective influence on the Project Management models held by participants. Much of this influence comes from PMI and similar international organizations but much also comes from the cultural beliefs in rational progress and accomplishment that drive most (western) societies entering the twenty-first century.

4.5 CONCLUSIONS

Conventional Project Management theorists assume that the world is composed of shared meanings and that these meanings produce order as a primary phenomenon. In this view, changes and project failures are unfortunate, unusual and preventable outcomes of breakdowns in order. In contrast, I assume (as per Gephart, 1992) that meaning is often not shared and that changes and uncertainty are a fundamental outcome of a disorderly world.

Morris (1994) speculated that different models of Project Management understanding may exist. He described them as encompassing different levels of understanding of the concepts of Project Management. I took this to represent a first step to accepting that meanings are not shared. This study shows the existence of three conceptually different understandings of key Project Management constructs. I've elaborated what they consist of, given some indication of what influences their formation and provided discussion of how people move between them.

In brief, study participants defined Project Management in one of three ways. The first framework, I've called the **Naive** understanding, closely resembles the Traditional Project Management defined in the literature. It is concerned with the application of Project Management tools and techniques to increase the likelihood of bringing projects in on time, on budget and on spec. Project participants make statements indicating a very scientific and formally rational attachment to the linearity and calculability of Project Management. They make few if any statements recognizing the human dynamics of organizations and do not explicitly recognize the uncertainty and ambiguity present in organizations today. These project participants tend to have relatively lower levels of education, and Project Management experience but higher levels of short Project Management seminars. Interestingly, they tend to have either relatively low or high levels of Project Management experience. This implies to me that while junior project participants are most influenced by traditional literature (from the seminars?) and extra subjective forces in forming their Project Management models. However, whether a given individual develops a more sophisticated understanding of Project Management over time does not seem to be dependent on project experience alone.

The second model, called the **Political** understanding, shares some characteristics with the contingency model found in literature in as much as it recognizes that many factors must be taken into account in managing projects. However, the focus of this model is on managing the people involved in the projects. Project participants holding this model of Project Management tend to

make somewhat more cynical comments about the value of traditional Project Management tools. They place much more emphasis on the communication and management of stakeholders in shaping agreed upon project outcomes. Participants holding this model tended to have more project and work experience and less Project Management training than others. They tended to have university level education in either engineering or management or both.

The **Sophisticated** understanding, tends to balance the tools and techniques of the **Naive** model with the people sense of the **Political** model without incorporating a cynicism against either model. It is based on a **Sophisticated** understanding of projects as human activities impacted by the people involved, the tasks undertaken, chance and the unexpected consequences of the interaction between all three of these factors. It is a very contextual model in that Project Management shape-shifts to include a wide array of tools and techniques depending on the circumstances which change both through space and time. It is based on an iterative logic where tools, techniques and actions are tried and evaluated on an on going basis. In this way it incorporates a form of "double loop learning" missing in the other two models. In my study, far fewer participants hold this view of Project Management and those that do tend to be more experienced, hold more Project Management experience and more PMI or university level Project Management training.

It is important to recognize the existence of these different understandings of Project Management as it explains how different and sometimes contradictory interpretations of events or outcomes emerge among different participants on the

same project. Different interpretations can be expected to result in different solutions to project issues (Gephart, Steier, Lawrence, 1990). Thus, actions based on absolute interpretations of events by one actor or group might be expected to encounter resistance and to exacerbate, not resolve, organizational problems.

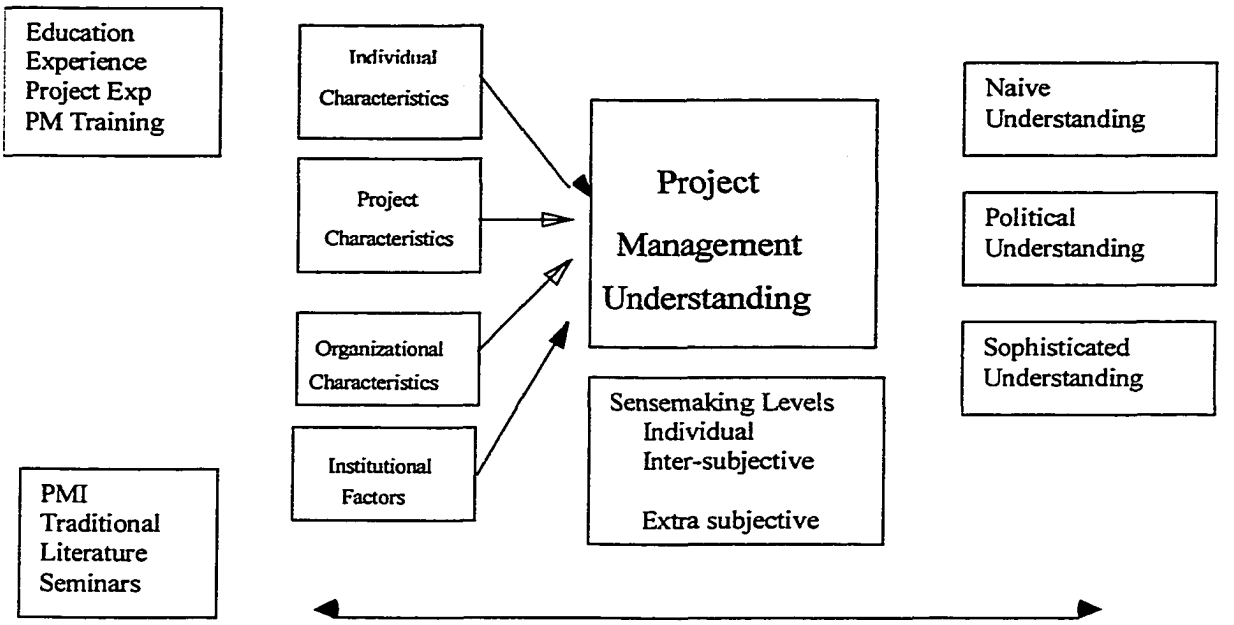
These different understandings can lead to breakdowns in sensemaking that would in turn lead to communication failures and miss-matched expectations on projects. Given that these failures are in turn considered the major failings on projects today, recognition of the existence of these non-shared understandings may go some way towards resolving this Project Management problem.

In addition, project participants from the same organization or project do not seem to share similar understandings of Project Management as might be expected if generic sensemaking was taking place. This finding, that there do not appear to be significant generic level influences on individual's Project Management understandings, calls into question the efficiency and effectiveness of organizational or project level training programs, guidelines or other such initiatives. It also presents another reason for problems on projects. Namely, the lack of generic sensemaking routines on projects means that participants must engage in more controlled sensemaking which leads them open to missing important cues re problems. These cues may go undetected for longer and thereby be more difficult to solve.

Finally, sensemaking at the extra subjective level, such as that evidenced by the consistency and dispersion of traditional Project Management concepts as espoused by organizations such as PMI, plays a significant role in influencing project participants beliefs. The fact that the traditional Project Management doctrine is widely recognized and often adopted indicates that extra subjective sensemaking influences how Project Management is understood in the field even by those who do not agree with the traditional model of Project Management or hold a **Naïve** understanding of Project Management. This again has implications for project reality as those holding the traditional ideas are reinforced and supported in their approach to Project Management even when these tools do not appear appropriate. The widespread understanding of this doctrine also creates confidence that these ideas are commonly understood and so may increase the chances for breakdowns in understanding at the intersubjective level.

Figure 4.2 summarizes these findings pictorially on the section of the Conceptual Framework addressed in this chapter.

Figure 4-2 Factors influencing Project Management Understanding



In this chapter I explored the content and structure of how key project participants make sense of Project Management. In identifying three models of understanding held simultaneously by these project participants, I contribute to the understanding of Project Management literature in at least two ways. First identifying the existence of the three models shows that Project Management understandings as well as projects differ according to contingencies. This further supports the demise of the one right way mode of project theorizing. Second, identifying content, structure, and influences on the development of these models provides a starting point for understanding how to improve Project Management practise. Thus, the primary contributions of this chapter are made to the Project Management literature. These contributions are realized by applying a sensemaking perspective to the examining the project phenomenon

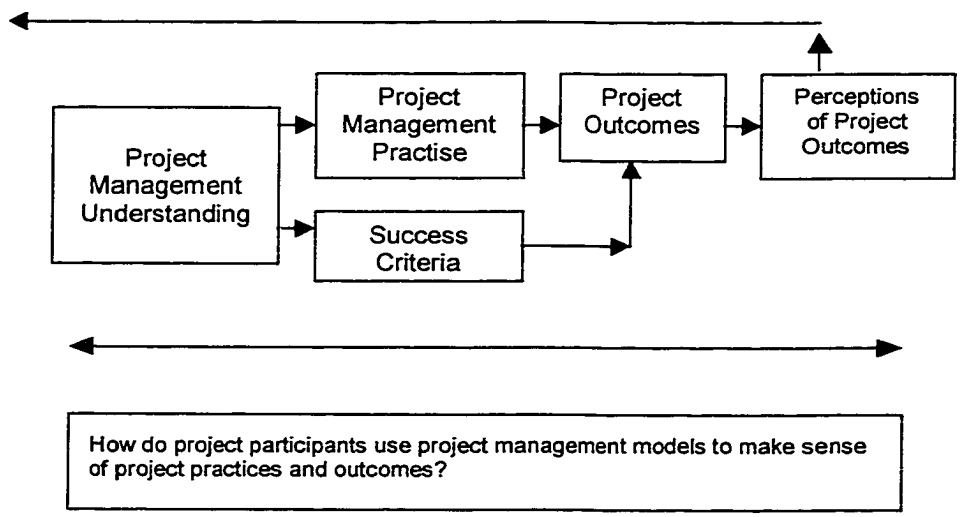
and by showing how this perspective explains some of the ongoing problems experienced in Project Management practise.

The next chapter looks at how these different understandings influence what happens on projects, their outcomes and the judgements of those outcomes. This chapter continues to contribute to the Project Management literature but also contributes to the sensemaking literature by attempting to show how the frameworks and understandings we form through the processes of sensemaking influence organizational action.

5 USING PROJECT MANAGEMENT TO MAKE SENSE

In chapter 4 we explored how project participants make sense of Project Management by building models. This chapter explores how these different understandings influence the actions taken on projects and the judgments of those actions. These models are different both in the factors that shape them and in the underlying assumptions that form their content. Given these differences, I expect that individuals holding differing models of Project Management understanding would employ different tools and techniques in managing projects and use different criteria for judging the outcomes. Finally, I looked at the criticisms of PM theory raised by individuals holding these disparate models. Figure 5.1 has been included below to refresh our understanding of the second part of the conceptual framework devised in Chapter 3 that drives this analysis.

Figure 5-1 Second half of the Conceptual Framework Guiding Analysis



The explicit research question addressed in this chapter is **"How do project participants use Project Management understandings to make sense of project practises and outcomes**?" In particular, I explore the participant's descriptions of the tools and techniques (referred to as project management practises) used on projects and their judgements of the outcomes of projects through the lens of the understandings of Project Management derived in the last chapter. In addition, this chapter shows that the theory and practise of Project Management differ greatly in expected and unexpected ways. I look at how project participants make sense of these differences. I conclude with a discussion of how the different understandings of Project Management tend to use differing paths to make sense of project realities.

5.1 LINKING UNDERSTANDINGS TO PRACTISES

In this section, I present results of an analysis of all participant's descriptions of project practises used on the specific projects under study addressing the following question: ***"How do project participant's Project Management models influence the Project Management practises used on projects?"***

Project Management practises are here operationalized as the tools and techniques implemented in managing a project. My approach to analyze this data was to read each participant's description of the project and code all lines of the transcript that referred to actual activities they or others undertook on the project related to managing it. I coded these practises using predominantly the participant's own terms to begin with. As each additional interview was completed, I coded it using the terms developed in the previous set of interviews.

If new practises were identified, I went back and looked for occurrences of these practises in earlier interviews. This resulted in a list of key practices identified from the interviews. The practises ranged from: change control to regular meetings to political moves. Figure 5.2 illustrates how this coding was accomplished.

I worked through a sorting and classification process looking for ways to compare and contrast these practises such that I could create logical groupings of them. The first and easiest category to classify were those tools commonly referred to and taught as project management. These I coded as Traditional PM tools. My first list of Traditional PM tools contained a wide assortment of activities including what I now classify as Modified PM tools. In a review of this list of practises with one of my informants, he asked if I considered a hand drawn time line and a Critical Path Analysis to be the same thing. While they serve the same project management purpose, they definitely differ in terms of the effort entailed in creating them and the perception of their rigor. Thus, I divided out this list of tools and techniques into those that can identified as textbook project management practises and those that were, to say it politely, "modified". Finally, there were a set of activities that were primarily involved in managing the people side of projects that rarely would be identified as tools or techniques per se but which these project participants consistently identified as important activities undertaken in managing the project. This analysis resulted in three categories of project management practises as described below:

Traditional PM tools- all practises that are explicitly mentioned in most PM texts fit in this category

E.g. Regular meetings, change control, reporting, walk throughs, critical path, and work breakdown structures, planning

Modified PM tools- all practises that are related to tools and techniques mentioned in PM texts but in most cases were described as modified to create a simpler tool to serve the purpose of the original.

E.g. simple action plans and time lines were substituted for formal planning and scheduling

Politic PM tools- Politic here is being taken to mean "'shrewd in promoting a policy or outcome" (Merriam Webster Dictionary). Those practises that have to do with navigating the **Political** and/or organizational complexities within which the project had to operate fall into this category.

E.g. keeping your finger on the pulse, communication strategies, **Political** savvy, coordination, negotiation, and managing expectations.

Thus, I developed a construct around project management tools and techniques that is not common in project management literature. For purposes of furthering "best practise" research in project management this classification could be explored further and tested. However, this question is not within the scope of this study. My purpose in examining these practises and devising this classification scheme was to be able to explore any possible linkages between the way one understands project management what he/she does on projects. This classification provides a useful heuristic for linking understanding to tools.

Finally, using NUDIST's sorting capacity, I created nodes for each category of practise and linked the original tool and technique codes to these. I then resorted the data to explore practises used by project management understanding.

In Tables 5.1-5.3 I present this data sorted by practises within tools within understandings. I also provided quotes from the related participants around the usefulness of these tools.

5.1.1 Naive Understanding

Table 5.1 summarizes data supporting this analysis.

Table 5-1 Linking Naive Understanding to Practises

Model		Key Practises	Example Practises	Comments
Naive	Traditional PM Tools	Regularly Scheduled Meetings Change control Reporting Definition of Work	Weekly or biweekly meetings Assessing, tracking and getting approval for changes Paperwork, invoicing, tracking budgets, Status reports Scope definition	At each meeting we found out how much farther behind we got Coordination role not adequately assessed, estimated or done PM is motherhood PM is overhead A lot of it is theoretical and not useful in practise Backtracking is always an issue – Frustrating Careful planning sounds good in theory I think in this firm we still apply the old "close your eyes and hope for the best" approach to Project Management

The participant's holding this understanding of Project Management mentioned exclusively traditional Project Management tools and techniques in their description of how the project was managed. Upon closer examination, these individuals tended to use only a subset of these tools – only those I would describe as the most basic. This subset included such practises as regular meetings, status reports and change control but excluded any of the more sophisticated or detailed tools such as critical path analysis, work breakdown structures, milestone and deliverable planning. The practises used focus on the bureaucratic and organizational side of measuring and maintaining productivity. Tools used in planning, effectiveness or people management were not

mentioned. As I looked at the practises implemented, I also collected comments on their usefulness. This revealed another interesting anomaly in how these project participants thought about Project Management practises. First, they tended to criticize Project Management as being too theoretical and not practical enough even though they only seem to be applying the most basic of the tools available in this tool set. Second, they commented that Project Management practises are overhead and nice to have but not necessary to successful project completion. Third, they reported that they didn't use enough of the "real" Project Management tools to be effective. These conflicting comments will be examined in further detail where I look at the participant's critiques of Project Management theory.

5.1.2 Political Understanding

Those holding a **Political** understanding of Project Management reported the widest variety of Project Management practises used on their projects. They described practises from all three categories. These individuals also reported using only the most basic of the traditional Project Management tools or techniques but suggested that they used modified Project Management tools to cover off the functions of the more complex tools on these projects. This meant that they used simple action plans and chronologies in place of complex work breakdown structures and critical path planning to increase accountability and forward planning on the projects. In addition they used a wide range of politic tools covering off issues of ensuring a "finger on the pulse", communication strategies and political savvy. The focus of all these politic practises seems to

be on motivating the team, keeping all practices informed and managing perceptions around the project progress. In other words, the use of these tools appears to be aimed at "selling" the project to whom-ever needs to be convinced of its worth, viability and progress. Table 5.2 provides data in support of this analysis.

Table 5-2 Linking Political Understanding to Practises

Model		Key Practises	Example Practises	Comments
Political	Traditional PM Tools	Regular Meetings	Scheduled meetings keep everyone informed	
		Walk throughs	Simple procedures simplify change	Need to manage to ranges with sliding goals and benefits as opposed to black and white targets
		Change Control		
	Modified PM Tools	Simple action plans and chronology	I don't use Critical Path and such tools – I expect someone on the team to do that.	
				Early on it became clear that the client had their own agenda and were not willing to comply with standard PM protocols
		Finger on Pulse	Schedules and action plans are never up to date	
	Politic Tools		Know your team and what they are doing	
		Communication	Maintaining owner sponsorship is key	
			You have to go out and work with the people to know what works	Getting everyone on side and keeping them motivated is the number one job of the project manager
		Political/Organizational Savvy	Communication is more than reports and meetings. It entails knowing and liking your team and knowing that everyone is working on the "right" things.	
				Nothing is more important for a PM than to know how to get things done in that organization
			You need to have strategies for communicating with all stakeholders	
			Know when to fight and when to back down	
			Need to play some games with budgets and scope	

The breadth of practises this group of participants reported using on their projects was by far the greatest of any of the groups. I suspected that the use of this wide variety of practises is slightly exaggerated and may exist more as a form of rhetoric and legitimizing strategy. Given the tendency of these

participants to focus on creating and managing perceptions, I re-examined the transcripts looking for consistency in tools reported across participants. I also perused the project files looking for evidence of use of a wide variety of tools. Unfortunately, only one of the projects studied kept complete project files (project E). In addition, the project files could really only provide evidence for the first two types of Project Management practises. Thus, this concern could be neither supported nor refuted from the files. I think this raises an interesting question for further research.

5.1.3 Sophisticated Understanding

Recognizing that only four of the project participants hold a **Sophisticated** model of Project Management, makes it difficult to rely on interpretations of this data. However, there are some interesting points to raise. As illustrated in Table 5.4 these individuals included rigorous application of traditional Project Management tools and techniques in combination with use of politic tools in their descriptions of how the projects they were involved in were managed. They reported use of a complete set of traditional Project Management tools. This was the only group that stressed the importance of a detailed schedule, an up to date plan and critical path analysis. Further more, there is some corroborating evidence in the project files[5] these methods were applied on the projects where these individuals said they were applied. This surprised me a little as I expected that this group

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[5] Evidence in the form of status reports referring to the schedule, critical path etc and copies of CPM diagrams and project plans. While these files are not all inclusive enough to guarantee that practises not mentioned did not occur, the mere presence of these documents gives good indication that the tools were applied at least at that point in time.

would be more inclined to use their experience and judgement to modify Project Management tools as necessary not to provide evidence of the rigorous application of traditional tools as defined.

The politic Project Management practises they reported also had a slightly different flavor from those used by the more **Political** project participants. The **Sophisticated** participants tended to use political tools centered on managing expectations, negotiating agreements and coordinating efforts. There was far less emphasis on selling and more of a working together to achieve common goals approach. Table 5.3 demonstrates the practises that those exhibiting a Sophisticated understanding of project management used in describing how the project was managed. It must be stressed that the small number of participants in this category make any interpretation problematic. This data should only be taken as illustrative and should be flagged for further research.

Table 5-3 Linking Sophisticated Understanding to Practises

PM Model		Key Practises	Example Quotes	Comments
Sophisticated	Traditional Tools	Project Meetings Accurate and up to date project plan Critical Path Work Breakdown Structure	Raise flags early and often and deal with them now Plan is always useful as a communication tool and as a "common basis for change"	The more PM tools I use and the more rigorously they are implemented, the better the project seems to go
	Politicl Tools	Accountability Managing Expectations Negotiations Coordination	Formal work assignments with deliverables Variance and time Reporting Need common understandings Need clarity around goals Know who the real client is All changes to schedule, cost, goals etc must be understood by all parties and agreed to in advance A PM must keep everyone playing the same game from the same game sheet.	PM needs to be prepared to re-schedule, re plan and re-negotiate specs etc on an ongoing basis to deal with changes

Comments associated with these practises reflected the belief that rigorous application of traditional Project Management tools is important at the same time they exhorted the flexibility of all involved in re-negotiating outcomes as necessary to be successful. Thus, while the four individuals exhibiting a **Sophisticated** understanding of Project Management appear to adopt traditional tools and techniques and use them more rigorously than either of the other two understandings, they are also the most likely to redefine success criteria on an ongoing basis and not stick to the traditional model's insistence on meeting the original goals as defined for the project.

This analysis provided me with a living example of the importance of "bracketing" researcher experience to ensure that data is not biased by how the researcher views the situation. Given the models of Project Management understanding

derived in the last chapter and my experience, I admit that I went into this analysis with some preconceived notions about the relationship between the models held and the practises mentioned. However, it was not until I completed this analysis that I realized that I had some very strong expectations about the type of practises that would be employed by individual's holding the different models. In particular, I expected:

- those holding a **Naive** understanding of Project Management to be the strongest users of traditional Project Management tools;
- those holding a **Political** understanding to use the least number of traditional PM tools and techniques and to almost exclusively use politic practises; and
- those holding a **Sophisticated** understanding to use a combination of modified PM tools and politic tools.

What I found, as documented above, was a somewhat more complex relationship between these models and the practises the participants report using to manage the sample projects as reported above. This "break" in my sensemaking process forced me to rethink some of what I expected to "find". It also served as a warning to think about my biases before working on the rest of the analysis.

This analysis linking Project Management tools and techniques to models of understanding of Project Management provides a first step in demonstrating how meanings influence action. This rudimentary evidence links how we make sense of a concept to what we do in project situations. The next section looks at how these models influence the way we judge success on projects.

5.2 LINKING UNDERSTANDINGS TO SUCCESS CRITERIA

This section presents an analysis of how the different understandings of Project Management influence the nature of the definition of success and the success criteria used to judge project outcomes. I followed the steps described above for Project Management practises and so they will not be repeated here. Table 5.4 summarizes this data.

Table 5-4 Linking Project Management Understandings to Success Criteria

Model		Success Definitions	Success Criteria	Comments
Naive	Outcomes centered	Win/Win Completion Quality Meet original time, budget and spec goals Timeliness	Everyone Happy Little on-going dissension Client signoff Technically superior product Meeting Measurable Objectives Not having to backtrack	Client Happy and we made money When you finally turn it over and get sign-off that is success We had to backtrack all the time and that is frustrating
Political	People centered	Perception Happy Team Low Aggravation	Absence of Failure Ultimately success depends on whether the project is perceived to be a success by the people that come into contact with it. Keeping people informed Would the people want to work together again? Cooperation lack of dissension. No lingering problems	You can deliver a little late or a little over budget and they will forget but if you deliver a system that doesn't work nothing can save you. Sometimes a project is defined as a success cuz people can't afford it to be a failure.
Sophisti cated	Balancing People and outcomes	Happy Client Meet last agreed to time budget and spec	Client's definition of success forms the basis for setting clear goals and objectives Deliver agreed upon requirements of system and get signoff These need to be renegotiated over time so that they evolve with the project	I don't define success. I work with the client to ensure we're all clear on their definition of success.

The **Naive** understanding of Project Management focuses on controlling activities. The practises advocated by its adherents focus on managing the definable and observable activities of projects. Likewise success definitions tend

to be very outcome centered. Not surprisingly, the success criteria these participants give also focus on measurable and definable outcomes such as completion and technical quality of the end product, or meeting the timing, budget and specification goals. In addition, these measurable goals are defined early in the projects life and are not meant to change over the course of the project. The assumption is that you make a plan, work the plan and deliver what you set out to produce.

Those holding a **Political** understanding of Project Management focus much more on ensuring that all stakeholders are satisfied with the project. The success definitions here tend to revolve around how people feel about the project, the perceptions of it as a success, the presence of happy clients and happy satisfied team members. Success criteria tend to be much more subjective. In many cases, success is deemed to be the outcome arrived at with little or no reference to the original goals. Here success is more something to be sold or advertised than achieved or negotiated.

As you might expect, participants holding a **Sophisticated** understanding of Project Management tend to take a more balanced approach to defining and measuring success. Both outcomes and people factors are taken into account in their definitions of success. Criteria here are very client centered. The two definitions most cited by these individuals included ending the project with a happy client and meeting the last negotiated time, budget and specification goals. As discussed in the last section, these project participants recognize the need to adjust the success criteria in the face of changing content and

requirements of the project. However , they also recognize the need for a relatively rigorous approach to re-negotiating these goals to ensure that all parties are in agreement on the new targets.

The next section links these criteria and definitions to the outcomes and judgments of project success reported by the project participants.

5.3 LINKING OUTCOMES AND JUDGEMENTS

The last section explored the success definitions and criteria employed by project participants and linked these criteria and definitions to the understanding of Project Management in use. This section explores how these success criteria are applied to outcomes to create judgements about project results. There does not seem to be a clear link from criteria to judgements. This seems to be an occasion for significant individual and inter-subjective sensemaking.

The traditional Project Management model judges success against the following fairly objective success criteria:

- Did the project meet the schedule objectives?
- Did the project come in within budget?
- Did the project deliver the agreed upon product according to the specification?

Even the contingency model of Project Management tends to support these success criteria as appropriate once the planning and goal setting have been modified to take into account variations in important project factors. Recently the satisfaction of the client with the outcomes of the project have also come to be taken into account.

Using such objective and measurable criteria, it should be fairly easy to assess project success and there should be some level of agreement on these judgments. Unfortunately, this is not the case. Applied literally to project outcomes, these criteria result in frighteningly high judgement of project failure (See discussion in Chapter 2). At the same time, those actively involved in these same projects are likely to provide very different judgements of the project's success – even those who report the above criteria as the appropriate measures of success on projects. Project participants were asked to rank the success of the project on a scale of 1 – 10 with 10 being extremely successful and then to provide justification for their ratings.

The data collected for this study provides significant evidence of this phenomenon. Of the five projects examined:

- Three were over budget;
- Four came in late;
- Only one delivered on the original specifications
- Four had clients that were happy with the outcomes.

At the same time, only two projects were originally judged to be failures (one judgment was revised to successful over the course of the study), two were considered to be moderately successful and one was judged to be extremely successful. Lest the reader be mislead, the one extremely successful project was more than 40% over budget, completed two months late and produced a product highly different from the original specifications. Obviously, as discussed in the last section, other success criteria than those professed are being applied.

Table 5-5 Linking Understandings to Outcomes, Judgements, and Justifications

	Outcomes	Models Held by Position	Judgements	Justifications
A	Over Budget	Traditional		Quality of Building very high.Tech. good
	Past Due	Team Members (2)	7-9	project.
	Not built to	Project Manager (2)	3-4?	Missed all success criteria but client is happy
	commercial	Mgr of PMs	8	and it made money.
	specs	Client Owner	8-9	Quality of end product extremely high
	Client Happy	Political		On time, on spec, high standards – well at
		Client Project Mgr	6-7	least within allowances made in planning
		Sophisticated		Didn't meet schedule, poor coordination, lots
	Failure?	Technical Consultant	3-6.5	of frustrations
			3-9	
B	Under Budget	Traditional		
	Beat the	Mgr of Project Mgrs	8-9	Very successful. Easiest project ever
	Schedule	Project Manager	9-10	Very good client. Knew what they wanted
	No changes to	Team Member	8	Excellent project. No changes
	Specs			
	Client Happy	Political		
	Success	Client Project Mgr	10	Very successful in all respects
			8-10	
C	Met Budget	Traditional		
	Past Due	Mgr of Project Mgrs	8	Successful
	Changing	Team Member (3)	3-7	Not successful from client perspective.
	Specs	Client Owner	8	Successful from Tech perspective
	Client Happy	Political		Good quality results with no disruption to
		Technical Consultant	5.5-8	trains
		Project Manager	8	A lot of dissension and issues but T/B/S
		Sophisticated		results acceptable.
	Moderate	Client Project Mgr	10	Client very happy
	Success			Absolutely a 10. We never stopped a train.
			3-10	
D	Way over	Traditional		Project has been an example of a failure but
	Budget	Client Owners (2)	8-9now	the product we have now may be worth it.
	Way Past Due	Team Member	3-7	Project failed from the PM and Commercial
	Changing	Political		sides but succeeded technically and for
	Specs	Client Owners	3	Accting
	Client not	Client Project Mgr	6.5-7	There has been no accountability for failures
	happy	Project Manager	5-9	The project failed because of a lack of
		Sophisticated		flexibility in goals and dates tec.
		Mgr of Project Mgrs	3	PW2 was a success cuz it hit the technical
				targets but the business goals were
				unrealistic so it failed there.
	Failure			This was an overall failure on all counts.
			3-9	Only reason the score is not lower is that
				it might be salvageable.
E	Over Budget	Traditional		Very successful on all counts but not yet
	Slightly over	Client Owners (2)	8-10	profitable
	Schedule	Team Members (2)	8-9	Good project, no conflict, pulling in one
	Evolving	Political		direction
	Specs	Client Owner (2)	8-10	Excellent value added to company.
	Client very	Sophisticated		One of the best projects ever. Had to
	happy	Mgr of Project Mgrs	8-9	reschedule budget etc to match evolving
		Project Manager	7.5-8	specifications.
				Good project. No conflicts or
	Success			misunderstandings. Not a higher rating
				because T/B/S typical measures were not
			7.5-10	as good

Table 5.5 presents the project outcomes and participant judgement's of project success and justifications for those judgements for all five projects. The first column identifies the project and provides a reference by which this project can be referred back to other tables reporting data by table. The second column presents my assessment of project outcomes based on the traditional project management success criteria (Budget, schedule, meeting specifications and client satisfaction) and the results reported for the project in the first several rows. Underneath this assessment and printed in bold is the initial assessment of the project's success given to me by senior management of the study organization before I began my research. Column 3 indicates the understandings of project management evident on the project and the roles of project participants holding these understandings. Column 4 presents the indvidual's judgements of project success o a scale out of 10 with 10 being very successful. Where there is a range reported for any role, this is the lowest and highest ranking provided by all individuals holding that position. Column 5 provides the justifications for these rankings presented by each individual. This table presents a detailed subset of the data from which I make the following assertions.

It seems that the criteria most highly related to the judgment of success invoked for a project is whether or not the client was happy with the outcomes. This is supported by the justifications provided by participants for their judgements when they were not necessarily in sync with the success criteria they identified earlier. The next most common explanations for these were that organizational political

reality made it so or that the there was some sort of flexibility built into the goals and outcomes fort he project that provided a sliding scale of acceptability known only to that participant.

A classic example of the importance of the perception of the client in how participants make sense of project results is encapsulated in "Project A – The case of the missing failure" included below.

Project A – The case of the missing Failure

The first project I gained access to was identified to me by the manager of project managers of the sponsoring firm as a failure and a classic example for this firm of poor Project Management process. In order to gain access to both the project and client sides of the project, this manager set up a meeting for us with the primary client contact to introduce me and kick-off the study. We did not mention the reasons this project was selected for study.

The client was very keen to participate, and the kickoff meeting occurred a few days later. During the meeting if became clear that the client had a very different view of the success of the project. He judged the project to be a huge success.

In future individual interviews with these two key participants, two interesting things came out. First, the opinion of the manager of project managers changed dramatically with respect to the success judgment of this projects. The client's opinion influenced this manager to revise his judgment dramatically and to defend this revision even under questioning by the researcher. Second, the client project manager, when pushed, admitted that the project did not meet any of its explicit goals and was not well managed etc but justified his success judgment on the quality of the end product delivered and the happiness of the end client with this deliverable, and the fact that there are sliding ranges of achievement for budget and schedule that were not known to anyone other than himself.

There are two lessons with respect to sensemaking and Project Management demonstrated by this episode. First, two individuals holding different understandings of Project Management founded in different experiences and knowledge bases can view the same outcomes and come to dramatically

different judgements of those outcomes. The manager of project managers of the consulting firm applied strict traditional success criteria and judged the project a failure. The client project manager applied a more political understanding of Project Management factoring in a political assessment of the perception of the project results within his company to come to a very different judgement. Second, when confronted by these two significantly different judgements of the project, the "judgement" of the project was re-interpreted inter subjectively. Faced with a situation where the client judged the project favorably, the consulting Vice President modified his beliefs to fall into line with the client. Thus, individual Project Management understandings influenced the sensemaking around the project outcomes but the inter subjective sensemaking is more robust.

One final look at the data in the table suggests that variability in judgements of success (as suggested by the ratings out of 10 of given by the participants of each project) provides evidence of potential misunderstandings driven by the application of differing success criteria. The two most successful projects had ratings of between 7.5 and 10 from all project participants. The failures or moderate successes had ratings ranging from 3 to 10. With this great a disparity in the ratings, it is obvious that different criteria must be being applied.

5.4 CRITICISMS OF PM THEORY

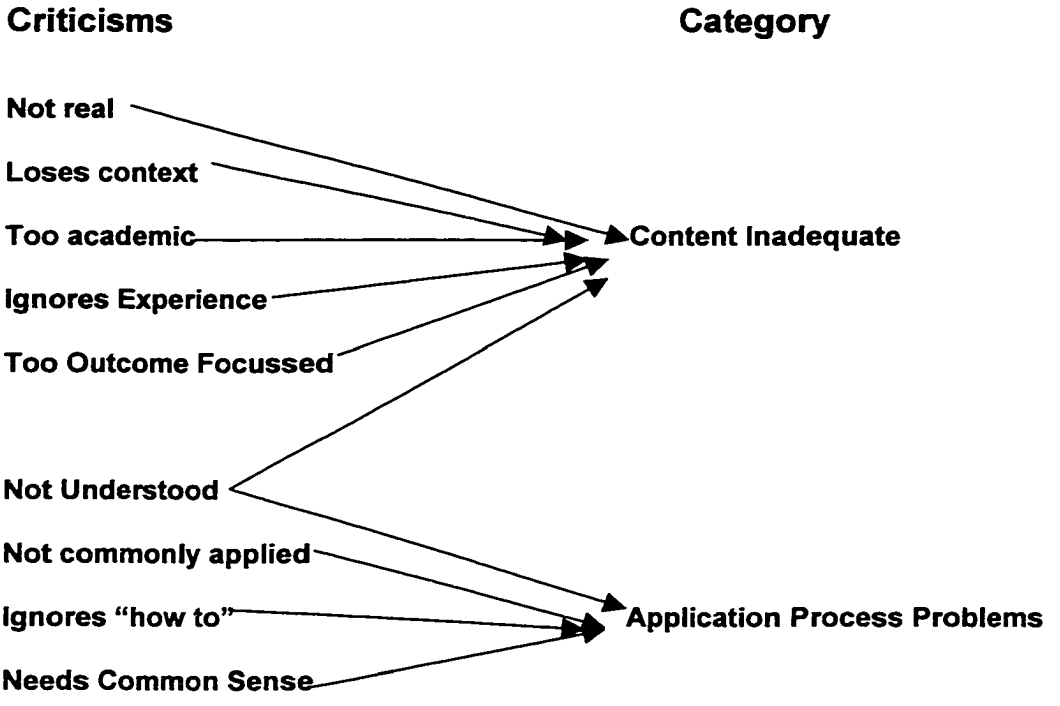
So far we have seen how the theory and practise of Project Management differ greatly in expected (tools not applied) and unexpected (outcomes continually negotiated) ways. One of my interests in undertaking this study was to try to get

at how project participants recognize and explain these discrepancies. This section explores how Project Management theory is criticized in general by project participants. The nature of these criticisms tends to point to the rationales project participants are using to justify the discrepancies between theory and practise. I then look for trends in these criticisms generated by the understanding of Project Management held by the participants.

In examining and coding the transcripts, it became clear that the criticisms of Project Management tend to fall into one of two categories. In general, project participants criticized Project Management theory as either lacking adequate real world content or as ignoring the issues of applying Project Management in the real world. A large number of criticisms focus on the relevance of the content of traditional Project Management theory and or the difficulties experienced in applying it in the real world. Participants complaining about the content tend to see Project Management as too theoretical, dealing with motherhood issues, ignoring the complexity and turbulence inherent in project work and focussing on pre-defined outcomes that may no longer be relevant. The second type of criticism leveled at Project Management theory centers on its application to projects. These criticisms have less to say about the usefulness or applicability of the theory and more to say about the difficulties in applying it to specific projects. These complaints include the fact that it is not well or commonly understood by all involved, it is too often literally applied instead of practically applied with judgement and common sense. Thus one set of criticisms has to do with the usefulness of the content of the theory itself and the other set of criticism

has to do with the difficulties encountered in attempting to apply it. Figure 5.2 illustrates this categorization of Project Management criticisms developed from coding all the criticisms identified in the interview transcripts.

Figure 5-2 Criticisms of PM Theory by Category



Now that we see how Project Management was criticized in general by all participants, lets break the analysis down a little finer to see if and how the understanding of Project Management held by the participants influenced the nature of their criticisms of it. I look at each understanding in turn.

Table 5.6 presents the common criticisms of Project Management theory made by those holding a Naïve understanding of Project Management.

Table 5-6 Naive Criticisms of PM Theory

Model	Type	Criticism	Quotes
Naive	Not real	PM Theory doesn't take into account turbulence and change	What happens it's when one thing goes wrong it's fine, you can probably control it. But if it kicks off a series of other problems, and you have another major problem that comes in, and another major problem. Pretty soon everything is just total turbulence. It's really just focus on the small, let's get one thing done at a time and eventually it will all come together. (721-731)
	Not understood Not commonly applied	PM theory is not universally understood and subscribed to.	I think a lot of those models don't take into account, you know the unexpected and the fact that owners and other consultants don't necessarily apply Project Management (213-215)
		PMI stuff is motherhood	Until you role up your sleeves and get some experience doing this stuff. I guess it seems easy to talk about it.
	Too Academic	PM theory is too academic	Instinctively, I think where I'm concerned having read some of the articles in PMI magazine a lot of it is good but I think a lot of it is based on best case theoretical models and a lot of it is too highly academic and not project focussed or there's not a grounding in actual conditions if you will (200-204)
		PM sounds good in theory	I think we definitely, you know there is a need to develop real world knowledge and see how it compares to this pie in the sky, you know best intentions theoretical stuff. (317-321) There is a theoretical way of doing it and then there's really what happens, nine out of ten times. (696-702)

In this study, those holding a **Naive** understanding tend to criticize Project Management as too theoretical and not reflecting the realities of project work and not being well understood. As explored above, these criticisms primarily focus on the content of Project Management theory. This focus on the content is based on the underlying assumption that there is "one right way" to manage projects and if we find it and apply it projects will work better. This search for the holy grail of Project Management fuels the development of incremental improvements to Project Management tools and techniques and the practitioners

on-going search for the "best": or "right" Project Management seminar that will help them achieve this goal.

These participants tend to take Project Management theory very literally and see it as something that can be perfected by learning a specific set of skills and tools. You can see how those holding this understanding may first seek more Project Management training to try to get it "right" as evidenced by their relatively high levels of attendance at Project Management seminars. I think that this explains the number of experienced project managers having taken a lot of Project Management seminars in trying to increase their understanding or it and improve their ability to apply it. Some project managers will be stuck in this cycle indefinitely – unwilling to give up the dream of a simple and effective Project Management solution, unable to find the solution in training or in practise. You can also see how some might get frustrated and disillusioned with the traditional model over time leading them to search for other approaches and possibly to develop a more political or sophisticated understanding.

Those holding a political understanding of Project Management tend to criticize it for not understanding the organizational and power complexities with which it must be applied and for not recognizing that Project Management guidelines are not applicable in all situations. They feel that judgment and experience must be applied regularly.

Table 5-7 Political Criticisms of PM Theory

Model	Type	Criticism	Quotes
Political	Not Real	PM theory can't be understood until you've experienced project realities.	Well I think that, myself personally, I think that a person ought to go out and do multiple small projects for a while and then go and get the theory training. Because I don't think the theory really means anything until you've really been there. (669-672)
		PM Theory ignores organizational complexity and power relations.	Theory first of all doesn't bring in to play organizational complexity. It doesn't usually bring into play the power usually associated with those organizational issues. It doesn't nearly touch on the degree of complexity of what it is that you are trying to accomplish (610-616)
		PM theory doesn't tell you how to apply it.	And a good project manager knows what to do and when to do it. Right? When to fight, when to back down, what is important and what isn't important. That's where experience, that's something I didn't mention earlier, that's where experience really comes into play. Understanding what's important and what isn't. I've got a manual here on our project process, right. This purple manual up here. That tells you exactly every step of what you are supposed to do. It doesn't tell you what's important. And what's important can vary from one project to the next. (618-633)
	Ignores Experience	PM theory tends to focus on the technical and ignore the people side.	And then the people side. It's interesting. Of the Project Management training that I do, right. Everybody wants it done in one day. I mean I've spent a lifetime doing this, m right, and they want my experience in one day. Well I'm sorry but it's not really available, right. I tell them two days we can talk about the first cut at the theory without the people component, right. So that" usually what ends up being sold, is the theory without the people component. And really when you get into it the people component is such, so important. But... (635-647)
	Too Outcome focussed	PM Theory insists on defining end from the beginning	Project actual vs. the initial conception of what it's supposed to deliver don't necessarily always match. (543-544)

Thus, this group of project participants critique the theory both on the basis of content and application. They seem to be suggesting that there is some form of tacit knowledge necessary to successfully manage projects that is far beyond the scope of Project Management theory. This "magic" is only acquired through experience and over time and this is valuable to those who have it. This makes managing projects much more of an art form than a science and success more dependent on the individuals involved.

Those holding a **Sophisticated** understanding tend to see Project Management itself as a complicated concept that is itself not well defined and not well understood. They believe that while the tools and techniques have value in themselves, they are not applicable in all situations and that many people try to apply them literally and in total to every project when they should be applied practically on an as needed basis. These project participants agree that there is some level of tacit knowledge about projects that must be developed through experience. Table 5.8 summarizes this analysis.

Table 5-8 Sophisticated Criticisms of PM Theory

Model	Type	Criticism	Quotes
Sophisti cated	Not understood	PM is not well defined or commonly understood.	The failure of Project Management to a great degree is I find, its first of all not well defined and not well understood by the key people who are making decisions. (56-58)
	Loses Context	PM tends to treat all projects the same.	A lot of it is real intuitive. It's not through training. But sensitivities of certain things you learn by the books and so forth, but the ability to think that way is sometimes not taught. So you do find square pegs in round holes, unfortunately and that does tend to happen. (88-92)
	Needs common sense implementat ion	PM is not meant to be applied literally It should be applied practically as required. PMI provides a framework not a recipe.	I think everything that's said in there is appropriate in the context of the project. Not all projects are the same. The weighting of the issues has to be molded to the specific project. And sometimes there is a tendency to day, this is it, there is a model here that must be applied every time out. Well I don't believe in that, I think you, you start with a blank page and apply certain sensitivities along with the client and everybody else and together you mold the model. It shouldn't in fact replicate the same model all the time. Sometimes it seems to be proposing that. There is this canned approach to everything. And I don't philosophically agree with that. (149-1
	Requires experience	Only about ½ the PM tools apply to each situation. PM should only be applied as and when it makes sense.	Pm requires technical competence. You have to learn it from the ground up. And I think one of the problems is the people who are not doing quite the job they should, is because they have taken the course or read the paper, but they don't have the hands on knowledge to apply it. And what they do is they interpret it literally what's written as opposed to practically what's required (620-633) You need to have a framework in mind. And the PMP is a very good framework. It may not be a recipe to the detailed steps that can follow. But

			once, there's a lot of things that once you have a good framework surrounding that decision making, it's just a matter of working out or weighting the alternatives...It's just that people sometimes, when they are under the gun they just forget about it. They just, become themselves again. Sometimes discipline is forgotten. But I think it's very aligned, especially for the work that I do. I find out that the more Project Management technique or concept that is applied to the daily job the better the result. (496-507) When tools in the Project Management areas are good as guidelines I would say at least half of them apply to one or the other situations but not all. So I only use it when it makes sense. And to be able to do that you have to be able to apply some experience. Because other wise you are probably wasting a lot more time than you should have. In my case, I can only say that I use those and half the project is going very well. The other half is a lot more dependent on judgement calls that you make. Some of them, it has nothing to do with the technique it just fails. (569-579)

One participant explained the problems of trying to apply Project Management literally by comparing the situation to that of building codes in construction /architecture as follows:

> Well the difference, an example would be, um, codes, building codes now are usually written by very knowledgeable people who understand the industry, understand the flexibility that really needs to be applied and understand the reasons why its really being developed the application that are appropriate for it, where it can be used and where it can't. So when the document comes together it has been developed by very knowledgeable people with alot of time to study it and a very in-depth background on the nature of the beast. And it makes alot of sense. Unfortunately the document goes out to, I'll call it lay people, but its people that don't understand how its been developed, don't understand the flexibilities that have been built into it, without really saying it, and how it's to be practically applied. So they apply it literally which makes it very, very difficult. And then they aren't given the authority to even if they could give the flexibility of interpretation, and that's what is happening to a great degree with the code and applications. And everybody's starting to recognize that now. The same thing could happen to project managers. For the very same reasons.
>
> Ryder (640-654)

This participant is acknowledging the problems with applying Project Management literally and at the same time acknowledging that it is a common problem in fields of human endeavor populated by rules and regulations. You need the experience and authority to apply common sense to the "code" without which the best code in the world becomes a limiting factor.

Thus, project participants tend to criticize PM theory either on the basis of content (e.g. Project Management theory does not reflect reality and therefore needs to be improved) or application (e.g. Project Management theory needs to be applied practically and not literally and therefore cannot be book learned). Individuals holding different understandings of Project Management tend to focus on different criticisms. **Naïve** project managers focus on the content and feel that something is missing that will allow them to do it "right". **Political** project managers tend to see it as a combination of content and application problems that can only be solved by the right people. **Sophisticated** managers tend to see the issue as the implementation of the theory. The theory itself is seen as simply a guide that must be applied with authority and judgment.

5.5 LINKING SENSEMAKING DRIVERS TO PROJECT MANAGEMENT MODELS

Making sense is to create order and understanding of experiences by applying a mental framework. To date we have discussed the content of the framework, now I turn to an exploration of the processes through which these understandings seem to be most often applied. Given that sensemaking is a fluid process of connecting a mental framework with an issue, I acknowledge that many processes are likely at work concurrently. However, examination of the

way the Project Management model is applied in practise shows that different models tend to use different sensemaking processes to support their understanding of project reality.

5.5.1 Naive Model

Project participants holding a **Naive** understanding of Project Management tend to employ Project Management practises to tame the uncertainties of projects. They judge success on very straightforward, measurable and objective criteria. In addition, they criticize the theory for falling short of their expectations in real life situations. We can see that these project participants believe in the efficacy of PM theory if they could only figure out how to apply it in their own project realities. These participants need an idea about how something "should" go in order to attempt to control it. Thus, control involves an element of belief – in this case in the traditional Project Management model. Thus, belief in the model evidenced through the use of traditional Project Management techniques and tools (such as the work breakdown structure and measurable goals and objectives set in advance) provides project participants with a comprehensive input from which to derive expectations that are an important part of belief-driven sensemaking.

Traditional Project Management models form the underlying ideology or paradigm that influences what Naïve project participants notice and how events unfold. These beliefs affect how events unfold because they create expectations which in turn produce self fulfilling prophesies (Weick, 1995). The preoccupation

of Project Management with planning, scheduling and monitoring progress towards measurable goals and objectives set in advance focuses project participants on future outcomes. Through this process, expectations are created that become better articulated, stronger and more likely to influence future actions thus validating the original expectations. As these expectations come to be held more strongly, people become more interested in confirming them and they become a heavy filter of incoming input.

Other facets of the traditional Project Management model also push those with a naïve understanding towards an expectation and belief driven form of sensemaking. First, planning is a fundamental aspect of traditional Project Management (Tjaeder, 1998; Engwall, 1995) which in itself sets expectations and focuses attention. Second, project work is entirely time and deadline driven. Under time pressures people are more likely to base their sensemaking on expectations (Weick, 1995:153). Third, in projects, the cost of being seen as indecisive is often thought to be higher than the cost of being wrong in the long run. Project managers, particularly consultants, want to be seen as decisive early in the project in order to gain the respect of the client and the team needed to get the effort off the ground. In these circumstances, people are more likely to base sensemaking on expectation, schemas and beliefs (Weick, 1995). Fourth, in a project world characterized by significant uncertainty, people tend to try to develop some stability by generating and maintaining schema driven sensemaking. Thus, the traditional Project Management model provides a secure footing from which project participants generate and work towards

expectations of project success. This enacted stability allows action to commence.

Expecting involves an individual anticipating something. This anticipation will shape the individual's understanding of the world and influence what they see. Thus, "They see things of their own making. They see what they expect." (Weick, 1995: 148). Expectations often result in self-fulfilling prophecies because when a situation diverges from the expectations, both the situation and the expectations can be modified.

By leading us to see or hear what we are looking for even in objects that fall very short of the goal, sensemaking based on expectations is a double edged sword. On the one hand, it enables individuals to create enough stability in an uncertain world to take action. By focusing individuals attention and filtering out confusing contra-indications, expectation driven sensemaking allows individuals to make progress towards goal. This is the strength of the traditional Project Management model in that it provides a systematic and legitimized way for project participants to move forward. On the other hand, expectation driven sensemaking tends to limit an individual's ability to recognize that the world is changing or to adapt to these changes. This can have serious implications for the PM holding this model of Project Management as it may trap him or her in a world view that is not conducive to working on today's complex and evolving projects. It may in fact explain a large number of the criticisms of traditional Project Management theory explored in Chapter 2.

Unusual cues simply go unnoticed for some period of time which means that the situation makes sense but only in a limited way. Once the expectation driven sensemaking has created enough comfortable stability and action, questions may arise as to the accuracy of the sensemaking employed. At some point the limitations of this sensemaking may become known, and the "sudden" recognition of these previously undetected cues produces a situation of "incomprehensible interactive complexity "(Weick, 1995) – sensemaking breaks down and project participants are left trying to explain why Project Management theory does not work in practise.

5.5.2 Political Model

In the **Political** model, sense making can be seen to be a much more action-generated activity. Project managers focus on providing a vision, motivating the team to accept that vision and ensuring that all members maintain a relatively constant definition of what has happened on the project. Project Managers thus focus on getting something to happen and then ensuring that all stakeholders understand what happened by managing commitment to actions and the explanations of the actions. Project Management practises focus more on the motivation or selling of actions and only the tools necessary to support these activities are employed. In some cases this may mean full traditional tools and techniques but in most cases it means bare minimum modifications of traditional tools.

According to Weick (1995), action driven sensemaking is composed of two activities: Commitment and Manipulation. Commitment is about creating a bond

between an individual and an action. For an individual to be committed to a particular action, "the behavior is explicit (there is clear evidence that the act occurred), public (important people saw the act occur), and irrevocable (the act cannot be undone)" (Weick, 1995:157). If a project manager can create these conditions by highlighting the action's positive outcomes and treating the outcomes as goals (attaining small wins early), it is more likely that people will feel committed to undertaking the action and that the action will therefore take place. Thus, commitment provides the driving force for project activities to take place by trading off deliberation for implementation (Weick, 1995) Strong commitment results in sustained action event in the face of opposition which can be seen as manipulation.

Manipulation on the other hand is used to explain just what has happened. In this way it is a more reflective form of action driven sensemaking than commitment. Manipulation "places a greater emphasis on actual change in the environment" (Weick, 1995:156). In this case, the project manager uses tactics of negotiating domains, forming coalitions, educations, adverting and resolving conflicts, to create the reality in which the project operates and to manage the expectations and project realities of other project members. This focus on the what of the activity and on generating a common understanding of it in turn ensures that project participants stay committed to the actions necessary to complete the project.

Project participants holding a political understanding of Project Management strive to accomplish two things:

1. Generate commitment; and

2. Manipulate understanding,

in order to enact an environment in which people can comprehend and manage. This requires that most their time and attention be focussed on the "soft" side of Project Management. In order to be successful in this approach, project managers need a high degree of people skills and the trust and respect of all others involved in the project. If this social capital is missing, these project participants risk being harshly judged as "political animals" and not good project managers because they have neglected the "hard" side of Project Management.

Project participants making sense of the project through processes of commitment and manipulation have two ways to cope with change. They can weaken their commitments and change their actions. Unfortunately this is interpreted as admitting error and is not an approach many project managers will take lightly. The second way to cope with change is to attempt to manipulate the change by reaffirming their commitments and strengthening their efforts. This is a very typical approach and is related to the escalation of commitment to a failing course of action (Ross and Staw, 1986) phenomenon witnessed on many large projects. Rather than admit that change is necessary and re plan, many project managers try to muscle through with what they started out to do.

Project managers holding a political understanding of Project Management seem to intuitively recognize the socially constructed nature of project realities. This allows them to set out to shape the endeavor to their own vision of what it should

be. What they fail to incorporate into this process is the existence of change or other intersubjective relationships that in turn can cause unintended consequences of actions. The greatest risk to this form of Project Management is to be chasing a pipe dream and losing track of the direction of the project – thus the focus on communication.

5.5.3 Sophisticated Model

Those project participants holding a more sophisticated understanding of Project Management tend to recognize the complexity and inter-related-ness of project activities. These project managers create a starting stability through belief driven sensemaking processes. First, they employ argument driven sensemaking to negotiate goal. This process of argumentative sensemaking sets a common basis for starting the project. Justification and legitimacy play important roles in this process. Next, they set expectations through the rigorous application of traditional tools and techniques. The application of these methods increase the legitimacy of expectations and contribute to the building of commitment towards the actions necessary to complete the project. Then they motivate action by committing people to irrevocable action and then manipulating the judgement of that action to support continual action. Action can then lead to instability which requires a fresh effort at expectations management and negotiation.

By incorporating this full set of sensemaking processes, participants holding this understanding of Project Management are capable of dealing with the cycles of stability and instability inherent in project work and are more likely to be able to assess changes and deal with them on an ongoing basis. These participants

operate as if the project is an organized anarchy. Their activities are guided by ongoing choices rather than historical precedent. This inability to rely on precedent means that project participants must continually make sense of actions – sensemaking is continuous, current and unencumbered by tradition or over-learned routines (Weick, 1995). Thus projects managed this way are exhausting places to work. In addition, these projects make far more sense to those involved in the ongoing process of making sense than to outsiders. This would particularly be true for those holding Naive understanding of Project Management. To them, this would look rather chaotic and would take a substantial leap of faith to participate – it would also be exhausting. I believe this is why holders of this model so rigorously use traditional Project Management practises to initiate the project. This provides the legitimacy needed to manage the change that is inevitable in projects.

At this point we can see that in addition to the different content of the three Project Management understandings derived earlier, there are significantly different sensemaking processes associated with each model and summarized below.

Table 5-9 Linking Understanding to Sensemaking Practise

	Naïve Understanding	Political Understanding	Sophisticated Understanding
Sensemaking Processes	Belief driven - Expectation	Action Driven - Commitment - Manipulation	Interplay of full spectrum of Belief Driven and Action Driven

These differences in the ways project participants make sense of project realities combined with their different beliefs about project realities make these potent forces for sensemaking breakdown and communication failures on projects.

5.6 CONCLUSION

Thus, this study illustrates that the actions taken on projects are dependent on the models held by project participants, which in turn are driven by different sensemaking processes. The Project Management models drive a particular form of sensemaking, which in turn leads to specific actions and judgments being made. These differences are a possible cause of communication failure and missed expectations on projects.

> "Sensemaking is driven by the plausibility of interpretations and sensing, not by accuracy. That is, sensemaking provides an interpretation which fits at least some of the facts of an event and hence provides for credible accounts that explain phenomena and energize action" (Weick, 1995).

Given that these different models of Project Management are driven by different types of sensemaking and that sensemaking itself does not require accuracy only plausibility, it is easy to see how the expectations derived from one understanding of Project Management may not coincide with those derived from another model even when the actions and project under review are the same. In addition, it becomes clear how two people speaking about Project Management can fail to communicate clearly and can create situations in which sensemaking fails. It is also clearer how these situations may be hard to recognize or fix given the widespread use of Project Management concepts in slightly different ways. Project participants can easily be lost in a minefield of common terminology applying to different understandings, expectations etc.

This breakdown of sensemaking causes the incomprehensible interactive complexity (Weick, 1995) that often becomes a problem on projects. In these situations, communications break down as commonly held "sense" disappears under a cacophony of mis- understanding and mismatched expectations.

6 CONCLUSIONS

In this dissertation, I set out to address the practical problem of why so many projects fail and specifically to develop an understanding of why projects are plagued by miss-communication and unmet expectations. Applying a broad sensemaking perspective, on the assumption that these incidents of miss-communication are indicative of breakdowns in sensemaking caused by the interplay of unrecognized differences in project management understandings, I set out to address two questions concerning the understanding and use of Project Management concepts in practise.

I address each question in turn by providing a summary of my findings. I then highlight the theoretical, empirical, and practical contributions of this work. I conclude with a discussion of the limitations of the study.

6.1 HOW DO PROJECT PARTICIPANTS MAKE SENSE OF KEY PROJECT MANAGEMENT CONCEPTS?

This study finds support for Morris' (1994) speculation that there are different understandings of Project Management in operation in practise and that these differing understandings of the concepts and constructs of Project Management are held by different individuals largely related to their experience with projects. However, I also found a more fundamental difference in the understandings of Project Management. This difference is based on the underlying assumptions about the function of Project Management held by project participants. If you believe that the primary function of Project Management is control, you understand Project Management in one way and act on projects in a congruent

manner. If you believe that the primary function of Project Management is to initiate action, you understand Project Management in a fundamentally different way and act accordingly. If members of the project team hold disparate understandings of project, there arise many opportunities for sensemaking to fail leading to communication breakdowns and unmet expectations.

This study surfaced three different understandings of Project Management concepts arising from a phenomenological analysis of definitions of Project Management provided by project participants. Thematic analysis and synthesis were used to summarize and compress the large amount of transcript data into internally consistent and recognizable understandings of Project Management.

Examination of the demographic characteristics of individuals adopting these different models shows some tendency for the complexity of Project Management models to evolve over time given sufficient exposure to disparate experiences. While this supposition requires further empirical testing to clarify and substantiate the assertion, it does provide some insights into how these understandings develop. It also provides support for the assertion that these different understandings may relate to levels of development in Project Management practise. This needs to be further elaborated in future research.

The practical and theoretical assumptions underlying these models were defined and explored. These findings are summarized below in a repetition of Table 4-4 introduced earlier.

Table 6-1 Assumptions underlying PM Understandings

Assumptions with respect to:	Naive	Political	Sophisticated
Practical			
Manages	Tasks	People	Expectations
Generates	Control	Action	Understanding
Techniques	Planning	Motivation	Accomplishment
Theoretical			
Logic	Linear	Linear but tree like	Iterative
Rationality	Formal	Action	Substantive
		Procedural	

In general, these understandings show some similarities to the models found in the theoretical literature and discussed in Chapter 2. However there are a few interesting differences that point to the need to expand our theorizing to cover the realities of Project Management in practise. In general, the Traditional Project Management model accurately reflects a majority of participants understandings of Project Management or, as I consider more likely, is accurately reflected in participant's understandings of Project Management. However, the **Political** model derived from participant's definitions of PM differs from that found in the literature. The contingency model tends to focus on critical contingencies associated with the project or the technology of the end product, or the level of uncertainty associated with the technology while participants in this study tended to build their contingencies on the uncertainties inherent in people's actions and the unexpected consequences of well planned actions. The theoretical literature tends to focus on "measurable" uncertainties while the participant's understanding seems to be based on an attempt to recognize and deal with the un-measurable. Finally, the **Sophisticated** understanding of Project Management held by participants tends to incorporate a balancing of the

traditional Project Management model with a more political understanding at the same time incorporating some of the insights from the new perspectives emerging in the literature. Rather than throw out the origins of Project Management, these participants recognized both the limitations and the achievements of traditional Project Management and attempt to incorporate the strengths while recognizing the realities of power, multiple realities and the need to negotiate meaning as part of the Project Management job.

It is important to recognize the existence of these different understandings of Project Management as it explains how different and sometimes contradictory interpretations of events or outcomes emerge among different project participants. Different interpretations can be expected to result in different solutions to project issues (Gephart, Steier, Lawrence, 1990). Thus, actions based on absolute interpretations of events by one actor or group might be expected to encounter resistance and to exacerbate, not resolve, organizational problems.

These different understandings can lead to breakdowns in sensemaking that would in turn lead to communication failures and miss-matched expectations on projects. Given that these failures are in turn considered the major failings on projects today, recognition of the existence of these non-shared understandings may go some way towards resolving this Project Management problem.

In addition, the finding that there do not appear to be significant generic level influences on individual's Project Management understandings seems to call into

question the efficiency and effectiveness of organizational or project level training programs, guidelines or other such initiatives. It also presents another reason for problems on projects. Namely the lack of generic sensemaking routines on projects means that participants must engage in more controlled sensemaking which leads them open to missing important cues re problems. These cues may go undetected for longer and thereby be more difficult to solve.

Finally, I found that most individuals were familiar with the traditional Project management concepts and PMI. This suggests that PMI plays a significant institutional role in influencing how Project Management is understood in the field even by those who do not agree with the traditional model of Project Management or hold a **Naïve** understanding of Project Management.

6.2 HOW DO PROJECT PARTICIPANTS USE PROJECT MANAGEMENT MODELS TO MAKE SENSE OF PROJECT PRACTISES AND OUTCOMES?

In addition to the different content of the three Project Management understandings derived earlier, I found five other significant differences that appear to depend on the understanding of Project Management held by the participants. First, individuals holding different understandings of Project Management as defined in Chapter 4, consistently reported using different types of Project Management tools in practise. Second, participant's definition of success and success criteria are also influenced by their understanding of Project Management. Third, judgements of outcomes also seem to be influenced by participants understandings of Project Management. Fourth, the participants criticisms of Project Management theory also differed across Project

Management understandings. Finally, there are significantly different sensemaking processes associated with each model. Each of these findings is summarized in Table 6.2.

Table 6-2 Summary of Influences of Key Constructs on PM Understandings

	Naïve Understanding	Political Understanding	Sophisticated Understanding
Practises	Traditional PM tools around meetings, control, reporting and definition of work	Traditional PM tools to do with communication Modified PM tools around planning Politic tools around selling	Traditional tools around planning, accountabiltiy, critical path. Politic tools around managing expectations
Success Criteria	Outcomes centered On time, on budget, on spec	People centered Happy Client (Team)	Balanced Meeting objectives with a happy client
Outcomes and Judments	Tends to be harsher in judging outcomes	Tends to be more positive in judging	Tends to make judgments more in line with facts of outcomes
Criticisms	Focus on content of PM theory	Focus on both content and application	Focus application problems
Sensemaking Processes	Belief driven - Expectation	Action Driven - Commitment - Manipulation	Interplay of full spectrum of Belief Driven and Action Driven

We see from this table that the actions taken on projects are dependent on the models held by project participants, which in turn are driven by different sensemaking processes. The Project Management models held by individuals create a propensity for a particular form of sensemaking to dominate decision making around actions, which in turn leads to specific tools being used and judgments being made. These differences in the ways project participants make sense of project realities based on their different beliefs about Project Management make these potent potential areas of misunderstanding. These misunderstandings a likely cause of communication failure and missed expectations on projects.

> "Sensemaking is driven by the plausibility of interpretations and sensing, not by accuracy. That is, sensemaking provides an interpretation which fits at least

> some of the facts of an event and hence provides for credible accounts that explain phenomena and energize action" (Weick, 1995).

Given that these different models of Project Management are driven by different types of sensemaking and that sensemaking itself does not require accuracy only plausibility, it is easy to see how the expectations derived from one understanding of Project Management may not coincide with those derived from another model even when the actions and project under review are the same. In addition, it becomes clear how two people speaking about Project Management can fail to communicate clearly and can create situations in which sensemaking fails. It is also clearer how these situations may be hard to recognize or fix given the widespread use of Project Management concepts in slightly different ways. Project participants can easily be lost in a minefield of common terminology applying to different understandings, expectations etc.

This breakdown of sensemaking causes the incomprehensible interactive complexity (Weick, 1995) that often becomes a problem on projects. In these situations, communications break down as commonly held "sense" disappears under a cacophony of mis-understanding and mis-matched expectations.

6.3 CONTRIBUTIONS OF THE RESEARCH

This study contributes theoretically, methodologically, empirically and practically to both the Project Management and the Organizational Sensemaking literatures. The primary contributions of this study to each of these categories are summarized below.

Theoretically, this research moves Project Management theory away from a focus on one right way or traditional models to a view of Project Management based on social construction. This amounts to quite a large leap forward for this literature and opens the way to developing new theories based on this approach. In addition, this grounds the common speculations about communication and expectation failures on projects driving project failure in an understanding of how these failures come about through breakdowns in sensemaking.

Methodologically, this study makes contributions to both streams of research. In using a qualitative, interpretive approach to develop theory on Project Management introduces new methodological options for the study of project management. Very little research of this type is evident in the Project Management field. Drawing on rich qualitative data, this study generates an empirically grounded understanding of models of Project Management and of how differing models interact to construct project success or failure. Theory based on the experience of Project Management in organizations is recognized as needed (Morris, 1994; Packendorff, 1994) but few have attempted it.

Second, the findings of this study suggest that "normal" projects could be an ideal site for the study of sensemaking. Sensemaking is easier to discern and more likely to occur in highly equivocal environments (Weick, 1995). For this reason, much of the focus of sensemaking research has been on project teams which emerge in response to accidents. There are two problems with this focus from a research perspective. It restricts you to post hoc re-constructions of sensemaking as you cannot anticipate when or where these teams will crop up in

order to study them over time. It also restricts you to studying well documented accidents. The post hoc and usually relatively prominent nature of these incidents takes sensemaking research outside the bounds of normally occurring organizational phenomenon. This study suggests that different meanings for Project Management exist in practise and that there is no one best path for achieving success or even a single definition of success. Recognition of this high equivocality of projects makes them an especially suitable research site or Organizational Sensemaking studies. Empirically, this study grounds speculations on the nature of Project Management in data collected from those in the field dealing with these concepts on a regular basis. This is a contribution to the Project Management literature. In addition, it contributes to the small but growing body of empirical literature using the sensemaking theoretical perspective. by exploring how practitioners construct images of Project Management in interview discourse.

Empirically, it contributes to a growing body of research in management and psychology that explores the content and structure of individual's understandings of management concepts. It contributes to the empirical exploration of sensemaking literature by examining the linkages between cognition (project manager's knowledge structure of the topic), behavior (Project Management practices) and organizational outcomes (perceived success or failure of the project). In studying this linkage, this study contributes to an area identified as one of the most important areas for future managerial cognition research by a number of recent commentaries (Meindl, Stubbart & Porac, 1994; Walsh, 1995).

The study also grounds speculations on the nature of project management in data collected from practitioners directly through an interview process. Developing a grounded theory on the nature of project participants understandings of Project Management represents a significant contribution to the Project Management Literature.

Practically, understanding how and why communication and expectation breakdowns occur regularly on projects is the first step in diminishing their impact on projects. Given the failure rate of projects today and the annual cost of these failures, this finding has significant potential to contribute to improvements in Project Management practise. In addition, this study contributes on a practical level by calling into question current project and organization level training programs by pointing out the seeming failure of these programs in the study organizations to influence project participants understanding of Project Management.

Finally, by seeking to diminish the gap between the abstract prescriptions of traditional Project Management and the concrete practices involved in managing projects in organizations, this research provides insights for practitioners wishing to manage more effectively. Developing an understanding of differing and coexistent Project Management models rather than a single prescription for all situations should allow managers to alter their expectations of Project Management to be more in line with the specific function it serves in the example in question. Explicitly recognizing that rational models are simply heuristics not meant to be achieved may reduce the number of prescriptions generated from

such models and reorient practice to a socially constructed acceptance of the tools of management.

6.4 STUDY LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

All research involves making tradeoffs and concessions of various kinds. This section of the thesis is reserved for pointing out the potential problems I see in this work and for elaborating on potential future projects. As with any retrospective assessment, hindsight is 20-20. There are many things I would do differently were I to undertake this task again. In particular, I see four key areas where this study could have been improved, namely timeliness, retrospective nature of data collection, limited generalizabilty, and too large a scope.

In terms of timeliness, the study was planned in 1996 with data collection occurring between 1997 and 1998. In total it took almost four years to complete this study due at least in part to a string of unforeseen life circumstances. The lengthy period over which the largely retrospective data was collected may have implications for the accuracy of the data. That is, completion of a similar study today in these same organizations may not reveal the same findings. Things change over time. This is a concern in much management research and so does not unduly limit this study per se. In addition, since the study is largely interested in the processes of sensemaking taking place on projects and the results of these sensemaking processes, the study should not be unduly impacted by these delays.

The data collected here is based on a retrospective re-creation of the projects understudy both from available documentation and from the remembered recollections of project participants. Once could argue that analysis of these reconstructions remains open to errors of memory and fact. However, in the study of sensemaking, Weick (1979, 1995) has made a strong argument that retrospective sensemaking is the only way to analyze meaningful lived experiences (Schutz, 1967). He argues that:

> "How can I know what we did until I see what we produced?" (p. 30)

His point is that outcomes can only be known after the fact which necessarily restricts this kind of research to retrospective accounts.

While the retrospective nature of this study is justifiable in the above terms, I think is suggests an important future research study based on current time observation of projects as they unfold. This study would require a significant investment in research time committed to observation of the project interspersed with interviews and interruptions of the participants ongoing sensemaking in an effort to encourage them to engage in active sensemaking around key project events. This new study would build on the work done in the current study by showing how sense and sensemaking processes change over time and how they are related to the actual practise of Project Management in real time.

In planning the study, the nature of the projects I studied was driven by a desire to explore two specific kinds of successful and unsuccessful projects, namely construction and information systems. I reasoned that these were identified in

the literature as very different kinds of projects and so would provide breadth to facilitate comparing results across project types. At the same time, the geographic location and organizations involved in the study were chosen on the basis of access and convenience. All of the data was collected in Alberta with two sponsoring organizations.

I believe that the insights generated by analysis of the five projects provides illumination for other projects. However, there could be some questions as to the generalizability of the studies findings that might best be addressed by producing more case analyses. These studies could provide further empirical and theoretical contributions and address the transferability and generalizabilty of my findings. Variation could be introduced along a number of dimensions. Projects in other geographic locations, particularly those with a significant international component may introduce new complications into the sensemaking processes. In addition, we could look at different kinds of projects such as new product development and entertainment. Finally, it might be wise to increase the number of kinds of organizations studied.

A final limitation in this study is the theoretical and empirical breadth with which I attempted to work. My effort to limit the scope of this study, although serious and well intentioned, fell somewhat short of the mark. In analyzing the data I recognized the depth and breadth of the data available to me. Linking the concepts through the data became an almost herculean task at times. In order to present a relatively cohesive "narrative" the depth of analysis had to be summarized and synthesized. This meant that some of the interesting

questions/insights (such as those related to insitu analysis of claims and meanings or comparative analysis of claimed success and failures) that arose from the data could only be touched on or had to be put aside for later study in the interests of addressing the questions I originally set out to tackle and to complete this study. In other words, I sacrificed depth of analysis for breadth of conceptual exploration. Given the exploratory nature of this study, I think this was an acceptable trade-off.

I do not feel satisfied that this analysis has more than skimmed the surface of the insights to be mined from this data. I believe this data can support analysis from a number of alternative methods and theoretical perspectives. In particular, the transcripts can be analyzed more thoroughly for any one project to isolate the specific sensemaking breaches and to look at how the individual misunderstandings identified on that project could have been caused by the different understandings of project participants. Applying these tools to the data will drive out more supporting insights and perhaps some new ones to pursue as well.

Finally, while I recognize that there are limitations to this study and a great number of other studies, both of this data and of this phenomenon to be undertaken, I believe I have adequately addressed my initial questions about the underlying processes causing communication failure and missed expectations on projects. I have made sense of Project Management in terms of the existence of multiple understandings of the concepts, their content and the sensemaking processes implicated in both their formation and their use in practise. I also

provided insight into the implications these differing understandings have on project practises, outcomes and judgments. In doing so I contribute to the sensemaking theory by linking meanings to actions.

Ultimately others will judge the academic merit of this work as is appropriate. For myself, I [mostly] enjoyed the struggle, I learned a lot, and I completed a task I sometimes wondered if I would ever put to bed.

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APPENDICES

APPENDIX A RESEARCH QUALITY CONTROL PROCEDURES

Ensuring Rigor

Questions of validity and reliability are addressed from a different perspective than those generally adopted in quantitative methods. According to Polkinghorne (1988), "valid" means grounded and supportable. The appropriate measure of reliability is the data's dependability or trustworthiness (Lincoln & Guba, 1985). Both of these factors are dependent on the "rigor" of the data collection and analysis.

Methods for ensuring rigor are intricately linked with reliability and validity checks (Morse, 1994). First, I ensured that an adequate amount of data is collected to ensure that saturation occurs and variation is accounted for and understood. Secondly, information was selected according the theoretical needs of the study and the emerging model. Purposeful sampling was used to provide concurring and confirming data and negative cases contributes to the appropriateness of the data. Third, careful documentation of the conceptual development of the project provides an adequate audit trail such that interested practices could reconstruct the process by witch conclusion are reached. The audit trail for this project consists of raw data, data reduction and records of data reduction and analysis outputs, data reconstruction and synthesis analysis, conceptual notes (Lincoln & Gubas, 1985) Finally, verification of the study with expert informants was undertaken to both confirm the adequacy and accuracy of the developing model, and also to potentially add depth to the model. Due to the qualitative and singular nature of this research project, multiple raters were used rarely if at all to

check the validity of the categories. This decision was taken for two reasons. First, the inductive qualitative inquiry driving this study requires the insight developed from the entire body of interviews and analysis. A second investigator was unlikely to have the same insight from a limited involvement with the database. Secondly, there is some evidence that a focus on verification of small steps in the analysis may stunt the development of the model (Morse, 1994).

Ethical Considerations

There are two main ethical concerns that must be addressed in any research using human subjects (Rudestam & Newton, 1992). The first is that all participants must provide fully informed consent. The second is that each participant should emerge from the experience unharmed. How each of these issues was handled is discussed below.

In order to ensure the informed consent of every participant in the study, each interview began with a brief introduction to the research project covering the following:

- Tell the participant who is conducting the study and for what purpose.
- Explain why the particular person was singled out for participation.
- Explain the time commitment.
- Describe any reasonable benefits to participation.
- Identify any potential risks and explain how they have been managed.
- Explain the study and offer to answer questions.
- Make clear that participation is voluntary.
- Explain the limits of confidentiality.

Given the nature of the data being collected, I do not believe there is any risk of harm to the project participants.

As per Faculty of Commerce practise at the University of Alberta, approval of the candidacy committee to proceed with the research was taken as ethical approval.

APPENDIX B RESEARCH AND INTERVIEW QUESTIONS

1. **How do project participants make sense of Project Management and outcomes?**

   Research Questions

   What activities, problems, places, events, resources, stocks of knowledge, and stages constitute it?
   What common language devices emerge that allow communication and shared meaning on PM issues?
   What common practices emerge across project managers and project types?
   How does this compare to literature definition of Project Management?

   Interview Questions

   What is Project Management?
   What makes for a successful project?

2. **How do understandings of project management influence the actions taken on projects, their outcomes and the judgements of these outcomes?**

   Research Questions

   How do project managers describe the process of managing a successful project? an unsuccessful project?
   What are the activities involved in managing the project from the project manager's perspective?
   What do project managers consider the most/least useful Project Management tools? Why?
   How does the model of Project Management evident from the descriptions of managing projects compare to that of 1 above or literature?
   What sort of remedial sensemaking is used to restore formal goals and criteria? elaborating, supplementing ??

   Interview Questions

   Thinking of your most recently completed project, please tell me about the project (size, kind, how you defined success, who defined success).
   How did you manage the project?
   What Project Management tools did you use? How did you use them?
   How do you make sense of the discrepancy between what standard Project Management texts suggest and your experience of Project Management?

APPENDIX C EXAMPLE FIELDNOTE, INTERVIEW SUMMARY AND TRANSCRIPT

Example Field Note

Date: February 20, 1997
Project: DOW Computer Facility
Participant: Charlie Murdock, Dow Project Manager

Interview Site

Dow Chemical Plant - east gate - second entrance
- 2.5 B in assets
- Canada's largest hydro carben site
- 1500 employees + 500 contractors on site daily
- telecommunications and power equipment equivalent to city of Fort Sask.
- integrated plant - one site makes stuff for next
- roughly 1000 projects of various types per year.

park-like security building
need to sign in and wait for escort on to site
huge industrial site - steam rising into cold clear air - surreal
large trucks coming and going on a regular basis
impression of many on-going projects at once
many blue collar workers coming and going
my attire (skirt suit, turtle neck, suede jacket, leather boots) is incongruous
guard phones immediately
I am kept waiting 20+ minutes - show of importance?

Interview Process

We drive to the Computer Facility - me following Charlie.
We first tour the Dow Computer Facility building. Charlie is obviously proud of the building and the advanced technology used to protect it. He goes into alot of detail on the specifications and requirements of the building. I do not tape this part. It is interesting to see the end product.
We drive to Charlie's office in another squat concrete building some distance away - next to the next big project Charlie is in charge of.
Building is built around a central atrium - 3 floors. Standard government middle management type office.
Charlie offers coffee and slips out to washroom. Charlie returns. I confirm use of tape and we begin the interview.

Interview Notes

Dow Project
- building cost $3m
- computer equipment it houses is worth 12m
- technology to protect it is state of the art.

Charlie is not sure the architect is happy with the process - check it out.

Reflections / Initial Analysis

Example Interview Summary

Project – Dow Computer Facility

Participant:	Charlie Murdock
Project Role:	Dow Project Manager
Interview Date:	April 9, 1997

Background info

Degree in mechanical engineering from Queens

Management certificate from UofA

Worked for contractors – done primarily project engineering

Built a 100$m industrial plant

Built 40-50 buildings over the years

Train and consult in Project Management through UofA

Eighteen years with Dow

Is a PMI member not certified.

What is Project Management?

Well in the courses that I instruct, I define Project Management as the art of controlling business systems and a process to meet a defined objective. A project itself is a set of defined objectives. It's got a time element and its goat an element of uniqueness. Right. If it isn't unique then its not project work. (532-533)

The role of the project manager is to really make sure that the business systems exist, to support the unique objectives of the project, to make sure that the work process exists to support the project objective, to make sure that the project objectives are clearly defined, and by project objectives I'm talking about four areas of concern. First of all the social areas of concern. How does the project interact with people? How does it interact with the external environment? So that's an issue. Quality or performance of the project. We've got to look at how, how the project performs. You can bring a project in a little late, you can bring a project in a little bit over budget, but if you bring in a project that doesn't work, they'll never forget you, okay? So quality is a big issue on projects. Making sure that everybody in the project process is working on the right thing. The next thing is time and how you mange time and control time. Some projects are totally time driven. The whole function of the project can be time driven and so...And time is you most unforgiving resource. Once its gone its gone. You can't store it. You can't save it. You can't make it, create it right? So how you manage time is again a big component. SO in order to do this complex thing. Define the objectives and then have the systems through every step of the project process that support those, systems and work processes that support those objective, okay. That's the role of Project Management. He can't do it all. You need to make sure that the structure is in place. (545-571)

*Characteristics of a good project manager...*Well first of all, I don't think you can be a good project manager and not have...it takes a number of things. One, you need to be an excellent communicator. Uh, you need, uh, you need to have a high regard for people. ...How you manager those people and the effectiveness and the productivity of those people is totally that totally the function of Project Management. So. You have to be a

good communicator. You have to be able to keep it simple. You have to have a technical understanding of what it is you are doing....(575-591)

And a good project manager knows what to do and when to do it. When to fight, when to back down, what is important and what isn't important. That's where experience really comes into play. Understanding what's important and what isn't. (624-629)

What is Project Success?

...so it is how you manager those unique elements of the project and that risk that really, and the process that really determines whether or not you are going to be successful. (541-543)

Well I could use that Kenneth Galbraith definition of failure which was uh Project Oh Project failure or project success? He defines project success as absence of failure. (736-738)

What is Project Failure?

Absolute failure is when it doesn't' function. That's absolute failure and then you have varying models of failure that go beyond that. Failure might be it's a little late or it costs a little more or costs a lot more. It just depends on what the project objectives are. Like every project's got its objectives defined in a different way, right, but for sure if it doesn't work, it's a problem (740-747)

Where a project can really fail as well...So first of all front end loading and scope development right. Early on in the project life so that people are doing the right thing. When projects get messed up its because people are not working on the right things. It hasn't been defined. They are either working on stuff that isn't relevant or its fluff or what ever, but they are not working on the meet of the project. (695-700)

Was this project a success?

Well everybody is going to have a different perspective on this, you gottta understand that. This being my probably 37th building at the time, I thought the project went forward very well. It was built on time. It was built within budget. It was built, it was build to high standards. The move was very successful. We had a very detailed and competent building manager that was assigned to the project to make sure that all the details were looked after. He did a wonderful job of making sure that uh, that the details were properly addressed. (190-199)

So it came in under budget? Uh. Your are going to challenge my memory on that. I don't have the old cost report. But I came, I came within the budget. Let's put it that way. There may have been... There's an allowable overrun that my authorization would a had so it may have been within that but I still consider that within budge5t. Because there is some, there is some allowance. Either you know, upward allowance over the authorized amount before I have to go back to re-authorize.

But Ken I don't think had a lot of experience in projects so, um, I think there was a certain amount of, a certain amount of time we had to spend with Ken just to make sure he didn't feel that the world was falling in around him. (211-213)

So I think the building was very flexible , very functional and can only, the only way you can describe this project is as a success. (412-414)

Oh, this building would be a nine or ten. You know. (420)

Example Transcript

Q.S.R. NUD.IST Power version, revision 4.0.
Licensee: Janice Thomas.

PROJECT: D1 Nudist, User Janice Thomas, 8:06 pm, May 31, 1999.

++
+++++
+++ ON-LINE DOCUMENT: MURDOCK
+++ Document Header:
*Transcription of Interview
*Conducted on February 20, 1997
*With Charlie Murdock of Dow Chemical
*Re: Project Management and DOW project

+++ Retrieval for this document: 784 units out of 784, = 100%
++ Text units 1-784:
1

*J: What I want to talk about is two things, one is the project itself 2

and one is Project Management/projects, and you can chose which 3
topic you want to start on. 4
Ch: Oh it doesn't matter. Go ahead. 5

*J: Ok. Well since we've been looking at the building why don't we 6

start with the project? 7
Ch: Ok. 8

*J: Um. What was the role? What was the size? Importance for the 9

organization? 10
Ch: Well. As it turns out, in most organizations like uh, large 11
organizations, buildings, particularly industrial facilities, 12
buildings are something that are looked on um as an unnecessary 13
evil. They're looked on.. They are very closely scrutinized by 14
all levels of management, major management within the corporation. 15
Right, and everybody wants to have a say in them. So they are, 16
they tend to be very high proile. They don't have an ROI a return 17
on investment, so that uh, that makes them more of an emotional, 18
plus they are people facilities so the combination is ripe for 19
emotion. And uh, I think over the years I've been involved in at 20
least 40 to 50 building of buildings type projects. So this one 21
had its moments that way as well. 22

*J: What was your role on the project? 23

Ch: Well I came into the project after it had been started. I had 24
been previously assigned to do a very difficult project in our 25
vinyl plant and that, um, that had kind of rolled up. I don't 26
know if the project was having difficulty when I was assigned to 27
it or not. Uh, nobody told me, but typically the fellow who was 28
in charge of engineering at that time had a history of finding 29
problem projects and putting me on them to sort them out. Now 30

this particular project was uh, it was actually when I arrived on it, it wasn't in bad shape. They had some preliminary floor plans or conceptual designs laid out. They had approval on basically the design. It had been horific for them to get to that stage. They had been through at least five re-works which for a building is you know in the conceptual stage you are going to get multiple approaches to the work before you get the quote right answer. And, uh, as you can see, I mean as we walked through the building, you know, a video conference area was added. So that wasn't in the original concept of the building but those are the kinds of things that get looked at, uh, while you are going through that conceptual stage. And so, when I arrived essentially the conceptual work had been done and the project was moving forward using an internal team of people. And um, the fellow who was running it got reassigned and I don't know why. He may have got reassigned to a major project I think was the case. And so when I arrived on the scene, what we were trying to do was trying to build this, trying to get the design details sorted out. We had a fellow on staff who said he was an architect, all right. But when we got into it it turned out that he wasn't licensed as an architect. So while he was an architect over in some other country, he wasn't licensed as an architect and a building of this nature, I knew, required architectural stamps and approvals to get through the code analysis, right? The other thing is the way we were going to build it we were going to have each discipline do their own thing. We were going to, we were going to have the structural guy do the structures and we were going to ..It wasn't the right way to build a building in my, in my opinion. Obviously in the opinion of the other fellow who was in charge it was the right way. OK? But in my opinion it wasn't the right way.

*J: How long had they been working on it before you came on?

Ch: Oh I would imagine three, three or four months. They weren't getting it right. There is no rush for a project like that because it is not generating any revenue, right? But certainly they were, everyone realized that they were cramped and that the function was growing and that they needed a facility of their own.

*J: And then When did you come on to the project?

Ch: So. Well about four months, basically the floor plan had been kind of approved. The uh, exterior look of the building had been kind of approved. But the execution strategy on the project really wasn't in my opinion the right way to do it. We are very good at, internally, we have a group of about 110 to 130 people fluctuates in that range, doing design work but we really don't, my history tells me that we as a company, don't really know how to design buildings. And uh, you know, I know how to design industrial buildings but I wouldn't want to have to live in an industrial building. <<Laughter>>

Right there is a significant difference. The other thing was that the nature, the technical nature of the building was such that I felt that we were going to get ourselves into trouble because the details were very important on this in terms of the building envelope, in terms of the design of the loss prevention and

security systems in the building, in terms of the technical 83
functionality of the telecommunications and the computer part of 84
the building. So, this was, while its not a very large building, 85
it was very complicated. And so we needed to go to people in my 86
opinion that had that expertise. Again the building envelope to 87
me was a big issue as well. Because if you can't keep the water 88
out, you know, I've been in buildings we've built where we can't 89
keep the water out. You know we put a steel roof, I don't want to 90
name names here, but the Britex building right, that I was 91
involved in constructing in 1984-85, that we just could not keep 92
the elements out of the building and it had to do with, we bought 93
a pre-engineered system, right, and it just didn't do the job. My 94
fear was that we were going to have similar kinds of problems and 95
you just can't afford to have that when you've got computing 96
equipment that is three and four times the value of what the 97
building is its being housed in. 98

*J: So what did you do when you came on board? 99

Ch: Well, the first thing I did was a bit of a situation analysis 100
right? Found out what the previous guy was doing. Of course he 101
gets upset when he finds out that I want to do something 102
different. But that's , that happens on projects whenever a 103
project is handed off right? Somebody has one set of experience 104
and views the project one way and somebody comes in with a 105
different set of experience and views the project a different way. 106
I'm at the point that I don't care, if I hand somebody off a 107
project and they decide they want to change what they do, I don't 108
care anymore because I've seen it happen every time you do hand a 109
project off there is this trauma. So I wasn't uh, I wasn't being 110
difficult with the guy, I was just going to run the project the 111
way I felt it should be run. So there was some, there was a bit 112
of friction at that point. 113

So basically what I did when I arrived on the scene was I did a 114
situation analysis. I checked the existing project team. If 115
found out what they were doing. We had our civil guy doing 116
design, we had our electrical guy doing design, right. These guys 117
enjoy doing design. It's kind of an interesting design but its 118
not design that they normally do. And so I looked at this and I 119
basically decided that we should rip this team apart.<<Laughs>> 120

And go out and get somebody that knew how to do these kinds of 121
buildings and had done them on a regular basis. Uh, because I 122
thought at the time that uh, that we had the architectural things 123
sorted out, I don't think I knew at this time that this guy didn't 124
have his stamp. At that time I thought we could probably, because 125
we had the floor plans laid out and the architectural finishes on 126
the building, right, I didn't see the architecture, the 127
architectural component of the building as being that important 128
anymore and so what I did was I uh, I phoned I think Al Williams 129
or Gerry Devine who I know at AD Williams Engineering and I asked 130
them if they would be interested in managing this project for us. 131
And uh, and they seemed to be agreeable. So I contacted and got 132
proposals from them. I don't believe I got proposals from anyone 133
else at that time. But, I knew these people and I had confidence 134
in these people. And uh, in terms of building envelope design 135
expert. They weren't..The other thing that they brought to the 136

table is, in most building construction, its uncommon to have all 137
the consultants, all of the subconsultants built in. And um, and 138
I believe they did at that time. You know, they were 139
multidisciplined. They had electrical, mechanical, structural all 140
right, they had all of that built in. I didn't have to go to 141
multiple other consultants. Um, they also had a guy by the name 142
of Greg, I can't remember his last name, who handled the heating 143
and ventilating for the computer room. That was an issue for me 144
right. I can't remember if Greg had done a job for me before and 145
really done a bang-up job on it or not. But certainly he was, he 146
was.. 147

*J: You knew of him. 148

Ch: Yeah. I knew of him, exactly right, and that he that he was a 149
...and the mechanical systems, you can see, the heating and 150
ventilating systems are a key component to having a successful 151
long term facility there. So that was another, Greg was another 152
kind of aspect... But I would say primarily it would have been my 153
experience, my knowledge of uh, of uh, what Gerry had been doing 154
in building envelope design that really kind of moved me, in that 155
direction. So there was alot of things that really appealed to me 156
and made me feel that they were the people of choice. Plus, they 157
did buildings on an on-going basis for a living. 158

*J: Ok. And once you've chosen them and selected them to run the 159

project or what did you get them to do? 160
Ch: Right. Well what we did was we hired them as what would be called 161
the prime consultant. So um, we put them in charge. At that time 162
they did not have, they were not used to being a prime consultant. 163
They were used to working for architects. But I felt that we had 164
the architectural sorted out on this and that the structural 165
component, the central bunker. I felt that was very important. 166
Uh, you know, the whole issue of trying to keep water out of that 167
area so the roof drainage and the structure. I felt all of that 168
was very important. The mechanical side, and the electrical side, 169
I felt very technically, because it was such a technical building, 170
was very important. I decided that we would go with them and that 171
they, if we needed architectural help, they could subcontract it. 172

*J: OK. And then as the project progressed from that point what was 173

your role? 174
Ch: Well, at that point I went from being the equivalent of a project 175
engineer internally to a project manager with them. I asked that 176
they have one person that be in charge, I asked Gerry to put 177
somebody in charge of the project that was competent. That had 178
some pretty good experience and uh, they gave me, who was it? My 179
mind just went blank. Bob Gillis. They gave me Bob. I'm not 180
sure, I think, I can't remember now, my memory is kind of failing 181
me now because I can't remember if Bob had done some structural 182
fixes for me or something. Just as a. I can't remember if that 183
came after or before. But I did have him do some structural work 184
for me. And I liked Bob and I liked his style with people. And 185
he was very, highly organized and uh, understood the planning 186

process and was an excellent communicator in terms of uh, being 187
able to communicate with uh the various team members. 188

*J: So as the project went forward, what key events or what went well 189

on the project or didn't go well from your perspective? 190
Ch: Well everybody is going to have a different perspective on this, 191
you gotta understand that that. This being my probably 37th 192
building at the time. I thought the project went forward very 193
well. It was built on time. It was built within budget. It was 194
built, it was built to high standards. The move was very 195
successful. We had a very detailed and competent building manager 196
that was assigned to the project to make sure that all the details 197
were looked after. He did a wonderful job of making sure that uh, 198
that the details were properly addressed. 199

*J: And who was this person? Do you remember? 200

Ch: This was Ken. 201

*J: OK. 202

Ch: Ken Moore. And Ken uh, uh, Ken was assigned from DOW internally 203
to be essentially to be the owner and operator of the building 204
long term right. So he got the ride all the way through. And it 205
is a ride if you've ever been on a project like this. Things 206
don't go perfectly but if you have the right people you'll solve 207
the problems and get on with your life and end up with a high 208
quality end product which is what we're, everybody, everybody's 209
seeking that. But Ken I don't think had alot of experience in 210
projects so, um, I think there was a certain amount of, a certain 211
amount of time we had to spend with Ken just to make sure he 212
didn't feel that the world was falling in around him. <<Laugh>> 213
If you know what I mean. And so, but I think at the end of it Ken 214
really enjoyed himself. I think when you talk to him you will 215
find out that that was probably a lifetime experience for him that 216
he really enjoyed. Because you know, he was involved in 217
construction, he was involved all the design, all the details, 218
all the design meetings. He was involved in construction. I 219
don't think he had that experience in his background. So, the 220
sense I got at the end of it was that um, that um, he was very 221
happy and competent. He certainly new the facility inside and 222
out. Every nook and cranny exactly right. 223

*J: So as the project progressed, what was your role? You were 224

managing it from Dow's perspective. 225
Ch: Right. My role was to make sure that the proper design. My role 226
was basically to ensure that it was brought in on budget, under 227
cost, and to a proper quality. So I had an overall project 228
management role from Dow's perspective on the project. 229

*J: And how did you manage that, how did you track it? 230

Ch: Well, basically what we did is we used what I would consider the 231
normal project process. Dow had a defined project process with 232

five different phases of that. We followed our standard internal process. Phase 1, 2, 3, 4, 5 is what we called it. Three is, end of phase three is conceptual design. End of phase four is detailed design. Phase 5 is construction. So there was a defined process. We followed that defined process. We made sure we had regular meetings. That minutes were kept. We made sure that all the players got together in the room. Um, I still, it was kind of interesting because I had some problems internally uh, in as much as some of the team members who wanted to do the design weren't doing it any more. Right, but I still needed their knowledge and input into the design. So I recieved some resistance to that. And dragging that out of them right because they didn't agree that I was doing the right thing in the first place. Right?

*J: Right.

Ch: That's the cold and lonely part of Project Management, right?

*J: Right. How did you get around that?

Ch: Well we just worked with it. I mean, these people, the bottom line is that these people are paid by the DOW Chemical company to make sure that the DOW Chemical company's objectives and needs are met. Right? And they can't get out of that responsibility and I'll hold their feet to the fire on that. So um, that's what went on there. And that can't be done by any consultant. That can only be done by me. Right? Course I was the source of what their uh, what their frustration was because they wanted, they're technical people and they wanted to do all the details themselves.

*J: OK. What about tracking, monitoring and control procedures?

Ch: OK. Tracking and monitoring. I would have used key milestone dates to track and monitor the project and in terms of control, probably used a cost consultant. I can't remember at the time whether we did or not. I think I would have at that time, used an external cost consultant. You can check Bob's records on that. I would have used somebody like Canscom or somebody like that to make sure that the design was on cost and it would have been milestone right? In other words, we would have checked the cost at the end of conceptual design. We would have checked the cost at the end of detailed design prior to going out for construction. And then we would have made sure that the design was tight so that we didn't have alot of construction extras. So those are the things we would have done to control costs to make sure we came in within budget.

*J: What key milestones? Not milestones but events come to mind when you think of this project? And why were they important.

Ch: Ok well the I guess the first key event was arriving on the scene and finding what I did not believe to be the right process going on in terms of designing and executing the building. That was the first milestone. The next milestone of course would have been getting through any internal problems that I had in terms of hiring an external consultant to do the work. And I really didn't

receive a lot of problems there because the engineering manager at the time supported the plan that I had. So nothing too major there. Again it was interesting in the project team because the architect that we hired was a very competent man. Dave Ryder of Barr Ryder Architects. Dave I understand just picked up all of the expansion work at the Edmonton international airport in a management role. I don't know if..

*J: He's a very, very busy man.

Ch: Yeah. Just a great... He's a great guy. Lives in Sherwood Park around the corner from where I am. Very competent in terms of building envelope design. But as it turned out, there's always this leadership thing and normally on a project the architect would lead. So one of the difficulties I think we had was we had you know sub consultants trying to lead the architect and the architect wanting to lead. And so there was some difficulty there and of course the owner wanted to lead so we had lots of leadership. <<Laughs>> But we were able to work that out and get ourselves to the point where we could do the very best. The architect wants to design the building, right? I had already... When I got the building it had already been through all the levels of my management, right? The design seemed to work and I wasn't about to re, go into a re-design on the building. I understand why he wanted, why he would want to do that. I understand that right. Organizationally the building appeared functional to me.

*J: And that wasn't what was happening on this project. That wasn't his job.

Ch: Yeah. That's right. And normally they wouldn't we brought in like that so I don't know that he was really happy with how it went.

*J: Alright. Any other key events?

Ch: Well, I'm trying to think now. Another key event probably in the design of the facility was probably sorting out the security and the requirements for um, loss prevention within the facility itself. And this was the whole issue of do we go with Halon. Do we go with sprinklers? Do we go with nothing? Do we go with fire extinguishers? You know, what are the loss issues and how do we approach those? And uh, Do we go with CO2? So those are, you know those issues we had to address and sort those out. And you know we have a whole department who deals with loss prevention and they weren't really being that helpful because this really didn't fit into their mandate. And our insurance people didn't help because they wanted to put sprinklers in to protect the building so <<Laughs>> So we had to worry through that. And that was a bid breakthrough. I think the building is very well, very well designed. Its an excellent design considering how we are located. Right? And we had to get our heads around that . Because we have our own fire and security people, you saw the firehall right there, we have a very short response time. We have like a 12 second response time to a fire in that location. Something like that, I don't know what it is. And so really all the codes and

stuff that are written are not written on that basis. They are 331
based on being on the fourteenth floor of some downtown building 332
that's five miles from the nearest fire station. So we had to make 333
sense of that, right? And then we had to get into the different 334
levels of insurance. Because DOW carries their own insurance. 335
Then we have additional carriers. 336

*J: Who had to deal with this? 337

Ch: Me. 338

*J: OK. So this would be meeting with these people and the 339

engineers.... 340
Ch: Right. And in the end we just did what made sense because as it 341
turned out DOW is self insured for the building. It was such a 342
small amount that we found out that we self insured for the first, 343
I forget, 20 million or something like that. Right. So this 344
building was nothing. So we just did what we though was right. 345

*J: Any other key events from a Project Management perspective? 346

Ch: Not really. The electrical system... We were having some problems 347
with the electrical design and uh, we got those sorted out. 348
Having the bids come in in a competitive way was a key event. 349

*J: For the electrical design? 350

Ch: Oh No. No. For the whole building because the whole building 351
went in one shot. It just went in one shot contractually. So 352
having, of course that's a key event, always when you get the 353
numbers in and it puts a smile on your face. 354

*J: So it came in under budget? 355

Ch: Uh. You are going to challenge my memory on that. I don't have 356
the old cost report. But I came, I came within the budget. Let's 357
put it that way. There may have been... There's an allowable 358
overrun that my authorization would a had so it may have been 359
within that but I still consider that within budget. Because 360
there is some, there is some allowance. Either, you know, upward 361
allowance over the authorized amount before I have to go back to 362
re-authorize. 363

*J: What about - we talked about the changes - the video conferencing 364

room, and the little staff area. Was that change control or how 365
was that managed? 366
Ch: Right. Well the way that would be managed is if those changes 367
came along in detailed design then Bob would have kept a log of 368
changes. He needs those to make sure that every change gets 369
logged into the design. So what we do is we start out with a set 370
of conceptual documents that are approved. Then any changes to 371
those documents, Bob would have kept an inventory of and a log on. 372
Right. And then that log, when the detailed design comes out we 373
would have backtracked that log against, against the conceptual 374

design plus all of the register of changes.

*J: Where would these changes of come from?

Ch: Everywhere.

*J: Right.

Ch: Electrical designers, mechanical designers, our heating and ventilating guy, our maintenance guy gets involved right. The changes could come from good ideas that come in from the external design team. They can come from anywhere.

*J: Who approves them?

Ch: They would have been approved, probably in a meeting. In other words, when the idea came up they would be approved at the meeting and I would have instructed Bob to log it as a change or not.

*J: So everything would have come through you?

Ch: or Bob.

*J: Or Bob. But Bob would not lodge changes without your approval would he?

Ch: Bob would log the change and then advise me. Probably. I would suggest that is what would happen. You know there's an element of trust here. Right? I mean Bob has to recognize that the change is significant, right. It has to be technically you know he has to be cognitively complex enough to understand, right? What the impact of that change is, right? And that's where things can get slipped through when the person doesn't have the experience of someone like Bob. But uh, AD Williams were excellent, the support that we had from Gerry Devine uh from a you know a principles point of view. So that went very well.

*J: OK on the whole it was a very successful project.

Ch: Right.

*J: What wasn't successful?

Ch: I was...What wasn't successful? I don't think there's anything about that design that isn't successful. I mean as we walk through the building today we see it is, it it is very functional and very useful and its meeting the needs seven years later - seven, eight years later - Is that right? Eight years later? What year is it? 1988

*J: The design documents I' ve seen are 1989.

Ch: Ok. 1989. Ok. So that is, its seven years old and in the computing field seven years is like an eternity. So I think the building was very flexible, very functional and can only. The only way you can describe this project is as a success.

*J: On a scale of 1 to 10

Ch: Problems? You want problems?

*J: I do want problems but while we are on success. On a scale of 1 to 10 where you would you put this project in terms of success? Ten being extremely successful.

Ch: Oh this building would be a nine or a ten. You know.

*J: Ok. Now lets go to problems. You've told me about the product. What about the process?

Ch: Oh, Well. There were some problems as I remember back, we were trying to, we were working with our, one of the things we do is we manufacture styroform. It's a product for us. I think we were working with one of our sales people, technical sales people with styroform, and trying to incorporate styroform into the building skin design. Into the wall system, of the building..

*J: As an insulator or something?

Ch: As an insulation, Yeah exactly. And I think that we put the styroform between the studs instead of over the studs or something. I think if you speak to the construction person, this will come up as something that they felt was a cut and fit kind of operation as opposed to something that went well. So there is a detail in the building wall that didn't go that well. The only problem I had with AD Williams actually was getting invoices out of them. I couldn't get an invoice out of them. Which is frustrating cuz all I want to do is pay it and because the contract was cost plus, I had no register in what I was paying in design fees because I couldn't get an invoice. I mean these guys were like ninety or 120 days behind at that time. You wouldn't run your business that way.

*J: Most consultants wouldn't I don't think.

Ch: Well they had a problem at the time and I will say that Bob Gillis worked like an animal trying to get the costing information together and he was doing it manually, by hand because accounting wasn't, I mean accounting wasn't helping him and he was just. This was a terrible waste of his time. But I needed the information. I wanted to know what I was spending in design.

*J: Of course.

Ch: I wanted to know what I was spending in design. And I couldn't get the information. So that was very frustrating for me.

*J: OK. If you think of the project as a project, not as a project to build a building, but as a team effort, or a project, or a coordination effort. Can you think of anything more you'd want to tell me about there? Any key things? What went well/ didn't go

well? 457
Ch: No. I think, I think there was, there was, it was just an 458
outstanding group of people. I think, my memory serves me right, 459
Ken Belscyk was the guy that was doing the construction. And Ken 460
is a civil engineer, a very sharp guy, and very knowledgeable in 461
building design. Ken came I think from a building contractor to 462
DOW. So his background. He was very knowledgeable. So once we 463
got into the construction phase, I was able, virtually able to go 464
on to another project. Because the team was set up. We had Ken 465
who was very knowledgeable in the, in the construction of 466
buildings. We uh, We had Ken Moore who was the building owner and 467
we had Bob who represented the design team. And really my memory 468
is, I don't even remember going to construction meetings. Those 469
guys kind of went and handled it. 470

*J: That's a good sign. 471

Ch: Yeah. So from a Project Management point of view, really we were 472
able to get over the hump and uh. That way so. 473

*J: Good. I think that is all that I have on the, on the project side 474

then so why don't we talk a little bit about Project Management. 475
Ch: Okay. 476

*J: And um. So my first question is "What is Project Management?" 477

your definition. 478
Ch: My definition of Project Management. Well you have to understand 479
that I, I've told you this right? That I teach five courses in 480
Project Management and I've done alot of internal work in other 481
organizations on Project Management. 482

*J: Why don't we do that first? [OK] Give me your background. 483

Ch: I've got a degree in mechanical engineering from Queen's 484
University in Kingston Ontario. I've also got a management 485
certificate from the University of Alberta. And um, I've worked 486
for engineering con...or I' ve worked for contractors. I've 487
worked for, I've worked as an engineer, a design engineering. 488
I've done engineering project, primarily project engineering which 489
is very close to Project Management. It is in DOW project 490
engineer basically fulfills the project manager's function cuz 491
there is no project manager. I've also worked in construction. 492
I've worked, I've built a 100 million dollar polyethelene plant 493
here in construction. In a construction management role. 494

*J: You said 40 or fifty buildings. 495

Ch: Yeah I've been involved in 40 to 50 buildings over the years. 496
Yeah. Projects. 497

*J: Now talk about your Project Management experience and training as 498

well, please. 499
Ch: Oh the training I've got, I chair the construction studies 500

advisory committee at the university of Alberta and um, I've been involved in that since 1984. And in 1987 or so they, they needed, a guy by the name of Thomas Malynicki left them. He was conducting their training at that time for Project Management. And that's.. I had been in training at DOW as well for a couple of years. Right. So I had a training background. So this opportunity came up to instruct in the field of Project Management so I essentially have got a career outside of DOW..

*J: in Project Management training..

Ch: Project Management training and consulting in engineering and construction. I have done other organizations too. For example, Alberta ... not Alberta Culture but I have done a number of other organizations that are interested in engineering project management training as well.

*J: OK. How many years have you been with DOW.

Ch: I've been with DOW now for lets see, seventeen or eighteen years.

*J: How many in this role?

Ch: In the Project Management role? Probably all but two of those years have been involved in projects of some way shape or form or another. And in and around operating facilities which are more complicated projects because you also have to fit the timing and the scheduling of the project in with the ongoing operation. So they are alot more complicated. The most complicated projects you can get can be just small in plant projects. Right? Try to do it with no plant outages etc. So

*J: The Project Management Institute. Do you have any certification through them?

Ch: I don't... I'm not a project, PMP professional. I've been a member of the Project Management Institute for a long time.

*J: Good. That gives me the background. So let's go back to "what is Project Management?"

Ch: Well in the courses that I instruct, I define Project Management as the art of controlling business systems and processes to meet defined objectives. A project itself is a set of defined objectives. It's got a time element and its got an element of uniqueness. Right. If it isn't unique then its not project work. Of course uniqueness in a project is the part that brings the risk, the fun the decision making um, the challenge of project work. And it can also. It can also bring you bring you the, you know it can also bring you the surprises right and so it is how you manage those unique elements of the project and that risk that really, and the process that really determines whether or not you are going to be successful.

*J: And what's the role of the project manager?

Ch: Well, uh, the role of the project manager is to really make sure 545
that the business systems exist, to support the unique objectives 546
of the project, to make sure that the work process exists to 547
support the project objectives, to make sure that the project 548
objectives are clearly defined, and by project objectives I'm 549
talking about four areas of concern. First of all the social area 550
of concern. How does the project interact with people? How does 551
it interact with the external environment? So that's an issue. 552
Quality or performance of the project. We've got to look at how, 553
how the project performs. You can bring a project in a little 554
late, you can bring a project in a little bit over budget, but if 555
you bring in a project that doesn't work, they'll never forget 556
you, okay? So quality is a big issue on projects. Making sure 557
that everybody in the project process is working on the right 558
thing. The next thing is time and how you manage time and control 559
time. Some projects are totally time driven. The whole function 560
of the project can be time driven. And so... 561

*J: Like a plant shut down or something. 562

Ch: Right. And time is your most unforgiving resource. Once its gone 563
its gone. You can't store it. You can't save it. You can't make 564
it, create it, right? So how you manage time is again a big 565
component. So in order to do this complex thing. define the 566
objectives and then have systems through every step of the project 567
process that support those, systems and work processes that support 568
those objectives, okay. That's the role of Project Management. 569
He can't do it all. You need to make sure that the structure is in 570
place. 571

*J: What does it take to be a good project manager? 572

Ch: What does it take to be a good project manager? 573

*J: What are the characteristics of a good project manager? 574

Ch: Oh. Well first of all I don't think you can be a good project 575
manager and not have. .. It takes a number of things. One, you 576
need to be an excellent communicator. Uh, you need, uh, you need 577
to have a high regard for people. If you ask any experienced 578
project manager, they'll tell you that if you look through a time 579
tunnel, what do you see from the beginning of the tunnel to the 580
end, you'll see nothing but people. That's the only resource 581
you've got on a project. When you start a project its an idea. 582
At the end its a construction site with thousands of people 583
running all over the place. So. How you manage those people and 584
the effectiveness and the productivity of those people is totally, 585
that's totally the function of Project Management. So. You have to 586
be a good communicator. You have to be able to keep it simple. 587
Um. You have to have a technical understanding of what it is you 588
are doing. You know, this business of that you can just be a 589
manager. You can go do an MBA and just be a manager and not 590
understand the technology of what you are doing. That doesn't 591
work in project bus..in the project world. You have to understand 592
not only the technical process of the project, right? but also the 593
process of what it is you're doing. How it functions. Otherwise 594

you don't know if you are working on the right thing or not. And 595
that's your job. 596

*J: When you read Project Management or when you, when you teach 597

Project Management its pretty straightforward in some ways. On a 598
project you make a work breakdown structure, you plan the project, 599
you work the plan. Very simplified. 600
Ch: Yeah. You gotta define scope. 601

*J: Define your scope. Make your plan. Work your plan. 602

Ch: Right. 603

*J: Um. What's different in practise? 604

Ch: You mean what are the typical mistakes that I don't make that 605
others would? <<laughs>> What are we looking for? 606

*J: Sure. What I'm trying to get at is... 607

Ch: How does the theory differ from the practise? 608

*J: Right. 609

Ch: Well. Theory first of all doesn't bring in to play organizational 610
complexity. It doesn't usually bring into play the power usually 611
associated with those organizational issues. It doesn't nearly 612
touch on the degree of complexity of what it is that you are 613
trying to accomplish. Because, I mean, I can take you out into 614
this plant and this is one complicated place. I mean it is mind 615
boggling what is going on in their. 616

*J: I can see it looking at the outside. <<Laughter>> 617

Ch: Right. Its mind boggling the stuff that is flying around in those 618
pipes and compressors and pumps and I mean that's got to be all 619
right. That's got to be perfect for that project to be 620
successful. So it doesn't take into, it doesn't, tends to, the 621
theory tends to ignore all of that right? And the bottom line is 622
that you've got to make it work. So I would say that that's where 623
the theory tends to fall down in terms of practise. And a good 624
project manager knows what to do and when to do it. Right? When 625
to fight, when to back down, what is important and what isn't 626
important. That's where experience, that's something I didn't 627
mention earlier, that's where experience really comes into play. 628
Understanding what's important and what isn't. I've got a manual 629
here on our project process, right. This purple manual up here. 630
That tells you exactly every step of what you are supposed to do. 631
It doesn't tell you what's important. And what's important can 632
vary from one project to the next. 633

*J: From one day to the next. 634

Ch: Right. Because of the unique elements, right. So that's really 635
what project, that's really where it differs is really the focus. 636

I mean, I can give you the same theory, and then the question is how do you take that and apply it. So the application is really focussed. And then the people side. It's interesting. Of the Project Management training that I do, right. Everybody wants it done in one day. I mean I've spent a lifetime doing this, right, and they want my experience in one day. Well I'm sorry but it's not really available, right. I tell them two days we can talk about first cut at the theory without the people component, right. So that's usually what ends up being sold, is the theory without the people component. And really when you get into it the people component is such, so important. But..

*J: So how do you train project managers?

Ch: We don't. How does DOW train them? Or how do you train them generically. Multiple small projects is the number one training ground for project managers. So we, you can talk about, I can show you a matrix that'll give you the complexity of any one project. Then you take that and multiply by 10, by 20 right. When I was in charge of this engineering group, we had a list of 130 projects on right? and I was responsible for all of them, in one way or another. Now I had people right. But in terms of the execution of those projects, right, the buck was going to stop, the top guy was going to come down on me. He was going to jump my throat. So managing multiple projects, multiple resources. Small projects are the best because you actually don't, no body listens to you on a small project. You don't get any resources, you don't get any recognition, you don't get any stroke, you don't get any anything.

*J: And if it fails its not as big a problem.

Ch: And if it fails its not as big a problem. So that's why its such a good training ground.

*J: So where does the theory come in? At what point do you teach the theory?

Ch: Well I think that, myself personally, I think that a person ought to go out and do multiple small projects for a while and then go get the theory training. Because I don't think the theory really means anything until you've really been there.

*J: I'm off track from my research now. [that's OK] Now I'm wearing my professor of Project Management hat.

Ch: Sure. I think people need that. I don't think you can take an undergraduate student and try to explain to them and have the lights go on. They won't because they don't have the experiential background, right.

*J: I tried to teach undergraduates organizational theory. Which to a greater or lesser point is Project Management in many ways.

I'm just going to take a quick look at my question sheets here to make sure that I've covered what I need to cover for the research.

[long pause] 683
If you were to talk to me about doing some research on project 684
management, as an experienced project manager, what would you say 685
needs looking into? Where do you think the most important areas 686
for further development are? 687
Ch: [long pause] I would say, and, I would say, front end loading. I 688
would say um, getting the objectives right, which is basically, 689
what kind of processes or whatever you can use to get um, the 690
right people on the job early, get the senior input that you need 691
early. Another area that, actually who was it that I was talking 692
to? Kirby Wright over at the university, I think, I'll be putting 693
on a one day course for project managers. Project Management for 694
managers and executives. And that really, because where a project 695
can really fail as well... So first of all front end loading and 696
scope development right. Early on in the project life so that 697
people are doing the right thing. When projects get messed up its 698
because people are not working on the right things. It hasn't 699
been defined. They are either working on stuff that isn't 700
relevant or its fluff or whatever, but they are not working on the 701
meat of the project. And then the other area I think is in, How 702
are projects, um, supported, mentored? How is decision making 703
made in projects? How can, How can functional management support 704
projects..... 705
<<TAPE CUT OFF>> 706
....in terms of product development right? I mean if you are 707
developing a fax machine right, and you can't produce that thing 708
and the design and get it through manufacturing and out the door, 709
right. Uh, with the, with the options that the people are going to 710
want when it comes out of your factory, you're going to be out of 711
business the next guys doing it. So this whole business of 712
effective, so you are seeing all kinds of manufacturing 713
organizations tend towards a project type of organization and it 714
really has to do with the rate of pace of change. That's, the 715
external environment is changing so much that the only way that 716
they can change is by setting up teams, project teams. Project 717
teams, not standing teams, project teams, right? Project 718
management, single point responsibility. 719

*J: Virtual organizations, bring them together, do the work and 720

disband them. 721
Ch: Yeah. But with leadership not, not shared leadership. Single 722
point responsibility for success. So that's an area, that's 723
another area that I think needs doing a better job because if you 724
go and you check project teams that have failed you'll find out 725
that they didn't have, they didn't have decision making mechanisms 726
available for them, they had alot of organizational overhead on 727
them, they didn't know who to communicate changes to. They knew 728
they had the changes but they didn't have the circuitry to 729
communicate those changes, right, and so the functional 730
organization model "shoot the project manager in the head" right. 731
They're probably primed, they probably got themselves set up to do 732
it again sometime. 733

*J: Right. How do you define project failure? 734

Ch: Oh you're changing the subject. Well I could use that Kenneth 735
Galbraith definition of failure which was uh.....Project Oh 736
Project failure or project success? He defines project success as 737
absence of failure, right so <<Laughs>> 738

*J: How do you define failure? 739

Ch: How do you define failure? Oh...Failure has got very many modes 740
so. Absolute failure is when it doesn't function. That's 741
absolute failure and then you have varying modes of failure that 742
go beyond that, right. Failure might be its a little late of it 743
costs a little more or costs alot more. It just depends on what 744
the project objectives are. Like every project's got its 745
objectives defined a different way, right, but for sure if it 746
doesn't work, its a problem. 747

*J: I think that's all I've got for you today.[Okay] I sure 748

appreciate you time. [Okay, good.] Is there anything that you 749
find interesting that I didn't ask you. If you were doing it, or 750
if you were trying to explore project success and failure, what 751
questions would you ask? 752
Ch: Well like I said there is alot of emphasis has been put on front 753
end loading. That to me is a key issue. This, uh, this whole 754
issue of how you better set up projects within the functional 755
organization. To me that, that sets the stage for success or 756
failure [when, when]. For example, on this project that I'm 757
working on now. Its a 220 million dollar job. My boss comes to 758
me and says how should we organize ourselves, right? And I set up 759
a decision making team. I tell him, I say well we need, we need a 760
team of functional senior people, right, that can be involved cuz 761
we are making 5 and 10 and 20 million dollar decisions, right. 762
And we shouldn't make those alone, right. We should make those in 763
consideration of manufacturing in terms of what the business 764
needs. We should make those in terms of marketing and all of 765
that. 766

*J: So you're talking about the project-organization interface. 767

Ch: With the functional organization, right. And how that's 768
structured. Cuz you got a, typically you've got an ongoing 769
organization, then the project lives and dies. And how that 770
interface is handled in terms of decision making, communication 771
etc is the difference between success or failure. 772

*J: What's the role of communication? 773

Ch: Well its big. Big. It's everything right. Because communication 774
is ... The role of communication? Its everything. Managers what 775
they do is they make decisions based on the information that's in 776
front of them. If you've got good information, you make good 777
decisions. If you make, you have incomplete information or bad 778
information, you will make bad decisions. So my personal career 779
really is a function of how well I communicate. That's why its so 780
important. 781

*J: On that I think we'll stop. Thank-you. 782

Ch: OK. Good. 783

784

APPENDIX D PROJECT SUMMARIES

APPENDIX D – Project Summaries

Project A	**Dow Computer Facility**	
Project Type:	Building Design and Construction	
Project Outcome:	Failure	
Participants:	ADW Engineering Consulting	
	DOW Chemical Manufacturer	
	Barr Ryder Architects	
	Construction Contractor	
Contract Type:	Hourly to a Ceiling	1989
Interviewees:	ADW VP of Operations	Dow Project Manager
	ADW Project Manager	Dow Project Owner
	ADW Document Manager	Dow Site Superintendent
	ADW Junior Engineer (Observer	
	Architect	
	Construction Project Manager	

Success Criteria:

Dollars	**Budgeted**	$3M
	Actual	$3.6M (still within original approval lots change control)
Time:	**Scheduled**	9 months
	Actual	4 months late (delayed 3 times)
Specs:		Changed constantly
		Final product different than original spec
Client Satisfaction:		High
Prime Org. Satisfaction:		Low but changed when client rating came out

Project Overview:

Timeline:	Idea	1988
	Approval	Fall 1988
	Internal Engineering	Early 1988, 3 - 4 months
	Wanted to be in by end of 1989	
	Delayed 3 times about 4 months	

Project began as an in house project at DOW. Much of the engineering and architecture was completed in house. A new project manager was assigned who made the assessment that the building was being over designed as an industrial building and that they were not reaping the savings to be had if it was designed more commercially.

ADW was hired as prime consultant to complete design and oversee building of a computer facility on Dow Chemical's industrial site. It was the first time that ADW had the lead role on such a project - usually the architect plays this role.

The building was estimated at approximately $3M with total fees to ADW of $300,00. This was a very small project for Dow and a reasonable large one for ADW.???

Roughly 12-15 people involved on an ongoing basis.

"Our contract by the way was hourly with an estimated upset. So there was few constraints as to effort. But there was a time frame." Bob Gillis

The project was initiated in 1988 and ADW began work on March 7, 1989 with an estimated completion date of ????

It was completed approximately 3 months late and Y dollars over budget.

Participant Judgements of Outcomes:

ADW originally selected the project to review as an example of a less than successful project. Particularly in the way the client and contract was managed.

Devine's Judgement: In terms of success, the client was very happy. So I have to rate it technically very successful. Financially he thought our services were very expensive. He was satisfied with that because he thought he got a high quality product. You know, I think it was successful technically but it was not a success in terms of how efficient the project unfolded and the casts that our ____you know related to that unfolding. I think we could have done it more efficiently.

After hearing from client how successful the client thinks the project, ADW revised the judgment to 8/10 in terms of product/client satisfaction and 4or5/10 in terms of process. Financially it made adequate returns as it was done on a time and materials basis.

Client project manager judged the project to be a success and did not feel it was over budget because it finished within his contingency allowance i.e. Even though it was over the original budget it was not so much over that he had to ask for additional funding so he considered it to be on budget.

Client owner felt it was a success in terms of quality but three months over time which caused a lot of operational problems.

Client site supervisor felt it was a success in terms of what the client got but felt there were a lot of problems in construction that could have been eliminated by more careful design/engineering and management.

ADW project manager felt it was a success in terms of the quality of the building delivered but that the client paid for it. Client did not realize the savings of building a commercial (5% eng) vs. an industrial (15% eng) building. Felt that first 90% of the project was 8 or 9 but last 10 % was only 4 or 5. Particularly around the way the client was (not) informed of fees and fee increases etc.

The architect felt it was a reasonably successful project as the client was satisfied. There were process issues around how the project was managed and how information was shared and how communication took place in general. These issues had to do with the fact that the architect was not playing lead and these tasks were not being done as he would expect.

Construction project manager judges project somewhat more harshly. The project was difficult in terms of the lack of specificity of engineering details especially with respect to safety standards etc. Delays in receiving and installing equipment caused serious delays and scheduling problems around trades. It was a fixed price contract and there were a large number of changes required.

Project B	**Michelon Tire Warehouse**	
Project Type:	Building Design and Construction	
Project Outcome:	Success	
Participants:	ADW Engineering Consulting Michelon Tire Construction Contractor	
Contract Type:	Cost Plus	1993
Interviewees:	ADW VP of Operations ADW Project Manager ADW Document Manager	Michelon Project Manager

Success Criteria

Dollars:	**Budgeted**	$6M
	Actual	$5.4 M
Time:	**Scheduled**	7 months
	Actual	5.5 months
Specs:		Set at beginning of project Final product met specs
Client Satisfaction		High
Prime Org Satisfaction		High

Project Overview:

Michelon came to ADW with detailed specifications - A pre-design, which they have used to build warehouses in other locales. This project did incorporate new palleting and other features.

ADW bid on defining the building and fleshing out the specifications. Proposal was accepted.

Michelon sent out 1 person to oversee all aspects of the project. He remained on site for the 7 months until it was completed. "Most of our jobs go very well when we have full control of them".

Project was completed 10% under budget and 20% early. Client is very happy with building and project.

"The completion date never changes, approval date may change" we didn't get approval until June - we lost 3 months. But we had to be moved in by Dec. 1st because the lease was up at out other site and we had to be out.

ADW was buffered from the direct owner by the Michelon Construction Project Manager. Specs were signed off before ADW got involved and did not change except for technical reasons as the project went forward.

Participant Judgements of Outcomes

The client project manager was extremely pleased with this project. In his opinion it went very smoothly. It came in 10% under budget and 20% early under difficult circumstances. He would judge it a 10 because of the financial performance. He had a 20% contingency to work with but project came in 10% under original budget.

The ADW management was very happy with this project. They felt that Michelon was a good client knowing exactly what they wanted and that they were very up front with them. The project went very smoothly.

The ADW project manager was impressed with the organization and discipline of Michelon's approach. All Michelon internal clients signed off on requirements before it ever went out to the consultants "I think it was a significant development and ensured the success of the project because now the project became simply a technical exercise, to deliver the goods". We had an initial fee (guess-ta-mate) which we exceeded but they asked for additional services and they never questioned our claims. He would judge it an eight or nine because he doesn't give tens.

APPENDIX D – Project Summaries

Project C	**CN Rail Operations Room**
Project Type:	Building Design and Refit
Project Outcome:	Success
Participants:	ADW Engineering CN Rail Architect
	1995 - 1996

Interviewees:	ADW VP of Operations	CN Rail Project Manager
	ADW Project Manager	CN Rail Contr. Manager
	ADW Document Manager	CN Rail Owner
	ADW Contributing Engineer	
	Architect	

Success Criteria

Dollars:	**Budgeted**	$2.5M
	Actual	$2.5M
Time:	**Schedules**	6 months construction 6 months (2 years elapsed time studies etc.)
Specs:		Set at beginning of project/changed over course
Client Satisfaction:		High
Prime Org. Satisfaction:		High

Project Overview:

The project involved renovating the operations room that manages trains in and out of the Edmonton depot. This facility rums 24 hours a day and costs upwards of $100,000. per hour to shut down for the first hour, double that the second and astronomical there after. Large numbers of people and computers need to be moved in order to do Renovations with out disrupting operations therefore it was a pretty complex project. CN facilities maintenance felt they had to do carpentry etc. to ensure no problems caused by having unknowledgeable contractors on-site.

The project was late getting started

Logistics was a key issue.

Because it was a renovation and logistics nightmare there were a lot of surprises.

Participant Judgments of Outcomes

CN project manager felt that "everything didn't go well". "Some CN people were telling the consultant things that weren't right". Still judges project success as a ten. "Almost an unbelievable feat "we never delay a train".

ADW consultant would give it a seven for success "ultimately it was pretty good", "there were some problems, some people were pretty upset, some people not too terribly". I don't know how the job turned out financially for us but I suspect it wasn't one of out better ones because we don't talk about it a lot.

ADW project manager rated it about an eight. It was a very good fee job, there wasn't much interference from the owner, we had a lot of cooperation from the owner.

CN Owner

The architect felt that the project was reasonably successful - no budget or timing overruns but was marred by disputes between the mechanical contractor and CN. He would give it a 5 or 5.5 based on this. His sense was that as they got to the end of the project CN's definition was somewhat different that what ADW thought they were to deliver.

APPENDIX D – Project Summaries

Project D	**Price Worksheet**			
Project Type:	IT Design and Build			
Project Outcome:	Failure			
Participants:	CP Rail IS Department			
	CP Rail Marketing Department			
	CP Rail Accounting Department			
				1987 - on going
Interviewees:	IS Director	Commercial Project Manager		
	IS Project Manager	Accounting Project Manager		
	IS tech. Expert	Commercial Owner		
		Accounting Owner		
	Consulting PM			
Success Criteria				
Dollars		**PW Total**	**PW1**	**PW2**
	Budgeted	$6.5M	$4.5M	$2M
	Actual	$15-20M	10M	$5M
Time:	**Scheduled**	1 year	9 months	11.5 months
	Actual	10 years and counting		
Specs:		Changed dramatically over course of project Final product exceed original specs World class and potentially marketable prod.		
Client Satisfaction:		Low		
Prime Org. Satisfaction:		Low		

Project Overview:

This project began as an accounting project and management shifted back and forth between the accounting and commercial group.

Price Worksheet	Original $3M budget Starting 1989, on going for 4 or 5 years
Price Worksheet 2	Technical rewrite 2 years Sept 1997 - May 1998 $15 million
Price Worksheet 3	Starting up in Late 1998 Rewriting technology to make it marketable because functionality is now good. $700.000.

Driven by deregulation in the railroad industry, the project was initiated to put the control of the actual rating of the shipment and the understanding of the deal that we making with our customers in the hands of the person making the deal.

The external consultant brought in to get it done in the later stages of PW2 (4th commercial P.M. to date) stated the project was "an incredibly political project". At this time the project had been over budget for a number of years and hadn't delivered all the results that people had hoped for.

Participant Judgments of Outcomes

IS Director judges this project as a total failure on time, budget, spec basis around 3 - 4 out of 10. The budget was blown, the schedule was blown and the business rules were ill defined. The business problem was much more complex than people understand it to be. Today in 1998, from a functionally perspective, we have the best product in the industry. We had serious problems arising from using unproven technology.

The Marketing Project Manager from 1997-1998 would judge the project to be about 3 out of 10. The application is out there it does work. It's very difficult to use.

The primary technology expert involved in the project from it's inception would judge it to be successful in the business side as it meets the accounting groups needs which was where most of the benefits were to be generated from. Although he acknowledges that from a commercial perspective it may not have been an appropriate business approach. On the project management side he would judge it as a failure, 3 to 4 out of 10, nobody was accountable. They were spending an indefinite amount of money. Management and priorities were changing regularly. No project management methodology in place.

The commercial sponsor sees this project as a classic project that failed and yet succeeded in the end. Over the last 2.5 - 3 years it was actually managed quite well - the environment hurt us though this was not one of these projects that rolled off the drawing board and into the field. Final project is very successful. It was a failure in the project as opposed to the product. Problems with how it is marketed and sold internally. The first five to seven years the project would be rated a 3, in the last couple of years I'd give it about 8 or 9 on average, about 6 for the project. After 7 years we started over. Commercial project manager for last couple of years judges....

Technical project manager for PW2 said accounting saw it as a success, commercial saw it as a big boondoggle gives it a 5 out of 10. Presented as a huge success.

External project manager judges it a 6 or 7 out of 10. Company would probably judge it a little bit more.

APPENDIX D – Project Summaries

Project E	**Iron Highway**	
Project Type:	IT Design and Build	
Project Outcome:	Overwhelming Success	
Participants:	CP Rail IS Department	
	CP Rail Marketing Department	
	CP Rail Operations Department	
Interviewees:	IS Director	Commercial Manager
	IS Project Manager	Operations Project Manager
	IS P.R. Manager	Commercial Owner
		Commercial Observer
	Outside Observer	

1993

Success Criteria

Dollars:	**Budgeted**	$1.5M	(15% reserve)
	Actual	$1.8M	Budget scope increased almost 40% over budget
Time:	**Schedules**		2 years
			2 years, 2 months
Specs:			Changes dramatically over course of project
			Final product exceed original specs
			World class and potentially marketable product
Client Satisfaction:			High
Prime Org Satisfaction:			High
Outside Judge (CIPA):			Recognized as Best IS Project of the year 1998

Project Overview

IS Director judges this to be leading edge both from the perspective of Business functionality and from the technology perspective (hand held technology).

The project had to be re-schedules a couple of times due to railway technology. The specs changed regularly du to the fact that they were specs by design and discovery.

It met the schedule but the train technology did not.

New technology and new product aimed at capturing back a share of the short hall, transportation market.

Commercial owner judges the project to be a big success, "superb", 8 out of 10 at this point. He judges "That's probably the key to the success of the project, is having a senior sponsorship that sticks with the project".

Participant Judgements of Outcomes

IS Director judges this project to be 8 or 9 out of 10 (he never gives out 10s). Huge success.

Commercial project manager judged it to be 9.5 out of 10 judges on basis of test results. (4 criteria)

IT Project Manager judges it to be 7.5 to 8 out of 10 due to very strong business vision, strong cooperation - collated team, and good communications. Two points taken off because of trinity concerns. Two months late - had to run on paper for 1 month. Significant cost overrun but we had approval for all overruns. Specifications were pretty much met.

APPENDIX E EXAMPLE ANALYSIS TABLE WITH PRELIMINARY CODING

Appendix E Example Coding Table - Project Management Statements

Project	Participant	Significant Statement	Interpretation	Coding
A	Gillis	I guess it's a skill set that is applied to a project...in order to ensure that that particular project meets a set of defined goals. And those defined goals could be the deliverable, the profitability, and the time. ( )	Qualifies his answer as a guess. Provides Pretty Standard Textbook definition with little elaboration. Ensuring that a project meets defined goals.	I guess skill set Defined goals Time budget spec.
A	Jensen	(PM) is I guess it's a planned approach to uh to compete a set of tasks in a given set of time and um meet the requirements that have been set in front of you...( ) It's being in control. ( ) But what really makes a project seem to standout is when someone has the finger on the pulse of what's going on and knows how and what the consequences are. ( ) ...Project management is overhead. ( )	Qualifies his answer as a guess. Provides pretty standard textbook definitions. Good PM provides control over events He qualifies earlier defined by identifying oversight as distinguished feature of good P.M. P.M. is over and above 'real' project work.	I guess Time specification planned Control All encompassing Overhead
A	Belsyck	Project management is actually, to me, is all encompassing this. It's looking after the engineering, is looking after the procurement of the materials, is looking after the construction in the field, and is looking after the owner's interests. To me the project manager probably, his most important role, would be to be, I would say, first off complete the project in time. Second of all, complete it within budget.	Qualifies answer as his own in definition He talks about P.M. as stewardship All encompassing Concludes by referring back to textbook definition	To me Stewardship all encompassing On time

Appendix E Example Coding Table - Project Management Statements

				on budget
A	Moore	Project Management. I guess to me it's identifying the need, being able to rationalize why that need is there, identifying what the budget needs to be, ensuring that you've got all the eggs in the basket to ensure that you have sufficient funds to comer the project, identifying the timeline that's needed, and getting the right inputs on that timeline, identifying the resources that you need to accomplish this and ensuring that they are happy with the timeline, a review of the budget and timeline issues, and final approval, and then making sure you have the right contractor and proceeding from there. Post implementation to ensure that you have met all of your requirements.	Qualifies his answer as a guess He identifies all the stops involved in managing a project; i.e. defines it by activities. Focuses on early planning activities.	I guess Planning Activities
A	Murdock	My Definition of Project Management? Well you have to understand that I, I've told you this right? That I teach five courses in project management and I've done a lot of internal work in other organizations on project management. (478-482)..... Well in the courses that I instruct, I define project management as the art of controlling business systems and processes to meet defined objectives. (532-535) You have to understand not only the technical process of the project, right? But also the process of what it is you're doing.	Legitimizes his answer by call to his authority P.M. is about exerting control to meet objectives P.M. is about understanding technical and managerial process	His expertise Control defined objectives

Appendix E Example Coding Table - Project Management Statements

		How it functions. Otherwise you don't know if you are working on the right thing or not. (592-596)		
A	Ryder	Project Management...I'm going to run out and get some information. Are you familiar with the Project management Institute?	Legitimizes his answer by call to institutional authority (PMI)	PMI
		So you've read their book of knowledge and so forth. Because I've been a member of hat for quite some time and some of it I agree with and some of it I don't.... But the one thing I think that uh, is crucial for whoever is to proposing to practice or talk about project management is to really have their own definition of what it is as it seems to be all things to all people a lot of the time. Nobody really defines it quite the same way. I'm not sure that there is a real specific definition to it. (1-15)	He believes that each individual must define P.M. for themselves and that multiple definitions co-exist.	No one definition Multiple co-existing
		But I guess to me, to me successful project management is the, the ability to cohesively bring the elements of construction and design together in an efficient and straightforward process that is done in a timely and cost effective manner. Usually based on the premise of a delivery of a product in a time line. (26-30)	He qualifies his answer as above and then provides as a guess a fairly textbook answer to the question	I guess Holistic Efficient Time, budget product

Appendix E Example Coding Table - Project Management Statements

		And that is more the traditional project manager role where there is a person or an entity that exists to manage all aspects of a project no matter what it is. It's not just design; it's not just delivery and construction. It's virtually everything. A myriad of it. And to cohesively look at that and coordinate it and bring all aspects of it together at the proper time and with the sensitivities of everyone else. So it's a kind of holistic, overview that starts at the outset and goes through to the end. (48-55) I still maintain that no one has really and truly defined project management yet so the common person understands it or even two people that supposedly understand it can talk about the same thing. And when you have conversations with people, I mean, you are assuming they understand it the same way you do, and the definition and they're not. (658-664)..... Interpretations are different. OS, obviously when you start a project and you have a knowledgeable project manager here and you've got a knowledgeable project manager there. And they start asking questions. Unless they are on common ground or good solid common ground, its bound to go awry. (666-670)	P.M. has to be a holistic, oversight role coordinating and bringing together all aspects of project.	Holistic

Appendix E Example Coding Table - Project Management Statements

B	Devine	Project management to me is understanding an owner's needs and then arranging you own organization to respond to them so that the end objective, construction costs, you know, the owner's schedule and quality and your own internal requirements for staying in business are satisfied. That's what it is to me. (572-577)		
B	Bingley	..most of our jobs go very well when we have full control of them. (217-218) Uh...Wow you're getting into theoretical stuff here. (351) I think with management there is...above all, you strive to get good value for our investment...At the beginning of a project, normally we're given what ever the value of the job is and we don't need any approval to do anything with that money, ok? We have a cross tracking system and we have a very well defined audit trail, but it's all pretty much after the fact and that gives the person on site control over everything... (356-367) So it's time consuming and it adds to the overall workload... I think the other thing is being able t understand how these things go together... you have to know or have a very good practical understanding of...you have to sort of visualize, be able	Refers to theoretical nature of question i.e. defines P.M. is theoretical not reliable question. It isn't something he thinks about just does. P.M. is about obtaining good value for investment Having spending authority provides a form of control over the project. Having control is an important facet of project management. P.M. is non-value added except in that it allows P.M. to gain financial authority. P.M. have to be able to see the big picture and end results.	Good value Financial authority Control Overhead Holistic

Appendix E Example Coding Table - Project Management Statements

		to visualize in your head what this thing is going to look like when it's finished, ok, so that all the stuff is going to fit. (381-390) ...with just one person there, I mean, you've got control over everything and on a lot of projects, we'll now have maybe four guys, we'll have a civil, mechanical, electrical and maybe one other, and, uh, a lot of the times it doesn't go smooth because you get differences of opinion and different priorities, if you've got just one person there, then it makes things a lot simpler. (420-421) and its never ever predictable (463) ..if you have a good working relationship with these guys, they'll do anything for you. (481-482) I asked a guy for a schedule and he said well I'll fax it over to you if you want it, but bear in mind that none of the dates are right on it anymore...So he sent me this thing, it's about five pages, its all timeline, but there is nothing right on it at all and again we're just doing things, they're still in the sequence, but it, uh, basically is quickly and as practically as you get it, that's when it has to get done.(519-526) There's basically a chronological order in which the thing has to go together, right..... I used it as a , uh, as a, it was a planning guide and it was a thing I		Big picture Oversight

Appendix E Example Coding Table - Project Management Statements

		followed, but the dates were never really necessarily cast in stone, I mean, the relative times would be right, but the actual dates when they occurred , sometimes didn't make a lot of difference. Am I making sense? (532-545) I think in that way they're valuable, it gives you a guide to work to, but we still have problems with these because we do them and we give them to some of our management people and uh, they don't get involved in the projects, they get involved with the budgeting, and we still have problems with that because they're looking at this and saying, well by this date you should have spent this much money and you haven't or you've spent too much, and we find it difficult to work that way because, it depends on what's happening....(547-554) ..there's seldom, it's very seldom on these jobs that things go exactly as they're designed, they're planned , and there is invariably there is going to be extras. We always allow for 20% on every contract (621-624) ..the last thing you want is to have someone there who is not making any money because you're going to get either a lot of, uh, grief or his people, or you're going to get, you know, you're going to have your eve on them all the time		

Appendix E Example Coding Table - Project Management Statements

		because he" going to try and recoup that money somehow. (650...655) ...you really have to get out there and ix with the people to know how it works...(835-836)		
C	Vander	Uh, from a consultant's point of view? I'm not a project manager. I'm a consultant, so when I've worked with so-called project managers, the majority came from the background of construction, some with technical training, some are engineers. So, when a consultant puts on the hat of project manager, I think a lot comes into play as to what their background might be, how they ended up where they are, calling themselves project managers. I think you have to have experience in the field of construction and not necessarily just form a consultant point of view because not a lot of consultants have sympathy for the issues on the side of the table, the construction side. (200-209) Project management, uh, give me a second. I see project management as a way of guaranteeing a client a finished project, delivered at a certain time, uh, using techniques that make things flow smoothly. Ok. So, clients who need to have something done in a certain length of time, under maybe the stresses of working in a space that's being worked	Qualifies his answer as coming from a particular viewpoint and not that of a P.M. The definition of P.M. depends on the background of the person wearing this title. Need for a holistic view of process Qualifies his answer again as something he hasn't thought of a lot. Sees P.M. as a way to ensure on time, on budget delivery of a product in a smooth flow	Guarantee Product Time

Appendix E Example Coding Table - Project Management Statements

		on, ok that might be one example, or where a guaranteed cost has to be achieved and whatever it takes to achieve that, then the project manager exercises that power to deliver and whatever plans are needed to make that happen. So, that's my definition of project management. (214-223)	Again qualifies answer as his definition	Budget Plans
C	Roberts	I would say project management is probably and you're getting me off the cuff here now.. and I'm probably the guy who should know...ah...probably the first one to start that in the railway. I would say it's the way of accomplishing work in a more economical way and a more hands on and more, um, response to the customer way of contracting. And the only place that can pure going that building or something in the middle of a plowed field in Lac la biche or go the – here's the contract – here's the plan. Plan you time 100% - who cares – right? That's where project management comes in is when you can't do that. When you can't have 100% planned – where you've got to make immediate changes and when I say immediate – immediate, and where people all have to work as a team. (468-487)	Qualifies his answer as off the cuff having not thought about it much P.M. is a way of accomplishing work. P.M. is useful when it is not possible to plan 100% when you must adapt to changes in a timely manner and keep people working as a team.	An economical hand on Not planning/ action
C	Greg	It's the ability to come out to a site, have a look at it, and choose in your mind the,		

Appendix E Example Coding Table - Project Management Statements

		the finished project before its done and to be able to envision how much machinery, how many manpower, how many man days. (612-614)..... So, its to be able to coordinate from right form when you look at a place you look at finished things its going to be and everything in between there what you're going to need for machinery, manpower and all in etceteras. I don't know if that helps you. (630-635)	Couches his answer in terms of the work he does. His response has a lot to do with estimating and coordinating resources	Holistic view Planning approach
C	Gillis	His definition of project management was a little of the classic definition. I think it was more or less, uh, you have a bag of money and you keep using it up 'til its gone and, uh, and uh....(167-169) ...all BS aside, I don't think he really had a clear plan, I don't think he knows, I mean, he kind of knew in his mind eye what had to e done and he kind of knew from experience how long more or less it would take to do it, but he didn't have a real, he never laid it down. (242-246)		
C	Wilkinson	That's a fairly broad range question. I suppose its controlling and regulating your own forces, um, ensuring that you're designing and operating from standards that are established by the firm, maintaining consistency and communicating. That's from a consultant perspective. Form the construction end of things, it's ensuring that the	Comments on nature of question Qualifies his answer Lists off 5 characteristics, 4 of which - the first 4 are more to do with control than anything else - last is communication	Controlling Regulating Standards Consistently Communication

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		specifications and the design are adhered to, the standards are maintained as well. Uh, there is a fairly large responsibility for safety on the site. As well a consultant, if you're the project manager, you can enforce that. It's understanding all aspects of construction, um, you don't have to know every detail but you have to know how the entire, everything integrates from a construction standpoint and how the trades people communicate with the consultants and such, so you're an arbitrator, I guess, um, a negotiator, a mediator. I've done a lot of project management projects and every one of them is different. Uh, some of them, you're, every time there's a change, you find your personalities real quick, you record it, you put it out as an official request for pricing. Other times, if you have a contractor that is not going to paper you to death, you can often just keep notes, uh, find out where a contractor has a sort of swayed from the specs a little bit, he hasn't broken down the integrity of what he's doing, but you go back to him and you say that was a no, no, and really, you want to have this bun on the wall and the contractor says I didn't have that in my price, you go back to him and say and let's just talk about this, where things have Lactaid off a bit. Communication, I think, is the biggest thing in project management –	He states need for holistic view No two projects are alike therefore P.M. changes from project to project. P.M. is about communication.	Specifications Standards Safety regulations Holistic Arbitrator Negotiator Mediator Communication

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		communication, and understanding everybody's perspective. (304-333)		
D	Werner	Project management is stewardship. (698) So that's the first half of project management. You have to blueprint it. Number two is putting the persons in place to make that thing happen. (707-710) See, project management is not to define what success looks like. (739-740) Projects that work typically have a lot of common sense behind them. (751-752) By common sense, I mean clarity about every single thing that can change on you as part of the project....Common sense says that the rules will change and you will have the processes in place to detect the fact that something around you has change whereby the rules over your assumptions perhaps are no longer so valid....Common sense says that any body that has been given an assignment may fail...SO all of our impulse that deal with the project, you have to have some mechanics around them to manage them. And if you tell yourself that everything will happen the way it should, you're doomed for failure....The more technology focussed they are, the more likely we are	Definite and immediate answer not qualified. P.M. is about knowing what can change. P.M. is about managing in a situation that will change. P.M. is not about making a plan and working it...you will fall.	Stewardship Planning People Common-sense Change

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		going to fall into a trap. Because you get seduced by the technology and common sense goes out the window. So this thing that you call a , this magical thing will solve all you problems, it never happens, right. (749-791) The other thing I find that you have to do is you have to find a way, periodically, to bring in a sideline perspective as to what is going on....You need that , because you become o involved you forget. (848-857)	P.M. is not about technology or a way to solve all your problems.	
D	Walker	What is project management? I would say it is a set of processes or practices used to enable, ensure, assist the successful completion of a project. A successful completion of a set of tasks. Where success is defined in terms of meeting expectations on schedule, on budget. (207-212) What I use the most would be the project plan itself. Okay. I use it not only to plan and control but also to communicate. So that you can communicate outside the project. What are you doing, and where the areas of risk are. Why it's taking you so long, which is a question I get all the time from IT projects..SO the plan itself is what I use the most, what I depend on the most. I find it also the most difficult and time-consuming part and you never put enough time into it. You never have, or	Directly answers with a relatively straight forward "textbookish" definition He sees the plan as being both for control and communication The plan is never up-to-date.	Set of practices Expectations Budget Schedule Plan -control -communication

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		you never make sure you have the resources to keep your plans up to date....It's a nuisance...SO it's something that you....In previous projects were being very diligent with this particular project but in previous projects the plan was something that you'd spend an awful lot of time on in the first x number of weeks. <<Until you get the money approved>> Yeah. Okay. And then you put it aside and then you look at it when you have to give your updates to your steering committee or whatever. And that 's not the way it should be used but you're too busy fighting the fires and doing your day to day stuff, you know, so, that's sort of the counter of it. But it is the tool that I find the most useful. When I use it right. (347-377)		
D	Savard	What is project management? (262) You could write a textbook on that. (263) My opinion on this is basically, I'll start by saying properly identifying and communicating what it is that you are building. A statement of wok that we talked about. Ensuring that there are benefits related to the project that you are building. And the proper checkpoints and balances are in place to ensure that you are building what you said you were going to build. If you're not, then adjust. Finding the right mix of people to develop	He questions the question and qualifies his answer on the basis of the breadth of the question and that it's based on his opinion. He lists off a long detailed list of activities necessary in P.M.	Id. Product Plan Checkpoints People

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		the project. And then I would say facilitating and coordinating the development of the application from that point on. Properly identifying responsibilities and accountabilities related to the development and making sure that's communicated and kept up to date. Developing a good project plan. Developing a good risk mitigation plan. Ensuring that the stakeholders are part of the management process. And stakeholders can mean a lot of things but I think you understand what I'm saying. Ensuring that the people who are going to receive the application are involved before the application is turned over to them. And then motivating the team, because I mean, development plans are there and they are always very ambitious but building checkpoints into that development plan so you can credit people. Give credit where credit is due. Providing constructive feedback. Not negative feed back. And I think that's important. If you have a de-motivated team you're never going to succeed. Test plans. But those are just the mechanics. I think the areas that I touched on are probably the areas that are probably most important to me. 265-287		Facilitate and coordinate Id. Responsibility
		...when you talk about keys to project management I should probably have pointed that out, (that projects evolve	Projects evolve over time and P.M. is about interactively planning and communicating change.	Adapting to change

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		over time) but to me that is project management. Iterative process and communicating the changes and therefore it does come in on time and on budget. (379-382) Well I think you take everything. You learn form everything. And you take what works. I mean what works now may not work tomorrow. I think you have to be very adaptable on a project to project basis. You can't treat everybody the same way. Not every project is the same. What worked yesterday will not work today. (465-469)	Not every project is the same therefore P.M. cannot be applied like a recipe.	On time On budget Not recipe
D	Blackwell	I guess it's an understanding in a series of steps of accomplishing something that is required or needed. And it's I guess defining what is needed. Why and how you are going to approach it and then defining the milestones along the way and making sure it's delivered...I think it's determining exactly what you want and how you want it delivered and then making sure that you..... (509-524) Project actual versus the initial conception of what it's supposed to deliver don't necessarily always match. (543-545) I think that another key in project management is making sure that you design towards the real user, the final user as opposed to that person's boss, as an example. (565-567).	Qualifies answers as a guess Projects change over course	Steps

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		...there is always going to be scope creep, and that's not a good thing. But there is always scope creep and there is always the unknown. And I think we should be judging success with ranges as opposed to very black and white targets. And I think it tends to be our non-project people that look at the very black and white. (601-605) I think the issue of rigor and when you are getting new people on a project that have worked in a free form environment, a ??? position if you will, putting them into a project. They can't understand why there are so many meetings and forms and so on. Nobody likes that at all I'm sure. But it works though. Otherwise you end up talking about the same things a month later. And I think you want to have expectations for the next meeting or the next conference call or next week and say that this is what we are working on now next Monday at this time the following five things will be completed. SO everybody has a target to work for. SO it's a series of small targets and checks. A lot of checks and balances in the project. Depends a lot on the project mind you but, a lot of the ones that we have worked on here are rather complicated, they cross over from one department to another so its not like its just my guys doing it which would be easy because I		

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		could just hit them with a stick and they could do it. But when you are starting to go into other departments, you know, you have to manage a little bit, you have to manage their time as well as the project's time. And that's not always easy. But I think having the rigor in there and the structure really keeps a project o track and moving ahead. (838-855) Sliding goals and benefits make a lot of sense to me. That doesn't work in our environment....Our executives clearly don't see it that way. (884-885)		
D	Banham	Definitely those parts (Blackwell's comments) and I guess the one that I would just add to that would be the communication of it through the steps. Because we do have a lot of great projects being worked on and activities occurring and it's in a vacuum. So sometimes people will be working on it and then they put the finish project in front of you and then, as Mike was saying, walk away from it. People aren't even aware that it exists or they didn't see the evolution and a lot of it is the internal sell of it. You can see it evolving. You can understand why you didn't go down this particular path of to those particular functions. And people will buy into it because they see it evolve. Where if you just have it place in front of you, you might go, I'd like this with it and that wit.	P.M. is about communication. Projects evolve - this needs to be communicated	Communication

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		Why didn't you guys think of this and think of that? For the most part they often, all of those considerations had been made and decisions had been made. It's not that people didn't understand the project of their work. It's just that the little pieces as they have been gong along communicating without, I guess at the same time, killing people with details. It's like you telling me every single step in the world, I don't care. It's finding the happy medium between giving people something useful about the project without too much updates and this is where we are going and getting a sell going very early in the project. (526-544)	P.M. is about selling the approach and product.	Selling
D	McKay	That's a tough one. I'm not used to answering that kind of question. What is project management? I guess I think of it as mobilization of a bunch of people to some objective, like finding some kind of objective that our vision that people buy into and mobilizing people to go for it and hitting the objective. Hitting it on the mark and then going on to something else. (799-804) What does it entail? From my point of view, and I know you'll get a lot of different views from other people because I, you know, even end up not agreeing with a lot of my peers. I thought of my	Questions the nature of the question. Qualifies his answer as a guess. P.M. is about mobilizing people to buy into a vision to meet an objective. P.M. is about motivating a team to work towards a common vision.	Mobilization Meeting objective Selling Excite people

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		role as really, try to get people excited about what we were trying to do. I mean, the vision wasn't particular, like on this one, maybe just putting it in context rather than general. In this project, it wasn't my vision, it was somebody else's vision. I mean, this was a corporate vision and I came in to make it happen, right. So what I saw my role as and what it was important for me to do was to communicate that vision to the people, get them excited about it, make their, you know they wouldn't be excited by the technology so it was important to me to sort of translate that corporate vision into something that could be a vision for them. Like I'll get to be an expert in this technology and put it on my resume. So I had to translate it into something that would get them excited..And then basically sort of watching the process as it unfolds. Like making sure that there were a lot of talented people there and coaching them and directing them and this kind of thing. (808-825)	P.M. is about making a vision happen. Translate vision into something that excites people. P.M. is about watching the process unfold and coaching and directing talented people.	Taking action Communicate
D	Nash	My approach to project management is quite simple...a simple time and action plan, where each component of the project and there was about six or seven different components that I broke it up into. Each had their own action list, which was anywhere between five and twenty-five items....(117-121)	P.M. is simple ,is about time and action planning	Simple Planning

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		He had a lot of political pressure to tell people what they wanted to hear as well. (202-203)		
		Oh jeez. Well, I probably don't have any better definition than most people. But I think its, you know, identifying or accepting a goal or objective that's been put in front and its basically for the most part it's the planning and then execution to achieve those goals. Within that simple phrase of planning and execution there really the whole spectrum of strategy versus tactics. It the execution, meaning to me, other than simply acquiring some resources and putting them to wok, the real art versus science of it, I think, is identifying an approach that keeps people informed and that lets people know where they stand, what their objectives are, and then essentially coaching people along the way to achieve those. Whether that coaching means, providing hands on guidance or obtaining additional resources of assistance to help them achieve their goals which will then feed in to the overall goals. I mean, that's my vision of a very successful project is something that is so simple that it can be communicated to anybody. Whether its somebody that's working on the project, or upper management, or as an end user of the technology produce. I think that's what the big thing is philosophically to	Qualifying his answer as no better than any others, P.M. requires identifying and accepting a goal. P.M. is about keeping people informed P.M. is about coaching people to achieve objectives. P.M. is about keeping it simple and easy to communicate to all stakeholders	Goals Planning Art vs. science Communication Coaching Simple Communication

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		strive towards.(303-318)		
E	Perry	Sounds like, you know, a test question you get at university...Oh yeah. Good question. What. The definition of project management is to, I guess to manage the project...A clear goal, a clear objective, and get to that objective...I think the key, I mean this sounds really glib, but the key is you've got to know where you're going...You've go to have, you've got to know what's your goal. You've got to know what you're goals is. Long term goal. And I think the second step is to you know, clearly mark out what you're key milestones are. What's your focus right now. (354-372) The aim is to concentrate on that first phase and never lose site of the future. You want to know where you are going but just focus on the task at hand. (376-377)	Comments on nature of question. P.M. is about managing Requires a clear objective. P.M. is about - Long term goals Short term milestones P.M. is about knowing where you are going but focusing on the task at hand.	 Objectives Goals Long term Short term
E	Tien	I monitor a couple of things. Financial of course. Delivery schedule... weekly status meetings...Performance reporting is , I would say, the thing that really helped us stay focused where we know that it is on track and what other things that we do to get it on track. Be able to raise the flag and communicate that to business sponsor or the business project management, is also the key too. Is able t convey the impact to them, because		

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		from a business point of view, they will come up with requests or changes or project scope and requirement and anything they can dream of as the project moves along. A lot of things are missed or purposely omitted from the project scope and sort of brought back in.....Either intentionally or unintentionally but that makes it very difficult.(126-155)		
		What is project management? Well to me project management is to manage the activities required to meet the, what I call the stated, or the objective of the project. So whatever that is that agreed by my partner, the business side, and then the IT team which is my side, that we agree, mutually agree that this is the objective of the project. So whatever that is. It managed the all the to lead to attending to those objectives...	Managing activities to meet objectives Objectives must be mutually agreed to.	Objectives
		<<What does this management entail>> Manage expectations, that's one. A whole bunch of other technical side which is managing scope. Managing schedule. Managing Risk. I mentioned about expectations that is part of the managing the, what I call communications...And to be able to deliver within a reasonable range, I would say. (394-413)	P.M. is about managing expectations. Set of steps/process/activities. P.M. is about delivering within a reasonable range.	Expectations Scope Schedule Risk Expectations Communication

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		You need to have a framework in mind. And the PMP is a very good framework. It may not be a recipe to the detailed steps that can follow. But once, there's a lot of things that once you have a good framework surrounding that decision making, it's just a matter of working out or weighting the alternatives...It's just that people sometimes, when they are under the gun they just forget about it. They just, become themselves again. Sometimes discipline is forgotten. But I think it's very aligned, especially for the work that I do. I find out that the more project management technique or concept that is applied to the daily job the better the result. (496-507)	P.M. is a good framework but not a recipe. P.M. is a matter of weighing alternatives. Problem is people forget it when under pressure The more you apply it the better the result.	Framework Not a recipe Weighing Alternatives
		When you sense it, when you smell it, I guess my style is more or less a confrontation style rather than avoiding. When you see something not right you have to table it. And if worse comes to worse it's a false alarm, then everyone's happy. It's clarified and here we go. (523-524)	P.M. is about confronting changes, issues, and clarifying them.	Confronting Clarifying
		When tools in the project management areas are good as guidelines I would say at least half of them apply to one or the other situations but not all. So I only use it when it makes sense. And to be able to do that you have to be able to apply some experience. Because other wise you are	P.M. tools are good guidelines Only about 1/2 apply in any given situation.	Guidelines

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		probably wasting a lot more time than you should have. In my case, I can only say that I use those and half the project is going very well. The other half is a lot more dependent on judgement calls that you make. Some of them, it has nothing to do with the technique it just fails. (569-579)	P.M. is about applying experience to use the tools that make sense. P.M. is dependant on judgement calls	Experience Judgement
E	Miller	What is project management? I would say project management is, I guess, bringing the resources, the right resources together, to complete the tasks at hand that are required to achieve the overall objective of the project... Resources being, either the financial resources, the people resources required, the various expertise required in order to achieve the goal...I think the first of all you have to understand what resources are required. You have to understand what you are trying to achieve. You need to know where you have to reach out in order to achieve a goal, for example, the information systems. The first thing we needed was somebody within information systems that could manage a project themselves. The next thing we needed to know, I guess once we knew what we were trying to achieve was, to know what exactly, or how exactly we wanted to do things and who would be the right people	P.M. is about bringing together the resources to accomplish tasks. You have to understand what you need to achieve and the resources you need.	Resources Management Goals Stewardship Resources

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		to et the various pieces put together. (348-360)		
A	Cullen	What is project management? Uh, I would say it's probably orchestrating the you know the project resources in some...ideally it would be the successful orchestrating of the project resources in a cohesive fashion to sort of keep a control both on the project budget, project quality and successfully complete the project within its objectives (44-49)	P.M. is successfully orchestrating project resources to control budget, qualify objectives.	Coordinating Orchestrating Control Budget Quality Objectives
		Just trying to keep alive I think. Unfortunately the uh the sort of reality is not quite as rosy as the, as the ... (53-55)	P.M. is about staying alive.	Surviving
		We still apply that "close your eyes and hope for the best approach. (85-86)	P.M. is about hoping for the best.	Wishful thinking
		It's really an eye opener to uh see that there is a set of skills and knowledge that has nothing to do with engineering that are strictly project related. (98-100)		Skill set
		You'll have project managers that will do the technical side of things to the nth degree because that's what they are comfortable with and they will tend to stay away from the scheduling or dealing with resources you know there's the whole human resource side of project management that I think technical people are not very well prepared for. You know just by their nature. (113-120)	The human side of P.M. is something many are less comfortable.	
		I think a lot of those models don't take		

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		into account, you know the unexpected and the fact that owners and other consultants don't necessarily apply project management (211-212) I think we definitely, you know there is a need to develop real world knowledge and see how it compares to this pie in the sky, you know, best intentions, theoretical stuff. Um, just like the reality of engineering. What we learn in school from technical, academic side is often not applicable (317-321)	P.M. doesn't take into account the unexpected. Owners and consultants don't apply P.M.	