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UNDERSTANDING COLLABORATIVE
WRITING OF TECHNICAL PROPOSALS
WITH A PROCESS/PRODUCT MODEL

by

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A Dissertation submitted to the Faculty of
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ABSTRACT

UNDERSTANDING COLLABORATIVE WRITING OF TECHNICAL PROPOSALS WITH A PROCESS/PRODUCT MODEL

Frank Joseph Greco
Old Dominion University, 1995
Director: Dr. Fred Steier

Group work creates concerns with respect to performance, collaboration, and conflict management. Writing technical proposals creates appropriate settings for gaining insight into work group efficiencies and project conflict. The research involved different work groups preparing responses to Federal Government solicitations. A proposed Process/Product model was applied to create a new framework and perception of the technical proposal development effort. There exists a rich dialectic between the forces of Process, (*how* the effort is accomplished), and, Product, (*what* the effort will produce.) The investigation attempted to learn if the P/P model provides explanations for project conflict during technical collaborative writing.

The investigation examined the nature of the dependence and independence associated with Process choices and Product choices in industry. The research studied Semi-Autonomous Work Groups developing technical responses to three different Federal Government Solicitations. Technical proposal development efforts in a Federal Government environment span a relatively short development cycle. Work group activity involves the direct collaborative writing participation of work group members, conducting

the engineering management functions of planning and producing proposal documents. The research findings suggest that the results of this special case investigation could provide a research basis for other work group collaborative writing and technical activities.

The research method used was participative observation conducted in a semiovert manner [during the proposal development project] combined with an overt investigation [after the project] to generate orienting theory that will advance the state of knowledge regarding the management of project conflict during collaborative work group technical proposal development. The research included conducting a semistructured interview after each project completion to learn if participants perceived that they witnessed conflict and to describe its nature. The researcher interpreted the comments associated with conflict in terms of the Process/Product model to learn whether the model provides explanations of conflict or dissatisfaction in this collaborative technical writing setting. An analysis of researchers' dual role as a participant in the work group and an observer is also included in this study.

Significant findings include that the process/product model, like other engineering management paradigms, provided a pragmatic perspective for practicing managers concerned with collaborative technical writing conflict. The findings also suggest these are robust opportunities for additional research in collaborative technical writing from perspectives which extends beyond predominant process orientations.

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**Understanding Collaborative
Writing of Technical Proposals with a
Process/Product Model**

*A process/product paradigm strategy to gain insight into
project conflict occurring in selected semi-autonomous work groups.*

CHAPTER 1. INTRODUCTION

1.1 Opening Remarks

Innovation in industry focuses on advancements on two broad fronts. First is the introduction of new and improved **Products** that are smaller, faster, more efficient and last longer. Secondly, there are implementation recommendations for new **Processes** that accommodate higher quality through proactive management, cost effectiveness, flexibility in production, human resource considerations, reengineering methods, and techniques to decrease development time and improve decision making. Academic journals and texts, trade literature, business books and management studies devote significant pages to the investigation of new and improved **Products** as well as more effective **Processes**. A gap appears to exist in the study of the interaction and integration of the two.

This researcher believes that the study of the **Process/Product** dynamic, in terms of efficiencies, conflicts, compromises, advantages and synergism, provides insight into the management of engineering efforts. The research investigation examined the dependence and independence of **Process** choices and **Product** choices in collaborative writing of

Semi-Autonomous Work Groups developing technical responses to Federal Government Requests for Proposals.

Effective Engineering Management involves the application of tools, practices, methods and procedures. The more robust the toolset, the more likely an engineering manager may avoid problems and increase productivity. Some of the tools are fundamentally simplistic, for example, Theory X - Theory Y, Maslow's Hierarchy of Needs, cybernetic principles of feedback, and the 80-20 rule. These tools are not offered as a panacea nor do they profess universality toward solving all engineering management problems. A specific example is the cost-schedule-technical model frequently used to monitor progress of engineering activities. Despite the inherent compromises, dynamics and trade-offs between these three parameters, knowing how an engineering activity progresses in terms of, (1) under/on/over cost, (2) behind/on/ahead of schedule, and (3) the technical performance and achievement accomplished to date, are an effective method for monitoring and constraining essential measures of complex engineering endeavors. The Process/Product paradigm is similarly offered in this regard, that is, as a management tool to provide insight and understanding.

1.2 Background of the Research

The researcher has been involved in numerous engineering activities involving technical collaboration over the past twenty years. These efforts have involved development of technical proposals and participation in large scale system designs.

Large scale Hardware, Software, and System Developmental efforts were initial candidates for the research, however, they involve too little commonality and too much complexity for the proposed orienting type of research. Specifically, the Technical Proposal Development effort in a Federal Government environment was selected for investigation. This activity spans a shorter four week to two month development cycle and involves the direct collaborative writing participation of semi-autonomous work groups, conducting the engineering management functions of planning and producing proposal documents. The work group is usually highly autonomous since its members have significant control of their internal organization, task definition and work processes. This Proposal Development choice had several research advantages in conduct of the study. It is also suggested that the results of this special case could provide a basis for other semi-autonomous work group collaborating on writing and complex technical activities including various larger scale engineering management developmental efforts.

The research method involved participative observation conducted in a semiovert manner [during each project] and in an overt manner [after each project] to generate orienting theory that will advance the state of knowledge regarding collaborative work group problems and participation while engaged in technical proposal development. Participative observation was selected to capture events that may not have been available when using other observation techniques. Assuming an initial semiovert posture reduced real time ethical and political tension associated with monitoring technical conflict situations. Moreover, the semiovert manner was selected so as not to disrupt or reduce client confidence in my direct participation. The field research was concluded with

administering a tailored semistructured interview guide used in final interview sessions after the project completion to learn if participants realized or perceived that they witnessed conflict and to describe its nature. Verbatim qualitative comments from participants were recorded. The researcher analyzed the comments associated with conflict in terms of the Process/Product model to learn whether the model provides some explanation of conflict or dissatisfaction in this collaborative technical writing setting.

Due to my technical background and experience, I felt well suited for this task. My 25-year background in proposal preparation, undergraduate and advanced degrees in Electrical Engineering, Computer Science and Information System, as well as my Ph.D. studies toward sociotechnical systems reduced the risk of failing to grasp the subtle technical and social group dynamics of the investigation.

1.3 Research Question

The **Research Question** asks, in the context of work groups collaboratively participating in the preparation of responses to technical Federal Government solicitations, does the Process/Product paradigm explain conflicts experienced in the development activity? The term 'conflicts' used in the research question is defined in a proposal preparation context as: occurrences of **counterproductive** activities, causing unnecessary postponements of critical activities, lengthy delays or disruption of the accomplishment of the effort, or participant's dissatisfaction with the document, other participants involvement, or the planning of the proceedings. In order to address the critical issues of the research question, the study investigated highly autonomous proposal preparation work groups,

who control their own organization and task assignments. The research focused on technical collaborative writing as reflected by the new perspective, which establishes a sharp distinction and dynamic between the planning processes and product production. In order to increase validity of this study, three proposal preparation settings were investigated, each having the variety of processes and production that exercise a wide range of technical proposal collaborative writing tasks and results, and where some settings experienced real or perceived negative outcomes. Multiple settings were investigated in order to observe a variety of proposal preparation work groups, each using proposal preparation methods in all fashions, that is, between themselves and interfacing with other individuals and entities inside and outside the organization. With this background and specific Research Question, related subordinate research questions included:

1. Can explanations be modeled which add to the understanding of technical collaborative writing conflict?,
2. Can all conflict occurring in this setting be explained by the Process/Product perspective?, and,
3. Does this understanding provide a basis for conflict management or avoidance?

1.4 Federal Procurement

All federal agencies of the United States procure goods and services as constrained by government standardized acquisition regulations. Minor variations from agency to agency exist since they vary the application of rules and procedures. For major purchases, an agency releases a Request for Proposal (the specification), or RFP, which typically specifies the goods and services to be procured, the method or ground rules offerors

should use to submit their proposal, the evaluation criteria which will be used to select a winner, and special clauses which govern the procurement. RFPs are similar to calls for solicited grant proposals frequently responded to by academic institutions but involve significantly more technical and managerial detail. This detail involves request for expansive descriptions of past performance of similar work, detailed descriptions of corporate resources, resumes of key staff members, management plans and technical approaches.

Industry responds to the request in accordance with instructions for submitting an offer with high regard for the evaluation criteria and the deadlines for submittal. RFPs are often incomplete, ambiguous and sometimes contradictory. Accordingly, offerors can submit questions against the instructions and requirements of the RFP. The government responds to these questions via amendments to the RFP which normally reduces, but often does not eliminate, ambiguities or problems associated with the bid. One element of the RFP is extremely clear, namely, the hour, date and place of the closing of the procurement. This is specified in the original RFP and restated in the amendments to the RFP. It is not uncommon for the government to grant a short extension to the original deadline date if major changes in the RFP are specified via amendments.

The nature of submitting a proposal in the Federal Procurement process often involves challenging decision making due to variety and complexity of the non standard response solicited. The group assigned to the proposal submittal is usually faced with unique and sometimes competing tasks. For example, the work group must prepare a written

document which addresses all of the requirements in the specification (usually referred to as the Statement of Work). This involves the selection and description of impressive resources such as personnel, facilities, equipment, etc. and an innovative, knowledgeable, low risk approach of accomplishing the work. Consequently, significant variety is usually involved in the technical writing enterprise. Also, the work group must follow the formal instructions for preparation of their proposal which cause formatting or organizational difficulties. Sometimes the proposal is restricted by a maximum page count which complicates the technical writing processes. The work group must also address the evaluation criteria toward securing a high score. The offeror's approach, experience, resource selection, attention to quality, among other various contributing concepts, are usually described in the proposal. This effort involves qualitative as well as quantitative descriptions aimed toward convincing the reader the offeror is capable of a feasible, high value solution with impressive credentials. The qualitative statements are usually subjective and accordingly are not easily evaluated. Simultaneously, the work group must price, and continually consider cost in their methodology. Most procurements specify the relationship between cost and the evaluated technical merit but often this relationship is vague and described by terms such as, 'best value to the government' or 'selection of the successful offeror will be based on the most advantageous terms offered to the government, cost and technical merits both considered'.

Consequently, tedious Federal Procurement issues, such as ambiguous specifications, non standard requirements, variety of resource descriptions, page count limitations, and cost considerations contribute to the complexity of the technical writing task. Moreover, they

create the potential for conflict with respect to the decisions that must be accomplished by the work group involved in a typical proposal development setting.

The Association of Proposal Management Professional (APMP), in their National Proposal Benchmarking Survey Report of July 1994 which included 46 companies, compiled demographics indicative of the proposal settings. Their survey data included:

- (1) Companies annual sales volumes were normally (94%) over \$10 million.
- (2) Sixty-six percent of the companies produce less than 100 proposals annually and 10% produced over 150 proposals annually.
- (3) Seventy-one percent of the companies produce proposals with less than 500 pages and nine percent produced proposals with more than 1000 pages (pp. 15-20).
- (4) Only 11% admitted to not having a formal defined proposal process (p. 69).
- (5) Up to 10 people is typical (82%) of a proposal organization (p. 116).
- (6) Virtually all (98%) conduct initial, intermediate, and final reviews of their proposals (p. 81).

As reflected in the APMP survey and most literature addressing proposed proposal methods, virtually all offerors have a formal or semi-formal method of reviewing the proposal before it is sent to the government. Usually companies conduct one or more of a series of increasingly detailed reviews, called Pink, Blue, or Red Team Reviews, among others, which examine intermediate proposal drafts. Reviews involve freezing and compiling the latest draft sections for examination of a team of reviewers, normally outsiders who did not contribute to the draft. Their recommendations and identification of deficiencies influence the proceedings toward a final draft. Reviews of this type are

a formal cross over from process concerns to product concerns similar to design reviews occurring in software, hardware and system design cycles.

Offerors must supply a minimum of two separate documents (volumes), namely, a cost proposal and a technical proposal. The cost volume contains the offered prices, certifications of business and accounting practices, cost realism discussions, cost back-up data (components of the final prices), and statements of compliance with local and federal law. This cost volume is largely comprised of signed documents, schedules and government provided forms. The technical volume usually contains an introductory executive summary, the offeror's methodology, detailed resumes, technical approach and management plan, but never includes cost data. This restriction permits the government to evaluate cost and technical aspects independently. Sometimes the agency requests a separate, third management volume which segregates technical issues from the management issues. The research conducted focused on the development on the technical proposal including all management aspects regardless of any segregation. Preparation of a cost proposal was excluded from the research investigation.

The government will accept any proposal package received by the deadline at the specified location and then evaluates each cost volume and the technical (or technical and management) volume with separate government teams. The government's results are combined by a third contracting function which announces the winner. During this evaluation process the government may ask offerors for statements of clarification, corrections of offerors' deficiencies, and revised pricing data in an attempt to secure a best

and final offer from those who provided a compliant bid within a reasonable competitive price range. All offerors, except the final selected offeror, are notified when they were eliminated from the competition at the various stages of reducing the selection. In virtually all cases the offerors are given some indication on the strengths, weaknesses and merits of their proposal to maintain future competition and improve subsequent submittals. Generic and specific comments on the offerors proposal, their ranking in the competition, and the successful price and winner are provided to all offerors.

1.5 Suitability of Proposal Development as The Research Setting

Technical Proposal Developmental is a rich research setting since it contains particular attributes. For example, the participants of the proposal development work group are readily identified, and of a manageable size for the proposed study. They are organized in a team based configuration that is prevalent in similar development efforts. Furthermore, proposal development has a clear discernible goal, (the creation of a worthwhile sales document), and the development cycle has a high probability of closure, (submittal is normally required in a few weeks or months after it is announced). This relatively short effort accommodates the conduct of manageable research and analysis not only during but also immediately following the effort. The constraints of the effort, namely time, resources and technical compliance, are easily recognizable, and subsequently these constraints contribute to a sufficient degree of complexity, uncertainty and subjectivity to complement a research setting.

These attributes amount to a workable set of bound parameters (closure, the work group, time frame), a workable set of recognizable parameters (document creation, participants), a relevance in industry, and a research potential to gain understanding (complexity, uncertainty, ambiguity and subjectivity). The study of collaborative technical writing and conflict is very appropriate in the stressful and highly competitive environment of preparing technical proposals. Furthermore, the research of semi-autonomous work groups was equally worthwhile since this configuration has popularity in modern engineering technical proposal development as well as other prevalent engineering management and collaborative settings.

1.6 Advantages of the Setting

The selection of investigating work groups tasked with responding to technically oriented Federal Government Requests for Proposals had several relevant advantages within and outside the proposed research, beyond the fact that proposal development usually involves semi-autonomous work groups. The scope of the constraints placed on proposal development effort were consistent with the intended research, that is, an investigation into the social and technical aspects of collaborative technical writing. The effort involved several interesting social issues including stress, long hours, and pressures of a definitive deadline. Furthermore, the proposal effort has complex technical issues and collaborative aspects directly applicable to other large scale development efforts including Software Design, Hardware Production, Information Systems Business Process Reengineering, System Life Cycle models and System Development. The study is also applicable to other research efforts including computer-based collaborative work,

organizational learning and culture, communications, conflict, decision making, and language as well as the study of semi-autonomous work groups in different settings.

Furthermore, industry spends significant capital resources on the development of proposals in response to Government solicitations, more often than not on losing efforts. Qualified research in this area could provide economic as well as academic advantage. Given my professional and academic background, the researcher was highly qualified to conduct this study since most of my twenty-six-year career has been in the conduct of planning, preparing, coordinating, management and production of Federal procurement proposals and projects for my employers, my own firm, and for several publicly held companies.

Additional features associated with proposal development also contribute to the advantages of selecting this setting for the conduct of manageable and meaningful research. For example, the combined technical proposal process/proposal production activity has a discernible goal, namely, to deliver a feasible, competent and convincing manuscript in a specified time, which adequately addresses the technical specifications and managerial requirements set forth in a Request for Proposal (RFP) document written by an agency of the Federal Government. There is a manageable amount of ambiguity, conflict potential and constraints in proposal development, such as the managerial choices of how to present a documented response, and technological choices of how to design and propose an innovative methodology and solution to the requirements. Proposal development also involves human resource choices of who to assign to write and review the proposal and who to propose given the bid is successful. Furthermore, this writing

activity also involves prevalent conflicts and compromises in decision making due to various possible interpretations of text found in the Federal agency prepared solicitation (RFP) document. Conflict can also be derived from the incompatibility of the technical written contributions of the various writers and contributors especially given the limited time given to produce the final proposal document. Consequently, there is an opportunity to gain insight into the conflict situations associated with proposal development toward understanding and improving technical collaborative writing productivity.

In the Sociotechnical tradition of improving workplace productivity, the research investigated work group conflict from a new Process/Product perspective. If a clearer explanation of the conflict can be determined, a basis for increased productivity through the management and avoidance of real or perceived conflict situations and dissatisfaction is possible.

1.7 Process/Product Framework

1.7.1 The Paradigm

It is proposed that when Semi-Autonomous Work Groups are involved in complex technical efforts of developing responses to Federal requests for proposals, they conduct a series of strategy, planning, control, and management functions. These activities are associated with a general notion of **Process**. This Process notion addresses activities which, although designed to reach the ultimate goal of producing a product, have limited immediate tangible regard for the product as an entity.

Other efforts addressed by group members are directly associated with the production, style, content, layout, format and media associated with the draft or final deliverable. These activities focus on the assembly of raw materials, securing supportive production resources, producing planning documents or decisions, creating meaningful draft documents for executive and internal reviews, and physical delivery of the final document to the ultimate customer. These types of events are associated with the notion of **Product**. This Product notion, although the direct result of planning and processing of preliminary stages, has limited regard for controls and steps that lead to production opportunity. Moreover, the notion is focused on a real entity, a portion of the document, an intermediate draft, or final product itself. Taken together these two notions construct a **Process/Product Paradigm** that provides a new perspective into proposal preparation projects.

As a result of the conducted research, I aim to demonstrate that this model contributes to a clearer understanding and explanation of conflicts that exist as compromises and choices are made in the management of collaborative proposal development efforts. The results indicate that when semi-autonomous work groups are engaged in technical proposal preparation, a **Process/Product (P/P)** dynamic plays a role in group productivity. The model provides a broader system perspective of collaborative writing that contributes insight into compromises made in the technical proposal development cycle.

As a result of the research conducted to date, it is also implied that a focus on a combined dynamic of **Process and Product** is beneficial. It is not implied that a

preoccupation of Process over Product or visa versa is absolutely counterproductive; on the contrary, either focus, when properly selected, is necessary for advancement of the effort. With respect to dynamic, timing, and technical parameters associated with technical proposals, the P/P model provides an explanation for conflict and provides insight on the advantages and disadvantages of assuming a preoccupation of one over another. Accordingly the P/P perspective will facilitate improved productivity and increase intelligent selection in proposal development decision making for practicing managers.

1.7.2 Research Definitions

Definitions applicable in the context of the proposed research and the Process/Product Paradigm are stated below:

Work Group: A team for proposal development. The work group is not fully autonomous due to RFP limitations and constraints imposed by the funding corporation, nor are they non-autonomous because of the nature and diversity of the challenge to produce a technically competent, creative, and persuasive proposal in normally a short time span with limited resources under minimal outside management control.

Process: A sequence of activities designed by the work group to create a valuable output. Value is defined by the ultimate customer receiving the proposal, the individuals, the group collectively, or the funding corporation.

Process activities: Implementation efforts associated with the conduct of strategy, planning, organizing, control, communications, scheduling, reporting and managing functions of proposal development.

Product: An intangible or tangible result produced by the work group constituting a valuable output as a result of a purposeful sequence of processes; the purpose being decided on the basis to create the intended output.

Product activities: A series of production components associated with the explicit style, content, sections, format, media, of the parts, or the complete draft and final delivered proposal.

Destructive Conflict: A valueless or negative activity either distracting from or preventing project productivity. Conflict can occur in the context of individuals or work group [such as incompatibility, dissatisfaction and unnecessary rework], or in a process, partial-product or the final product. This is not meant to imply that proposal development conflict is always valueless. Non-destructive or positive conflict often increases awareness and allows corrective mechanisms to yield ultimate success attainable only as a result of conflict recognition. Loring, who investigated conflict in proposal preparation settings and who relied significantly on the findings of Thamhain and Wilemon, authors who addressed conflict in Project Life Cycles, states that conflict provides consequences that, "may be beneficial if they produce new information which, in turn, enhances the decision-making processes" (Loring, 1982, p. 60.) In this research context, the conflict of interest

is destructive conflict, associated with negative intermediate or final outcomes associated with proposal development failures.

The research focus is on destructive conflict since such negative occurrence distract from the productivity of the group. It will be discussed (in paragraph 3.6) that disagreement and controversy among researchers surrounds the issues of conflict. The research and literature strongly suggest conflict can be both productive and destructive. Conflict is productive when it develops group cohesiveness, influences positive changes or breakthroughs, increases calculated risk or factors acceptance of a group decision. Conflict is destructive when it distracts from, disrupts or prevents progress of a working group. Some researchers hold the position that conflict cannot be avoided and is ultimately benign while others agree that conflict is necessary for growth and progress. In paragraph 3.6, the positions of Perrow, Barnard, Weber, March and Simon, Fisher, Coser, Putnam, Boulding, Simmel, Tjosvold, Deutsch and others on the controversial issues associated with productive and destructive conflict are presented.

1.7.3 A Model Description

The Process/Product (PP) model is an original concept convened by the author of this dissertation which acknowledges that at the start of a development cycle, no tangible product exists. This situation is beneficial since initial process activities permit strategic tradeoffs and evaluation of innovation feasibility testing. Furthermore, process activities should proceed with minimal constraint for an initial phase of the development. Secondly, the model acknowledges that the product notion must be considered at various

phases during the development cycle to ensure progress toward worthwhile closure of the ultimate production goal. Lastly, the model acknowledges that the product notion will eventually take precedence over process optimization and change. Such precedence is justified since a logical course is to proceed with production due to the compelling lack of time to carry out anything but the currently intended written product. It is the responsibility of the proposal preparation work group to direct, control and coordinate the compromises and dynamic associated with these competing preoccupations of the process and product notions toward progress and completion of the project with a minimum tolerance afforded for conflict. The literature supports an overwhelmingly persuasive argument for process control over production, decision making and results. The P/P model respects the timely and temporary importance of a notion of process control over product as well as an equally significant notion of product control over process.

The literature research and experience point to three mutually exclusive, equally significant engineering management project parameters that bound project activity, the cost-schedule-technical (quality) model. The model's parameters are the resources or **cost** limits allocated to the project, the **time** allocated to accomplish the project, and the **technical performance** required or attained (Loring, 1982). In technical proposal development, time is predefined, leading to competitive forces of obtaining a required or desired technical performance within a limited budget. This technical performance/cost dynamic will occur in both the Process or Product activities whether considered independently or together. For a given situation, with predefined resources, the cost element may also be fixed implying that the technical performance or quality of the effort

is the key parameter dependent on the tools and techniques applied which manage and avoid conflict.

The Process/Product model recognizes that the application of process activities as well as production activities both take time, the primary constraint of proposal development. There are inherent competition and conflict forces between the P/P dynamic in this regard. Too little time allocated to Processes will result in an ill defined product; too much process activity will consume the remaining interval to complete production. Partial products (drafts) during the development cycle provide a monitoring mechanism of the progress of the Process and Product contributions, although this is interruptive and potentially counterproductive to both P/P activities but only when considered separately. The time management of the coordination of the collaborative writing activities in terms of avoiding the conflict between these two opposing P/P forces can be a major challenge to the technical Proposal Work Group. A second challenge, given cost and resources are available, is to select the appropriate technical performance/cost compromises within each P/P perspective.

CHAPTER 2. PROBLEM AREA

2.1 Problem Identification

Annually, leading companies who pursue competitive Government contracts, risk billions of dollars pursuing and submitting over a million proposals to Federal agencies. These activities are conducted with minimal considerations of the separate notions of process and product, and the resulting dynamic between the two. Most managers focus on the job or the people and have difficulty in applying the proper focus on processes (Hammer, Champy 1993). Senge (1990) claims organizations are dominated by concern with events and not dynamics. Senge suggests a lever lies in understanding **dynamic complexity**, not detailed complexity (Senge, pp. 18-21, 72). This emphasis was applied to the P/P dynamic to understand relationships occurring between the Process and Product activities. The research examines the technical writing compromises associated with Process and Product preoccupation to learn if the dynamic complexity between the two is an explanation of conflict.

In technical proposal development, resources are limited and the short time allowed to produce a high quality technical document presents challenges. The group must effectively identify and resolve the negative conflict quickly and accurately to avoid the problems and risk associated with this corporate investment. A challenging problem area

apparently also exists in research surrounding this technical collaborative writing activity. In chapter 4 it will be shown that many authors address the analysis of related theory based upon a process focus with little or lesser regard of a product analysis and virtually no regard for the dynamics between process steps and outcomes. The literature demonstrates that theories such as decision making, communications and group work has a preoccupation with process analysis. Furthermore, sociotechnical theory, research dealing with conflict, and collaborative writing avoids a worthwhile investigation of a simultaneous analysis of both process and product issues. Lastly, in the areas of conflict and especially collaborative technical business writing, very little research has been conducted regarding proposal preparation in an industry setting.

2.2 Small Work Group Composition

Research in sociotechnical systems design has focused on groups performing segmented tasks. These groups or teams have been called semi-autonomous work groups, self-directed teams, self-managed teams, and self-regulating teams among others. The exact use of the terms varies from one organization to another, and even from one work unit within a given organization to another. For this collaborative technical writing research, a specifically defined type of team was designated as the Work Group. With their primary work tasks defined through and focused on the responsibility to deliver a worthwhile technical proposal document response, proposal work group participants define their own tasks and internal organization. Goodman, Devadas, and Hughson (1988) provide detailed examples and definitions of work team management and work team control as well as self-managed, self-designing and autonomous work teams

characteristics. They acknowledge that these terms are often used interchangeably (Goodman, Devadas, and Hughson, 1988, pp. 296-297). As presented here, characteristics of a proposal preparation work group include their membership which is clear to other members and to the sponsoring organization. These members constituted an identifiable and bounded subsystem of the sponsoring organization whereas the group had recognized responsibility of preparing and producing a proposal document. In the conduct of this research, each group was self-managing (Goodman 1988, Hackman 1980) with high autonomy for organizing, managing, controlling group design and executing technical proposal preparation writing tasks.

Autonomy could have extended to choices of where they work, when they work and how they contribute to the proposal project. There may not be a physically defined space for the members due to an increased reliance on teleconferencing, facsimile machines, electronic meetings, and local and wide area network communications. However, more times than not, a strongly knit work group participates closely together in the same physical space most of the time. This was primarily the situation for the three sites investigated in this research.

2.3 An Example of a Process/Product Event

Industry studies of the System Development Life Cycle stress that one of the most critical events in the system development cycle is the milestone of facilitating a timely, complete

and accurate Engineering Release¹ of the system design. This event signals the publication and release of the specifications, plans, and drawings to the production organization, allowing the start of fabrication, purchasing, and manufacturing. Until that point, the system design evolves through standard engineering design practices, reviews, processes and procedures. From that point forward, a definitive final product is envisioned; the one being built. Changes to the design, (and the product being built), are accommodated by formal configuration control processes and additional design reviews allowing the continuing production of an improved product.

This System Development description provides an example for the explanation of the Process/Product model. This example demonstrates that there exists a worthwhile initial series of activities focusing on the process notion and that the resulting Engineering Release milestone illustrates a definitive cross over point to a product notion. Actually, several cross over points between Process and Product occur before and after the Engineering Release milestone event, such as, conceptual design freeze, product modification, modeling, prototype creation, simulations, configuration audits, first article tests and other events and activities. The point made by this system development example is that appropriate coordination of all events and activities, especially those which focus on the process nature and product nature in combinations, lead to the

¹ The significance of this milestone was demonstrated to me in 1984 by a Lockheed Program Manager, Mike Imhof. Mr. Imhof and I had numerous discussions of the importance of a "clean and early" Engineering Release in the development of complex engineering projects including the Product Improved Vulcan Air Defense Tank System and advanced automated Radar Systems. The term 'clean' related to a design with a high degree of completeness and more importantly compatibility among the electrical, mechanical, logistics, hardware, software and quality components, among others. The term 'early' related to freezing the design with sufficient time to identify and correct areas of incompleteness and incompatibility while avoiding a schedule overrun.

ultimate success or failure of the enterprise. Moreover, formal procedures and milestones, such as the Engineering Release, that define standard System Development events and processes and thereby create partial and final product activities, were probably formulated to grapple with the dynamic between the P/P notions. For example, without the control of the Engineering Release milestone, design engineers could continually strive toward an optimized utopian solution in disregard of producing a product in a finite timely manner.

2.4 Decision Making in the Proposal Development Effort

The complexity of the technical proposal development effort includes strategy and decision making associated with not only **how** to produce the proposal document, but also **what** the delivered product will be, as solicited in the request for the proposal. When accomplished by a group of collaborative writers, proposal decision making leads to a series of rich constraints and potential compromises associated with group participation, technical performance, and success. When factored with the P/P compromises, the result provides a robust environment for conflict, especially under finite resources and time. This robust environment is displayed by Table 1, which lists critical issues in proposal development decision making. Several generic or root questions associated with proposal activities are provided. For each sample question, preliminary indicators of applicability to the model's notions as well as the relationship between the question and the notions of the P/P model are presented. Table 1 (following page) provides samples of the dynamic between both notions. The issues of How [process] and What [will the final Product be] are paramount in the research.

Root Question	Modifier	Applicability to the Process Notion	Applicability to the Product Notion	Applicability to the P/P paradigm	Comments
How	Should this be accomplished?	Strong	Weak	Yes	Major theme of the Process Notion
What	Will the final product be?	Weak	Strong	Yes	Dual of the Major Process theme; the Product theme
Why	Is this being done?	Negligible	Negligible	No	Motivation issue, assumed insignificant for this model
Which	Alternative Technical Approaches will solve the given problem?	Moderate to Strong	Negligible	Yes	The Solicitation requests a detailed technical approach to a specific need
Who	Will accomplish the proposal preparation effort?	Strong	Some	Yes	Limits the quality of the Processes and the ultimate Product
Who	Will be assigned to the project if we submit a successful bid?	Strong	Some	Yes	An organizational Chart is a critical partial Product of the project
What	Will the organization of the proposal document be?	Some	Strong	Yes	Provides closure for both notions
What	Besides people, will we use as resources?	Strong	Strong	Yes	Resources include people, money machines, computers, power, material, working space, management and production tools
How	Are we truly organized?	Strong	Strong	Yes	Multiple roles possible. Sections and Tasks are assigned to individuals
When	Will we accomplish the major events of the project?	Strong	Strong	Yes	Adds to Process planning and defines the anticipated creation dates of the draft and final document in the Product notion.

Table 1. Sample Questions Demonstrating the Process and Product Dynamic

However, each question poses constraint on the others, implying if we answer one of them, more times than not, we constrain some others. For example, if we answer the question: Who will work on the proposal preparation project?, we have constrained the resources to be spent, and, when and what can be accomplished within reason. Some of these questions are outside the scope and interest of the research. For example, the question of Why [is this being done?], or, what is the motivation and strategic advantage for the semi-autonomous work group (or the corporation) to make a commitment to this job, is outside the scope of the research.

2.5 Process/Product Explanation Types

The research was conducted at three proposal preparation evaluation sites. Using participative observation, examinations were conducted noting occurrences of conflict during work, writing processes and production phases at each evaluation site. Incidents of observed conflict were later surveyed to learn if one or more individuals of the group perceived these occurrences or other occurrences as negative events and to comment on the nature of these conflict occurrences. In this framework, the data was analyzed to identify collaborative instances or supporting occurrences as a means to agree on conflict situations in preparation toward understanding conflict in technical proposal development projects. The resulting conflict occurrences that emerge from the data were analyzed to learn if they can be interpreted by one, more or none of the following general Types of Explanations:

Type I: A counterproductive preoccupation with Process when a Product focus would have been more appropriate in terms of the advancement of the project.

Type II: A counterproductive preoccupation with Product when a Process focus would have been more appropriate in terms of the advancement of the project.

Type III: Any other explanation associated with both of the Process and Product notions, such as those associated with the dynamic between the two notions.

Type IV: Type 4 is reserved to address situations of conflicts which could not be explained by either of the first three types.

To capture a more robust series of definitions for conflict explanation, I provide the following specific distinctions to the first two types, namely:

Type Ia: A counterproductive pre-occupation with process when a product focus would have been more appropriate.

Type Ib: A lack of focus on a product-oriented element of the project caused by any factor other than a pre-occupation with process.

Type IIa: A counterproductive pre-occupation with product when a process focus would have been more appropriate.

Type IIb: A lack of focus on a process-oriented element of the project caused by any factor other than a pre-occupation with product.

In establishing these extended definitions for Type I and Type II, the "any factor" term in the Type Ib and Type IIb definition captures notions of indecision, no action, or some pre-occupation outside of process or product-oriented elements. Such pre-occupation could include social, political, or environment issues which are not directly associated with how the project is accomplished (process-oriented elements) or what the project results should be (product-oriented elements).

CHAPTER 3. LITERATURE REVIEW

3.1 Introduction

The Process/Product model is presented to provide explanations for conflict associated within technical collaborative writing. As such, it provides an alternative for expanding the knowledge base of technical writing work groups when a definitive deadline influences decision making leading to productivity and effectiveness. It is meant to co-exist and mutually support other perspectives involved in the study of small groups, conflict in technical writing, productivity, decision making and, to a degree, organizational communication. Alternative, competing, or supplementary paradigms such as the one proposed, offer an opportunity to detach ourselves from assumptions usually taken for granted. Alternative approaches also provide new insights and the possibility of advancing existing supplementary view points. Researchers involved in various scholastic fields of study can profit from the exposure to new and existing theories and viewpoints from a supplementary perspective. A literature search was conducted to capture and analyze relevant critical research issues, exploit the experience of others, and provide evidence and solutions related to the problems proposed by the research.

The intent of the literature search, beyond assembling the background and theory related to collaborative technical writing in industry's proposal settings, was to advance the knowledge, explanation and management of conflict normally observed in these settings.

The literature search focused on multiple topics including small autonomous work groups, especially in a workplace environment, conflict, collaborative writing, decision making to the extent that was relevant to the research, and some parallel areas which lie within the framework of the study such as proposal literature, and group communications disciplines. Also at the heart of the literature search was the subject of participative observation research and qualitative evaluation with a focus on how to effectively participate and observe simultaneously while being aware of the critical influences of the setting and the proper evaluation given this dual role. The literature search was two fold:

- (1) Determine if any other author had introduced a similar or equivalent process/product perspective as proposed. The results were that this perspective does not exist in current literature, and,
- (2) Understand current concepts, frameworks and findings of the subject matter related to this research with a particular interest for specific topic dealing with the setting, namely, proposal development or similar collaborative technical writing in a workplace involvement. I determined that much has been written on the subject matters of interest from generic and theoretical aspects. Very little was written about collaborative technical writing in a business proposal setting except for a series of how-to-do 'cookbook' approaches. This void was documented in 1993 Technical Communications Quarterly where a call for additional technical business writing research was identified as lacking especially in the business industry setting, explicitly naming technical reports and proposals. Several general findings of the reading included:
 - (A) No author specially provided a process/product framework with destructive conflict explanation types from a perspective similar to my approach.

- (B) There was a preponderance of focus on process-oriented research, theory and analysis as opposed to a product oriented perspective.
- (C) There was some disagreement on the details and nature associated with certain subject matters such as conflict, decision making and the essences and productivity of collaborative technical writing yet these controversies had little impact on my research assumptions, methods or results..

The literature's preoccupation with the study of processes to increase the knowledge of collaborative writing was most interesting and relevant to my research. Numerous authors provided concepts and evidence by specifying process activities and listing process variables critical to their research. Very little focus was given product variables and only a few authors acknowledged a major distinction. Despite this absence, literature findings provides a baseline and foundation for what I have attempted to supplement here. My work does not contradict most of the reliable and valid research of the past. It does however provide a new perspective to re-examine some of the previous research.

3.2 On Group Work

Herbst addressed organizational concepts beyond hierarchies related to the study of autonomous group functioning (Herbst, 1962, 1976). By arguing that traditional hierarchies were restrictive and ineffective, reorganization concepts signified a promise that "efficiency" was tied to organizational structure, and, that organizing into groups who "control their own functioning" would lead to increased satisfaction and performance as well as decreased stress (Herbst, 1962, pp. 141-171). From a P/P perspective, associating 'efficiency' with the notion of groups who 'control their own functioning' is not questioned, however, this association may be incomplete, since within the given

framework, process efficiency and product efficiency are dynamically and simultaneously required for total project efficiency. Within a framework of control and application, the P/P model research examined how the work group performs this coordination of technical collaborative writing among the group and through an expanded language and new perspective.

Cummings and Srivastva (1977) worked on a theoretical foundation for understanding work groups in the Sociotechnical system, which contained characteristics associated with the Social system including *Process Influence*, common goal development, and group integration. Their characteristics of the Technical system included the *Material (output) being Produced*, work setting, automation and others. The dichotomy of their framework into the Social and Technical categories is natural in the presentation of a Sociotechnical system argument, yet, it is interesting to note that their Process Influence notion is associated more with Social characteristics and the Material Product notion is associated more with the Technical. Likewise, Gerald Susman of Penn State University, who worked with Eric Trist of the University of Pennsylvania, on the Rushton experiment contributed strongly to theories of work performance related to autonomous work groups in the analysis of sociotechnical systems (Susman, 1976). Susman concluded that the most self-managed team investigations focused primarily on the Social system. Pava (1983) attributes Trist's seminal work to the simultaneous consideration of both the social and technical aspect of effective work design. Sociotechnical approaches explicitly address both social and technical aspects of work organization since both are deemed vital to work performance. Parameters with a potential tendency toward a socio versus

technical system perspective contribute to the dynamic of effective work design. Similarly, the P/P model focuses on two parametric influences impacting group work.

Cherns (1976) defined nine critical principles for Sociotechnical design. His sixth principle on information flow addresses the issue of variance control. Cherns has this to say:

"provide information in the first place to the point where action on the basis of it will be needed. . . . Properly directed, sophisticated information systems can, however, supply a work group with exactly the right type and amount of feedback to enable them to learn to **control the variances** which occur within the scope of their spheres of responsibility and competence and to anticipate events which are likely to have a bearing on their performance." [Cherns, 1976; bold added to the original].

Effective variance control would enhance the coordination and effective collaboration of the technical proposal writing effort. The P/P model attempts to create a new perspective and language, thereby adding an additional dimension to Cherns' observation by explaining the cause of the negative outcome and determining if it is motivated by a lack of proper focus on a Process or Product perspective. In this regard the dynamic and transitions between process and product preoccupation contribute to the control of the variances which has the potential to positively impact group work. The research however, focused on explanations rather than the symptoms of inefficiencies found in the Work Group participation in the conduct of developing a technical proposal. From the P/P perspective, the control of proposal development variance is analyzed in terms of process choice and product choice in an effort to explain conflict and provide control in a more timely and accurate method.

Weisbord (1987) who was influenced by Lewin and his progressive change management methods explained a concept which is extremely related to the process/product perspective, namely, Task-Process Snapshooting. Weisbord explains:

"The task-process relationship describes a subtle chicken-egg interplay between ends and means, methods and goals, motivation and output. A task is concrete observable, and thing-oriented. You can convert it into criteria, measurement, targets, and deadlines ... Process describes the "how". It reflects perceptions, attitudes, feelings, reason ... Not when, where, and how many. Rather why, how, and whether. Process thinking stimulates questions about who needs to be involved and how much influence they will have." (p. 221).

Weisbord equates tasks-process thinking with paradoxes. He contrasts cause-effect thinking and Taylorism as a relentless propensity to see a task in isolation, extremely prevalent in Western societies, and defining a goal as the achievement of a task. He admonishes previous western industrial managers with a left-brain, rational, linear approach to the workplace. He appropriately attributes Lewin's contribution of a more practice-oriented theory with a focus on processes, specifically "process issues will always block work on tasks" ,and, "you will find tasks and processes every place you look. But neither is by itself an adequate description of reality. They exist only in relationship to each other" (p. 223).

Despite this insight, Weisbord directly and primarily attributes effective teams and team building to interdependence, leadership, joint decision making and influence equality, elements frequently found in the literature (p. 299). He does however stress the importance of the task/process concept in terms of an observation consciousness, which is an element that indirectly increases the effectiveness of the team (p. 301). Rosen

(1989) is another author who examined teamwork implying that groups have a positive impact. His key elements associated with group effectiveness focused on social and organizational issues including group processes, leadership, interaction and motivation.

From the results of these authors research and others which follow, it is apparent that effective group work is dependent upon a series of parameters, some of which, such as leadership and motivation, are outside of the process and product notions. Consequentially, weakness associated with these parameters have the potential to cause conflict outside an explanation strictly associated with process, product, or the dynamic between these two. Accordingly, I reserved the Type IV explanation in the model design.

3.3 Semi-Autonomous Work Groups

Many authors, including Cummings with Srivastva, and independently with Molloy, studied various work groups in a sociotechnical perspective and described key parameters associated with the group's technical productivity and social concerns including limited task variety, poor integration, lack of communitive feedback, poor quality control, and the need to become more self-regulating (Cummings, 1977). Clegg, et al. discussed similar work group traits related to inefficiencies including poor project policy, information overload, incomplete use of information, misguided responsibility, isolation, poor workflow coordination, and ineffective crisis management. Among these are characteristics that are associated with the Type III explanation. These characteristics are a partial list of conflict-potential issues, many having unequal significance and equivocal

meaning. Some are not easily explained by the new P/P perspective despite they may be associated with P/P model depending on additional details of the setting.

Other researchers have studied the positive and negative characteristics associated with group work. Larson and LaFasto (1989) studied the characteristics contributing a successful team. After a three year study, they named eight elements which I have annotated with the most likely P/P model association, namely;

1. Clear goal (Process or Product, depending upon its application)
2. Results-driven structure (Process)
3. Competent team members (Process/Product Dynamic)
4. Unified commitment (Outside Process/Product Explanation, Type IV)
5. Collaborative climate (Process)
6. Standards for excellence (Process or Product)
7. External support and recognition (Process)
8. Principled leadership (Process or Type IV)

It is significant and encouraging that the majority of the success elements of Larson and LaFasto can be associated with the proposed notions of the P/P model. If this were not the case, the proposed perspective would be suspect. It is also noteworthy that a majority of the elements can be associated with a process-oriented focus. The intent of the literature research is, in part, to compare and associate other researchers' generic elements of productivity and conflict with the notions of the P/P model. The information gained by comparing and contrasting previous researcher's factors toward success and conflict

with the P/P model notions is not intended to validate the model. Some association is strategically necessary, but not sufficient, toward arguing a theoretical model applicability. The associations are made to gain insight of previous researcher's findings and determine how they compare and contrast with the proposed model with a goal of identifying similarities, differences, inconsistencies and potential omissions of the proposed perspective.

The annotated classifications into Process/Product types are highly situational and dependent on the specifics of the application and activities. They are added here only to establish potential associations with team success and elements.

Perry argues that self managed work groups must create an accurate framework not to stifle creativity; a framework that provides an environment for innovative problem solving. He claims a dynamic process is needed to coordinate the performance of individual contributors as well as the work group. The framework must avoid cumbersome policies and procedures within a minimum structure (Perry, 1993). The proposed P/P model has the potential to create a framework with minimum structure since it is offered as a tool of improved proposal coordination and management.

3.4 On Technical Writing

According to Alred, Reep and LiMaye (1981) very few works have been devoted to the study, explanation and methods of preparing technical writing until recently. These authors attribute Allbutt's "*Notes on Composition of Scientific Papers*", a 1904 work

meant as a guide to medical students in preparing thesis as the first acknowledged text, other than previous technical writing texts tied to the education of engineers and scientists. Richard's 1908 text "*A Guide to Technical Writing*" and Baker's 1924 book "*The Elements of Specification Writing: A Textbook for Students in Civil Engineering*" were among the early few addressing technical writing. Serious texts on professional technical writing by Lytel, Godfrey and Parr, Boyd, Peterson and Bishop were published between 1959 and 1961 and less than a few dozen popular works were published between 1963 and 1972 (p. 2-7). This apparent void could have contributed toward the release of a significant number of texts on organizational communications, technical writing, engineering writing and business-oriented text that started in the mid 70s. Texts of this type were devoted to analyzing, explaining, describing, and reporting the combined art/science of preparing technical text for researchers, students, teacher, businessmen, scientists and engineers. Until recently, very few works addressed proposals and furthermore the majority of proposal texts that have been written have primarily been of the cookbook, how-to-do, variety. For example Clark, in 1962 wrote "How to Prepare Effective Engineering Proposals: A Workbook for the Proposal Writer". Ammon-Weyler and Carmel prepared a 1976 looseleaf binder text, "How to Create a Winning Proposal", for consultants. That same year, Larson wrote "How to Write a Winning Proposal", a 63 page text directed directly to government and private proposal prepared for an inexperienced writer. Hall, in 1977 wrote a 339 page, "Developing Skills in Proposal Writing". Also in 1977 Krathwohl wrote, "How to Prepare a Research Proposal", one of several texts on grants and research proposal. Several other text such as by Mandel, Orlick and others were also written during this time, virtually all addressing methods of

writing winning proposals from a procedural, how-to-do, point of view. Cross (1987) is slightly unique since he blended the basic elements of persuasion and credibility with business writing. However, the majority of the text is tutorial and addresses letters, memos and reports with no significant sections devoted to formal proposals.

Tebeaux (1990) provides a more comprehensive approach to the study of business writing by addressing business communications with an emphasis on process over product. She argues that the optimum design of writing is more times a situational five step application process of an Analyzing-Planning-Writing followed by Evaluation-Revising. Her book included a small discussion on proposals. She discusses processes and products but without a framework of the dynamic between the two. Joseph Cecin provided a review of Tebeaux's book in the Technical Communication Quarterly. He cited several limitations in her text, and validated that proposals were a topic which is infrequently covered in such texts. He agreed that the book was a solid contribution for implementing a process-oriented design approach to situational-based cases.

Burnett and Duin (1993) strongly agree that collaboration in technical communication, although not a recent research topic, is drawing new interest and that several multi-disciplined quantitative and qualitative studies are breaking new grounds (p. 5). They identify four broad categories for research, namely:

1. Theoretical foundations and arguments (including the role and value of conflict in collaborations).
2. Socio-cultural focus (including gender issues and ethics)

3. Inter-and intro-group structure and process (including collaborative processing in workplace settings).
4. Technological and ergonomic factors (including face-to-face versus networked interaction).

From this perspective, the P/P model research combines classical and newly suggested research lines. The authors provide a strong argument to balance both quantitative and qualitative methodologies in the study of collaborative technical communication. Although they say that both methods can provide rich finding, they agree that qualitative research has been undervalued. They site Spilka who agrees with Patton, Whyte, et al. that research in a natural setting, toward discovering and explaining key interaction patterns, is well suited by qualitative research. They agree that qualitative research is more appropriate for selected research questions especially those requiring contextual observations. Their research continuum included interesting ground floor questions in this regard including, (1) Does collaboration work?, (2) How does it exist in the workplace? (as opposed to the classroom), and, (3) What is its nature and does it make a difference?

Blakelee (1993) claimed that writers fail to account for the varied ways in which readers can respond to the text. She states that collaboration can be beyond the group of writers and appropriately can include the readers when they are in the role of reviewers (either by design or persuasive inclusion). She demonstrated how three physicists invited other scientists to read preliminary drafts to promote a new dimension in collaboration. These scientists were the ultimate audience for the technical paper but since they were introduced into the process prematurely, a richer collaboration between reader and writer existed, causing new discoveries and insights and improving the ultimate product. This

is particularly applicable to the review process in proposal development cycle despite that the ultimate reader is not involved in the preliminary reviews. After proposal submittal, in a Federal process called the Best and Final offer or Responses to Technical Questions, this phenomena becomes applicable. She concludes with discussion whether readers and authors are: collaborators or conspirators?, and states:

"As commonly construed, collaborations often consist of authors who interact with each other intensely while composing. Through a series of such interactions, authors produce a text that appears to have a unitary voice but that may very well be the product of multiple, mediated perspectives. The ability to generate such a univocal product lends interest and significance to questions about how collaborative groups are constituted and how collaborative interactions function in knowledge generation ... The conflicts and tensions that arise naturally during the course of these activities need not be debilitating; instead, as depicted here, they can be the source of negotiations and resolutions that improve the quality of ideas and even advance knowledge in the field. Furthermore, these conflicts and tensions may arise at any time over the course of the long history entailed in scientific publication" (p. 23).

Janis Forman (1993) attributes quality of the written report to, (1) whether or not the individuals elect to form a team on a basis of having worked together previously, and, (2) on a group assessment that the group has been identified as a team from within. Her work here was quantitative research and a theory building study toward an agenda for future research. She suggested that important parameters contributing to report quality include group style, division of labor, and group history which is enhanced in general when groups have previously worked together. Her research may suggest that any positive attribute of a team, such as the appreciation and application of balancing process design and execution with product management and production, could improve over time. Forman (1992) also researched political and ethical issues in collaborative as well as

technical issues. Forman suggests continued research in collaboration with a goal of defining its boundaries and limitations.

Forman (1992) editor of *"New Visions of Collaborative Writing"*, with contributions from Kitty Locker, Charlotte Thralls, et al., admits that collaboration is nearly a mystical activity. This unique and complex body of study is viewed by Locker as simply several individuals writing or working together to produce a single common document to more elaborate definitions. Thralls would include reading with writing in collaboration and John Schelb would emphasize the social, ethical and political aspects warning that there is a negative potential for corporations to manipulate and oppress truth in pure collaboration (see Forman, 1992). The text illustrates the intellectual complexity of collaborative writing involving numerous variables, especially some extremely relevant to proposal development, including selection of participants, time pressure, task complexity and the groups identity, history, and size. Rogers and Horton in *"New Visions"* questioned whether a new and detailed attention to rhetoric, language, ethics and the appraisal of the group's work would not improve collaborative writing in the workplace.

Beard with others (1989) point out an inherent difficulty in collaborative writing in assessing individual achievement since such an appraisal assignment provides merely assessment of the final product only, which is a group effort, as opposed to a collection of individual contributions. Although these authors address the classroom environment, the theme is universal and applicable to the proposal setting. Both the lack of recognition

and the ability to be recognized as a significant successful member of the group is a political force applicable to the proposal process.

Bosley (1991) argues that the most important qualities of an effective team in an industry setting are their own ability to monitor and evaluate their processes in terms of how well tasks are completed, and, how well they cooperate. Missing in this emphasis is Beard warning of individual recognition or reward and the fact that the team's processes shadow the evaluation of the team's partial products. In the industry proposal setting, the evaluation of the final product evaluation by the government is paramount.

Similarly Forman and Katsky (1986) suggested that problems in collaborative writing are directly associated to the inattention to both the writing and small group processes. Despite its academic setting, the focus on product was only implicit rather than explicitly surfaced and evaluated.

Debs (1991) also studied collaborative writing with an emphasis on attention to the writing process and group process. She discusses the notion of ownership of a collaborative document as well as the analysis of the writing experiences and models of writing practices. Despite this contribution, attention to writing products and group products is purposely not considered in her research.

Battalio (1993) researched the concept of the shared-document in collaboration. He first demonstrates the prevalence of collaborative technical writing by citing others, such as:

- (1) Results of a survey by Lunsford and Ede of 530 respondents from business, industry and government indicating that 87% of the employees sometimes wrote as part of a team, (circa 1986).
- (2) Fargley and Miller found nearly three-fourths of 200 employees across a cross-section of firms engaged in collaborative writing, (circa 1982).
- (3) Casari and Povlacs found almost 60% of respondents were involved in co-authored projects over agricultural and engineering firms, (circa 1988).
- (4) Killingsworth and Jones found collaborative team involvement was the norm at many companies, especially in the planning stages of work, (circa 1989) (from Battalio, 1993, p. 148).

Battalio's four phrase classroom setting plan involves team/topic selection, proposal submission, discussions with the instructor and report completion. His research, which is applicable in preparing students for industrial settings, analyzes the group process, interaction and how each member independently evaluates the group experience.

3.5 On Process and Product Issues Effecting Productivity

Lay and Karis (1991) investigated the industry setting with an emphasis on the theoretical examination of the collaborative process. These case studies and collection of industry concepts were a mix of process and product issues, without integrating, contrasting or compromising between each concern, the primary focus of the P/P model. Myers (1990) provides a product emphasis demonstrating that review, feedback and controversies from readers of preliminary and final drafts not only has the elements of collaboration but also provides an environment to create knowledge and an improved product.

Schrage (1990) focusing on a corporate setting associated productivity with co-worker relationship with each other and with technology. He emphasized the importance of the

shared idea, and the potential of technology on processes and products without directly associating any pair together. His major contribution provides a means to view new technologies as something that exceeds mere communication. He argues that new technologies when designed for maximum efficiency of productive group work, can facilitate a shared understanding between collaborators.

Recent research has been written in the areas of computer supported cooperative work accessing the impact of computers, groupware and local/wide area networks of small semi-autonomous work groups. Research has also been conducted on computer supported writing, for example see Selfe (1989), who provided a blueprint for action in creating an automated writing facility. She agrees that an emphasis on philosophies and practices is more important than a focus on the computer. My research purposely avoided the complication of computer supported collaborative writing applied in group work. However, I maintain that my orienting research could be relevant in an automated environment and would be especially applicable for research in this computer supported area.

Goodman (1986) analyzed the design of effective work group. With others, he identified variables affecting group performance such as, a clear engaging direction, enabling a performance situation, adequate resources, leadership, technology and commitment (pp. 89-93). Goodman's parameters are relevant to technical proposal development despite some are not directly associated with process or product oriented factors. He discussed Cumming's work on boundary control which refers to the physical space, interdependence

with outsiders, autonomy, and social boundaries. He also makes statements on the process-oriented significance of his framework on group performance.

"Socio-technical theory does not emphasize the demands of a task on group process as determinants of performance (as does Steiner's model, for example). Rather, it stresses that groups determine the processes engaged in to complete task" (p. 47).

In Goodman's compilation, Hackman and Walton define group effectiveness with three major statements dealing with process-oriented and social factors, namely:

- (1) The degree to which the group's productive output (that is, product or service) meets the standards of quantity, quality, and timeliness of the people who receive, review and/or use the output.
- (2) The degree to which the process of carrying out the work enhances the capability of members to work together interdependently in the future, and,
- (3) The degree to which the group experience contributes to the growth and personal well-being of team members." (Goodman, 1986, pp. 78-79)

McGrath listed ten critical needs for research, theory and practice of group work performance in organizations. Among these were broadband multivariate, multimethod and multioccasional strategies, a broader conception of the range of content to be included in the study, and, seriousness toward the temporal patterns in group (Goodman, 1986, p. 63). I agree that research should broaden its scope to include wider strategies of investigation such as a combined process-oriented and product-oriented focus with an emphasis on the dynamic between these two.

3.6 On Conflict

Perrow (1972), in his writing on the Neo-Weberian model of decision making, conflict and technology addresses an "obvious and persuasive aspect of organizations - conflict

among groups" (p. 131). He comments on the positions of other who discussed conflict by stating:

"To Barnard, who seldom referred to it, conflict was possibly a melancholy failure of leadership. To Weber, who describes it impatiently and in some detail as it is found in government and political bureaucracies, it sometimes appears to be only a result of human shortcomings such as cowardice, stupidity, and greed. To the classical management theorists it is a failure of adequate control, planning, and execution. For the human relations theorists it is variously a failure of leadership, lack of participative management, or something that is temporarily constructive, because it shows up areas where more work needs to be done. Elimination of conflict is always the goal, even if it is seen as constructive in the short run. For March and Simon, as with the human relations theorists, it is primarily an interpersonal problem, even though the two deal briefly with intergroup conflict. For all, from Weber to Likert, intergroup conflict is a fact of organizational life but not a fact that is built into their models, except as evidence of a failure to utilize the model." (Perrow, p. 132).

Perrow's position includes that conflict is an interpersonal phenomenon related to competition, incompatibility, or the lack of empathy between individuals in a group. He feels it is inevitable in an organizational setting that models and theories of organization should include and accommodate group conflict. Perrow does not associate processes or products notions with conflict. He sees this never-ending struggle associated with participants values as the inevitable cause of conflict. These values include security, power, survival, discretion, autonomy and rewards.

Hackman and Oldham (1980) also presented a model and criteria of work group effectiveness in terms of desirable and undesirable outcomes applicable to the proposed research. Their framework establishes recognition rules for general conflict situations, namely:

- (1) Frustration as opposed to satisfaction with respect to group relations,
- (2) Destroying the social process for the immediate and subsequent group tasks,
- (3) A perceived or real productive group output that does not meet quantity or quality norms,
- (4) Defining work group failure in terms of inappropriate levels of effort, and lack of knowledge and skill applied to the work task, and,
- (5) Incorrect task performance strategies (Hackman and Oldham, 1980 pp. 168-169).

Their first two situations are closely related to a social aspect which could fall outside of a process or product oriented nature and subsequently would be assigned a Type IV explanation. I consider their last three points as the most significant to my research since they can be more strongly applied to either the process and product activities. Wilemon specified several reasons why conflict such as these would exist in this setting. These reasons, annotated with their potential association to the P/P model, are:

- (1) Diversity in disciplinary expertise among the group, (Process or Outside the P/P notions, [Type IV])
- (2) Lack of authority, (Process)
- (3) Members misunderstanding project objectives, (Process)
- (4) Ambiguity among members, (Process or Product, depending on particulars of the setting)
- (5) Members disagreeing on project goals, (Process or Product)
- (6) Potential to usurp traditional or political roles, (Process)
- (7) Low interdependence and support of organizational units, (Process) and,
- (8) Resentment towards high management level member (Type IV) (Wilemon, 1973).

Types of conflict, such as these and other, as determined by observations, the participants comments and responses, were included in the research as they occurred. Loring identified seven major potential sources of conflict in proposal development, which are corresponding annotated with P/P notions. They involved conflict over:

- (1) Project priorities, (Process or Product)
- (2) Administrative procedures, (Process)
- (3) Technical opinion versus performance tradeoffs, (Product or Type III Dynamic)
- (4) Manpower resources, (Process or Type III Dynamic)
- (5) Cost, (Type IV or Type III Dynamic)
- (6) Schedule (of events), (Process) and,
- (7) Ego-centered personality (Type IV) (Loring, 1982, pp. 61-62.)

Despite my annotation and depending on the details associated with the conflict, these conflict sources could be primarily related to either, both or none of the process and product notions with respect to the model. In the broadest sense, both P/P notions could be applied to each of the above from both perspectives of process and product, depending whether the conflict source was associated with *how* the proposal project was being conducted, or, associated with *what* the proposal development product was supposed to be. However, the more interesting aspect occurs when the conflict source is associated with the dynamic between the two P/P notions, the Type III version of explanation. For example, if the conflict situation listed third occurred, causing an inordinate delay in the progress of the project, a dynamic (Type III explanation) may be applicable. Different

technical opinion versus trade-off performance could negatively impact both how to proceed with the project and what to proceed with simultaneously.

Fisher states that, "Not all experts agree in the nature of social conflict" (Fisher, 1974, p.103.) Fisher first provides separate classification of Intrapersonal, Interpersonal and Intergroup interactions and conflict (Fisher, 1974, p. 104.) The research data collected focused on any proposal project outcome associated with conflict, and Interpersonal conflict was the most frequent observed while intergroup was least frequent. Fisher states that, ". . . interpersonal conflict is defined solely in terms of interact patterns. Interpersonal conflict is directly observable through sequences of communicative behaviors performed by members of the group" (Fisher, 1974, p. 104.) Fisher also draws a distinction between Affected and Substantive conflict. While Affected conflict normally involves an individual in a deviation role objecting to procedural issues with an emotional overtone, the Substantive conflict behavior is more intellectual, opposing the content of ideas and the deviation is more opinion oriented (Fisher, 1974, p.105.) Coser made a distinction between Non realistic and Realistic conflict, behavior in which the first is an end in itself and thereby not associated with a goal, while the latter is a means to an end (Coser, 1956, pp. 48-55.) Fisher also explains an important dichotomy between Constructive and Destructive conflict. As previously cited by Loring, Constructive conflict is often beneficial to the eventual outcome of the project. Refer to Table 2 for the various types of conflict relevant and potentially applicable to the research.

Fisher also states that group productivity is measured in terms of the quality of its decision making and not by its efficient use of time. However, this concept is at risk in proposal preparation where time is a valuable commodity and the primary constraint. Fisher admits that groups who experience Substantive conflict will utilize more time. Conflict is an integral part of group decision making. Fisher describes it as the second and relatively unstable phase in decision making after orientation and before other phases including emergence and reinforcement. During my research it was also important to consider that group interaction patterns had the potential to change through time as the group moves from one phase of decision making to another and through the various phases of the proposal project. Conflict occurring early in the proposal writing activity can be caused and explained by factors irrelevant or inappropriate at the end of the project. Issues such as team bonding, team building, decision making phases, changing requirements, altering demands and various proposal preparation developmental steps were relevant parameters observed in the research. Accordingly, the timing, background and specific conflict circumstances, influenced by the phase of the proposal cycle, was recorded and analyzed as part of the evaluation.

As reflected in the literature authored by Fisher, et al., as conflict over issues increase, the group members tend to concentrate greater efforts on those specific issues to bring about a solution. The conflict over ideas tends to cause the group to search for additional alternatives and thereby increase the quality of their group decision making. Positive conflict acts as a stimulus to innovation, breakthrough, and creative thinking to articulate and test various alternativeq. Interactions during group decision making involve various

Potential Applicable Classifications of Project Conflict		
Intrapersonal	Interpersonal	Intergroup
1) Psychological 2) Internal Conflict 3) A Single Individual <i>Normally not observed by communitive statements and not applicable to intended research unless it surfaces and causes Project Conflict</i>	1) Individual(s) in a Group 2) Interact Patterns 3) Observed through Communicative Behavior <i>Normally applicable to Project Conflict</i>	1) Individuals act as Group 2) Members not individuals 3) Group vs. Group <i>Normally not applicable unless Project Conflict caused</i>
Affected		Substantive
1) Emotional 2) Procedural 3) How-to-do-it problems 4) Role Deviation 5) Individual vs. Group 6) Outsider often ignored <i>Can be applicable to research when it surfaces and causes Project Conflict</i>		1) Intellectual opposition 2) Content of ideas 3) Issues pertinent to the task 4) Opinion Deviation 5) Increased Interaction 6) Tendency to conform 7) Tolerated and sometimes admired <i>Observed through Communicative Behavior and normally applicable to Project Conflict</i>
Non-realistic		Realistic
1) End in itself 2) Not associate with a goal <i>Possibly applicable</i>		1) Means to an end 2) Often furthers Group Process <i>Possibly applicable if counter-productive</i>
Constructive		Destructive
1) Some conflict beneficial 2) Adaptive and innovative <i>Normally not applicable</i>		1) Negative impact on project outcomes 2) Dangerous if not checked <i>Possibly most applicable</i>

Table 2. Types of Conflict

situations of persuasion, compromise, negotiation, argumentation, flexibility, and firmness of opinion. Fisher supplements the Blake and Mouton observations with respect to handling and resolving conflict. Modes of conflict resolution include devices such as compromise, bargaining, appeasement, negotiation and meditation as well as encapsulation, in which, conflict continues but is tolerated and accepted (Fisher, 1974, pp. 108-109), although encapsulation can fester and cause other manifestations of conflict. One result possibility of conflict resolution is no resolution at all, despite a false but apparent solution to the conflict. Members need not only to agree on conflict resolution, they need to commit to the final decision to avoid ultimate negative outcomes. Due to its unpleasant stimuli, some members will take flight, avoid commitment and run away from conflict. These considerations were equally evaluated in the research.

Burnett (1993) proposes that substantive conflict is critical because it provides the opportunity to disagree with detail and consider alternatives. Using an interdisciplinary framework for conflict and the classroom settings, she relates quality of a collaborative document to successes in decision making. Burnett suggested a further inquiry into collaborative technical writing in the workplace.

Folger, Poole, and Stutman (1993) also addressed tactics for conflict management based on the initial work of Sharp, Roloff, Wilmot and Wilmot, and Maxwell and Schmidh. Folger described an effective conflict management strategy by viewing all the various authors' methods of conflict avoidance tactics into dimensions and grouping. Folger views these set of tactics as vehicles of the power process constituting power-in-action.

The work of Folger and other provided a basis for conflict recognition in my research. The tactics addressed by Folger included Avoidance, Accommodation, Subordination, Assertive tactics, Aggressive tactics, Manipulation, Authority tactics, Exchange tactics (promises, call in debt), Coalition tactics, Ingratiation, Issue definition (negative inquiry, fogging), Conflict process reflection, Indirect communication tactics, Normative tactics (moral appeal), Integrative tactics, Joking (alternate issues), and Forum change.

Various subtopics were also presented by Folger such as hostile jokes, verbal aggression and offering quid pro quo which invokes suspicion that a conflict situation is occurring due to compromise. Also, underlining a majority of the literature addressing conflict is the concept and predominance of threats and promises. These two are opposites by their definition since the concept of **threat** is an expressed intentionality to behave detrimentally toward the interest of another if compliance is not granted, and, **promise** is the intention to be beneficial upon the requestor's terms. This duality is attributed to Kelly, Duetsch, and Bowers. Folger suggested that the effectiveness of threats or promises is based upon five factors, namely, specificity, creditability, immediacy, equity and the climate. Folger's insight with respect to conflict, threats and promises was used to identify situations associated with conflict.

It has been strongly suggested that conflict can be productive as well as destructive. Coser (1956) argues that conflict is productive, especially when it develops cohesiveness, an outlet for hostility, strengthens commitment, and influences change. Hall, et al. agree conflict can expand the range of judgement, engender creative ideas, reexamine opinions

and goals, increase calculated risk, and foster acceptance of group decisions. Putnam agrees but only when conflict is managed in a constructive manner (Putnam, 1986, p. 177).

Putnam explains how two approaches, the Deterministic and Interpretive, differ in viewing productive and destructive conflict. In the deterministic model, conflict is productive if it leads to effective group processing; therefore it examines rules, work habits, group procedures, and personalities. Also, in the deterministic model, conflict is destructive when it disrupts the group system. This results in a win-lose orientation, for example, goals to defeat members, or to preserve power. Therefore, in this deterministic model, productive conflict is cooperative, and, destructive conflict is competitive.

In contrast, the interactive approach views either conflict as a type of interaction. Productive conflict is associated with communicative behavior, flexibility, short cycles, and protection from attack-defend patterns. Destructive conflict exhibits long periods of uncontrolled cycles, inflexibility, one-upmanship, locking into position and issue avoidance. The process/product perspective embraces these distinctions in the identification of counterproductive conflict, especially those associated with rules, work habits, procedures, cycles and flexibility issues.

Putnam also made some valuable group performance and group decision making observations and statements relevant to the research. A majority was based on the research of others including Jones, Ruben, Brown, Folger, Poole, Blau and Deutch. For

example, factors impacting success or failure are associated with overall attitudes or climate, which has the potential to create an environment that fosters or hinders group decision making. Also, past practices tend to become a form of trained incapacity of the group. Putnam's references to other researchers provide generic observations on group productivity, ideas and norms. Specifically, according to Blau, competitive groups outperform cooperative groups in productivity. According to Deutsch, competitive groups generated good ideas but they reflect the individualistic role of the members. An additional observation was provided by Folger and Poole who maintain that work habits norms and rules are directly germane and critical to the decision processes and outcomes (see Putnam 1980, pp. 176-181).

With this background, Putnam classifies three types of conflict, namely substantive, affective and procedural. The basic characteristics of the three are:

1. Substantive: disagreement of opinions associated with ideas or content of the task especially during alternative selection. This can be managed with open communication to member's suggestion and has a high tendency for positive conflict.
2. Affective: controversies from personal clashes, self-oriented needs and emotions, and is normally negative conflict.
3. Procedural: disagreement on group modus operandi and question its procedures and routines. This type has the potential for both positive and negative conflict.

Procedural conflict is most related to the process/product perspective and it is the type of conflict which has received little empirical investigation. Procedures conflict involves moving to next agenda item, taking a note, changing topic and withdrawal. Putnam, Folger and Poole view procedural conflict as a constructive way to reduce uncertainty

about group decision (Putnam 1986, p. 185). Some members tend to thrive on more tightly structured work environments with clear goals, agenda adherence, specific action plans and explicit deadlines. Others require flexibility and implicit planning and execution of tasks.

Putnam (1986) also discusses the different phases of conflicts and how they evolve through different sequences of behavior. She compares Pondy's position, who views conflict as latent, perceived, felt, and manifested during aftermath stages, with Rummel's concept which associates conflict as latent, initiated, and a disrupted call for a balance-of-power. She provides Poole's definition justifying conflict as a period of unified and coherent activity that fulfills some function necessary for group tasking. She concludes by stating conflict is an inevitable part of small group decision making and that effective and ineffective conflict management depends upon the following two opposite management aspects:

1. Ineffective Management: Listening and evaluating defensively, changing tenaciously to positions, behaving inappropriately at particular conflict stages, failing to adapt, relying on trained incapacity, and letting power plays cause conflict spirals.
2. Effective Management: Considering both procedural and content matters, postponing confrontation yet discussing one issue at a time, knowing when to follow a topical agenda, prioritizing disagreement and considering some conflict while ignoring other topics.

She joins others by acknowledging that groups exhibit different conflict during different phases and patterns. She adds that conflict messages include statements of ambiguity and clarification as well as disagreement. With respect to conflict explanation, the major thrust of the P/P perspective is to reduce ambiguity and clarification. Despite the fact the

research on conflict and small group decision making is in its initial stages of development, the P/P perspective has the potential to provide a unique insight into the concepts and concerns of these other researchers.

Berlyne (1970) took the position that conflict "must accompany virtual every moment of normal waking life in the higher mammals" (p. 31). He cites, Dewey, Luria, Darrow, et al. that conflict is the principal source of emotion. He ties conflict to complexity and uncertainty stating they contribute directly to the degree of conflict encountered.

Kenneth Boulding (1962) defines conflict as "a situation of competition in which the parties are *aware* of the incompatibility of potential future positions and in which each party *wishes* to occupy a position that is incompatible with the wishes of the other" (p. 5, italics in original). He admits the philosophical position of awareness is obscure. Boulding is another researcher who admits that conflict can be bitter and destructive as well as fruitful and constructive.

George Simmel (1955) states conflict causes or modifies group interest, unification and organizations, is designed to resolve divergent dualism, and achieves unity despite the annihilation of one of the conflicting parties (p. 13). Simmel discusses how conflict changes individuals as well as the structure of the group in a fashion which is ultimately benign and strengthening, given the group remains in formation. To Simmel, conflict has the tendency to pull together, intensify and tighten the bonding of the group especially from outside forces.

Tjosvold (1993) summarizes the benefits of conflict describing how conflict contributes to problem awareness, improved solutions, productivity, organization change, personal development, knowledge and creativity, awareness, self-acceptance, psychological maturity, morale, and challenge and fun. He claims this penetrates the ultimate barriers to learning. He uses Morton Deutch's definition of conflict, namely a concept which "involves incompatible behaviors; one person interfering, disrupting, or in some other way making another's actions less effective" (p. 8). Tjosvold theory involves cooperative conflict. This thesis consists of setting cooperative goals, relying on trust, discussing win-win possibilities and moving forward together toward more cooperative goals. This repetitive cycle breaks away from the negative version of incompatibility, namely competitive conflict. In competitive conflict, the repetitive cycle involves competitive goals leading to suspicion and doubt causing avoidance or win-loose situations, and thereby setbacks or fragile victories toward more competitive goals. Tjosvold's position, like others, is that conflict is inevitable especially in corporations where conflict is built into all of the functional department's agendas, goals and missions as well as the company's desire to have a check and balance system (p. 18). Tjosvold also agrees that conflict is potentially constructive especially when adequately addressed. His major point is that conflict can be used to learn the management of conflict within groups and with the optional support of a third-party. He defines a repetitive reinforcing 4-step dynamic, namely, (1) statement and explanation, (2), questioning and understanding, (3), creating integration, and, (4), agreement toward a construct restatement. His guide for action in decision making using the cooperative conflict technique is to include challenging

opposing ideas or positions as contrasted with the classical techniques (elaborate, clarify, listen, restate) of conflict management (p. 89).

Tjosvold (1991) also introduced the conflict-positive organization concept to provide insight on methods for managers and employers to use conflict to forge a spirited and united company. He claims conflict is a powerful force to find a common ground, solve problems, and strengthen organizational morale and relationships. His conflict-positive model and framework capitalizes on Tjosvold's four reinforcing components, namely, people value their diversity, seek mutual benefit, strive for empowerment, and regularly take stock and reflect (p. 9). He quotes John Dewey:

"Conflict is the gadfly of thought. It stirs us to observation and memory. It instigates invention. It shocks us out of sheeplike passivity, and sets us at noting and contriving [C]onflict is a "sine qua non" of reflection and ingenuity." (p. 37)

With respect to decision making, Tjosvold describes another reinforcing, cyclic framework of three components which illustrate how positive conflict can be used in decisions. These components are Elaborating which leads to Searching, causing Integration.

Morton Deutsch in a 1965 paper, (see Smith, 1971) argued that conflict resolution stems from two basic self-conforming, self-perpetuating types, namely cooperative and competitive. The predominance of one over another is based upon communication, attitudes, perception, task orientation and outcomes. The significant factors include the importance of the conflict, strengths of the conflicting parties, outcome expectation, and cohesiveness of the conflicting parties as well as the attitudes, strengths and resources of

interested and relevant third parties. In the proposal development research conducted, there exists such a third party, usually the next group assigned to evaluate the current proposal product.

Deutsch who wrote on the positive attributes of conflict, described conflict avoidance as the denial, awareness suppression and shying away from issues of conflict (Deutsch 1987, p. 38). He also argues that it is occasionally useful to avoid conflict since conflict issues can change with the passage of time and new configuration of circumstances. Deutsch states in all other cases, avoidance is harmful, rationalization and premature conflict resolution are also harmful. Deutsch sees a cooperative process, good communications, the perception of similarities in beliefs and values, full acceptance of the other's legitimacy, problem-centered negotiations, trust, confidence, and information sharing, as ways to resolve, manage and avoid escalating harmful conflict. The potential of the P/P paradigm, its languaging, and perspective can provide a tool which facilitates several of Deutsch's conflict avoiding principles, especially clearer communication, relevant problem-centered discussions, and information sharing of critical process and product oriented issues.

Bomers and Peterson (1981) researched the notions of contingency-specific versus universal conflict management and presented them using the contributions of Filley, Ruble, et al. Filley (1981) addresses the association between problem definition and conflict resolution. He argues that well defined problems are excellent candidates for immediate resolution but ill-defined problems undergoing resolution attempts are harmful.

According to Filley, more attention needs to be directed toward new problem definition and reconstruction to avoid conflict in cases when the problem definition causes the difficulty.

Blake and Mouton have described five methods for handling conflict, namely, withdrawal, smoothing (deemphasizing), compromising, forcing, and confrontation (Blake, 1969.) Their third and last methods have the potential for producing new information which could lead to a beneficial end result, in which case the conflict would have value. In my research, cases of beneficial conflict were noted separately in the research findings. Ruble and Cosier (1981) developed a model of five conflict-handling modes, namely avoidance, competing, accommodating, compromising and collaborating. They stated the most accurate assessment of the situation is best reflected by each individual's perception of conflict.

Despite the conflict and technical difficulties associated with proposal development, a generic factor contributing to project success is a work group composition associated with team building. Carr suggests that team building takes place in an on going series of structured encounters through which members learn each others' needs and expectations, and how to function as a work group. They must gain information on the members and their relationships and use this information for group problem-solving (Carr, 1993). From a P/P model standpoint, the work group could develop and share project objectives defined in a new language of process and product notions, which could improve their ability to function as an effective unit, enhance their collective work, and focus on the

major process and product activities and objectives of the proposal, albeit these objectives vary in time as differing Process or Product preoccupations become more important through the course of the proposal development. Despite the fact that the model is only a tool to explain conflict, this understanding of conflict is a positive step toward avoiding conflict, if it can be avoided at all.

Fisher notes that social systems without conflict and deviance are doomed to failure due to their lack of flexibility and inability to cope with stress and uncertainty causing a lack of growth and progress. Functionalists such as Coser (1956) emphasize the positive and constructive nature of conflict. Other functionalists such as Simmel believe that conflict is inevitably a form of society, a way of achieving some kind of unity. Social conflict breeds not only interaction but increased involvement of group members and should be expected as a normal occurrence and sequence of group interaction leading to group cohesiveness. It is a catalytic function which often leads to a result that something must be done. A group is generally in trouble when it avoids conflict or its resolution, especially when time is a primary constraint as it is in proposal development.

3.7 Conflict in Decision Making

Collaborative technical proposal development involves numerous decisions associated with strategy, planning, deciding between alternative, technical and production issues. In this fast paced environment, constructive and destructive conflict is likely to occur. Festinger (1964) analyzed conflict in decision making from a process point of view. He states:

What concerns us primarily are the processes involved in reaching a decision What is the person doing during the time it takes to make a decision that enables him to make the decision and determine what the decision is? (p. 3)

His conclusion involved the position that a person faced with alternatives will likely make an objective and impartial evaluation based upon the merits of the alternative and when the required level of confidence is reached, the person will make the decision. Conflict occurs when this simplistic scenario involves complications. The temporal dimension or any problems associated with maintaining a fixed decision-making deadline were not addressed in Festinger's discussion of this topic.

Decision making is an integral part of group work activities and a frequent occurrence in proposal development. Research applicable to small group decision making is accordingly germane to this investigation. The literature was rich with decision making theory and discussion yet the majority of the researchers applied a process-oriented analysis devoid of the concept that a decision or a list of alternatives (to be decided upon) is a product or partial product of the processes associated with the decision making. This observation of the decision making literature implies an explanation of conflict can be viewed from the same process/product perspective which I subjected to technical proposal development.

Consider the following premise, position, and proposed conclusion:

1. **Premise:** The P/P perspective is a valid tool for explaining specific destructive conflict in small groups.
2. **Position:** The analysis of decision making involves the identification and explanation of the efficiencies, dynamics and negative barriers involved in this small group activity.

3. Proposed Conclusion: The P/P perspective can be effectively applied to decision making analysis to identify process-oriented and product-oriented dynamics.

This consideration implies that decision making theory would be best served by a balanced analysis of process and product oriented perspectives. It will be shown in the next section that disagreement (conflict) exists in decision making theory, especially in the areas of its components and phase-in. Recall that the P/P model proposed a general Type I explanation for a preoccupation with a process perspective. I suggest that this observation of the literature is applicable to the languaging and thrust of the model and provides a sample application outside of full scope of technical proposal development.

3.8 Decision Making

Since decision making is an integral part of proposal development and since it contributes richly to conflict situations, my literature search included decision making research to establish a more rigorous framework on the nature of the collaborative technical writing investigation. Numerous decisions are made by the participants during proposal development, individually and by the group. My research focused on group decision making, its potential for conflict, and examining the current process-oriented focus of decision making analysis.

Poole and Hirokawa explain the world of difference between making a decision alone and making a group decision. The authors emphasize the importance of the communication process in understanding performance outcomes but agree with Hackman, Morris, et al. that there is little agreement on the factors which enhance or impair a task-oriented group's

effectiveness. There is no consensus on how group effectiveness can be monitored, analyzed or altered either (p. 15). In the forward of their work, James H. Davis states a lack of theory regarding social interaction processes, a constrained enthusiasm for additional research that includes interaction processes, and, a significant interest in group-level outcome research associated with task-oriented groups. Interestingly he states:

"Nothing is more tiresome than pompous calls for paradigm shifts, more research, or better theory on some topic. Most of us are in danger at some time or another of encouraging advances by assertion rather than by example ... the future of small group scholarship may not be clearly defined, but there is clearly cause for optimism" (pp. 11-12).

Although he was referring to contributions of Putnam, Fisher, Gowan, Doelger, Poole, Hirokawa, et al., from the text edited by the latter two, much of which emphasizes the importance of communication processes in understanding groups, his point supports a new model for analysis. The product/process perspective could provide a balance between the interactions and the outcomes of decision making.

Bales and Strodtbeck (1951) proposed a sequence of three phases in decision making, namely orientation, evaluation and control. Fisher (1970) identified orientation, conflict, emergence and reinforcement. Poole with others disagreed on a straightforward unitary sequence or even multiple sequence. Poole with Doelger listed various propositions and listed the several variables which contribute toward understanding complex decision making. These included a focus on missing components, priority, procedural norms, task difficulty, goals, unclear cause/effect, coordination, involvement, integration, bargaining, consensus, ambiguity, and delays. They agree that researchers have neglected some

relevant factors including, the substantive content, life cycle stages, influence of members, and group outcomes (Poole and Doelger, pp. 43-49).

Poole (1981, 1982, 1983) in a series of journal articles, challenged the classical model of decision development suggesting multiple decision making sequences existed. He identified patterns and stages that differed from Fisher's four step resolution. He initially focused on the five decision making phases of orientation, conflict, conscience, development and integration and mathematically analyzed the trends of these activities.

In 1983, he addressed conflict management suggesting that conflict can be found in short-term patterns which occur during group discussions and long-term patterns which are characterized during the entire decision process. In a series of propositions on his multiple sequence model, he contrasts Fisher's four step resolution pattern model as well as others who provided decision process models with his own observations of task process activities, which occurred in interlocking tracks, and were often interrupted on irregular intervals.

This background provides justification for a focus on conflict outcome despite whether the structured models or Poole's more flexible model is occurring. Poole (1982) with other also defined Actual Group Productivity as the potential productivity minus the losses due to faulty processes. Note that his definition of productivity is heavily focused on processes without regard for product. Poole interestingly associates processes with productivity as if the processes yield the product (with no link or measure to productivity

with product). Perhaps the opposite is true, that is, the product yields the process and furthermore any productivity analysis, from either a process or product standpoint, would be incomplete if it ignores the combined effects of both.

Hirokawa and Poole (1983) also agreed that decision making is not a simple collection for discrete events. The boundaries are unclear and the episodes are ambiguous in many respects. Furthermore, groups do more than simply make decisions and conduct other group work.

The preponderance of research in decision making, and communications from a process standpoint can be linked to Bales' (1950) contribution and model of the Interaction Process Analysis system. Other researchers such as Gouran, Fisher, Maybry have advanced a communication model. Group communication scholars have focused on specific functions which fix the frame of investigation. These functions include social information processing, analytic circumstances, procedures, goals, synergy, rhetoric, conflict, negotiations, control coherence, impressions, dominance, intimacy, cultures and climates. With respect to understanding group phenomenon, these functions may be best served by examining real life group task-oriented exercises and balancing the emphasis of **how** they are accomplished with **what** they accomplish. Hirokawa and Poole might agree: "What is needed are models of interaction that account for its force in concrete situation rather than trying to operationalize macro-level constructs ... such models would permit us to move beyond mere list of functions to talk about how functions fit together" (Hirokawa and Poole, p. 29). They also state that the majority of communication studies

do not measure output variables. The study of communications as a link between group inputs and outputs requires a focus on outputs and outcomes such as quality, results commitment, cohesion, satisfaction and motivation (p. 30). From a more macro view and the P/P perspective, quality results and satisfaction are more product oriented, while commitment and motivation are mostly process oriented. This lack of focus on product-oriented analysis supports a common theme found beyond the communications discipline in such research areas including those used to understand group functions. Decision making, conflict and collaborative technical writing can be served with the added research of investigating product outcomes and its relationship to the popular concern of process analysis understanding. For example, a preponderance of Decision Making research is heavily focused on process-oriented analysis of phases, task activities and interactions.

Poole and Doelger (1986) state the essence of group decision making is interaction, thereby reinforcing the link with communications. They also mention the importance of time in decision making. Using McGrath and Altman's work, the significant temporal considerations include group prior history, changes over the groups development, and changes in the groups phases, cycles, or work. In proposal development, time has similar and unique significance. We must accept the possibility that decision-making or a series of decisions could be significantly different in terms of its essence, activities and outcomes, if time were the overwhelming constraint. Furthermore, most decisions in industry have an implicit or explicit expiration deadline, otherwise the decision to "not to decide" would appropriately be the closure of the question at hand. To better understand conflict management in technical collaborative proposal writing, temporal

issues are particularly relevant, including those associated with groups prior decision-making history, phase changes and evolving task development. Moreover, the pressure of a definitive document deadline provides one of the most influencing factors. Accordingly the research investigated and reported, to the extent possible, on the group history, phase changes, and related temporal considerations.

Putnam (1986) focuses on conflict management and group decision making outcomes, She claims communication plays a role in the nature of the decision alternatives. She senses a change in the research treatment of communication and conflict in group decision making. Previously treated as static variables, current research has now viewed communication and conflict as process variables and typically treats these two areas separately. According to Putnam, research has approached group conflict in two major categories, Deterministic and Interactive. Deterministic approaches view conflict and outcomes as products of variables including climate, rules and work habits. The Interactive approach treats conflict and communication as process variables which focus on coalition, relationships, opinion deviance and phase (Putnam pp. 176-177). My research and perspective favors the deterministic approach.

Gouran and Hirokawa (1986) also focused on communication aspects of group decision-making with an emphasis on interaction and quality. They consider seven important factors why groups arrive at a low-quality or high-quality decision, namely;

- (1) faulty information
- (2) inferential deficiencies

- (3) faulty assumptions
- (4) misunderstanding the nature of the issue
- (5) misevaluating alternatives
- (6) violating acceptable norms
- (7) improper influence of the members (Gouran and Hirokawa, pp. 82-90).

All appear reasonable except possibly their sixth notion, which in some cases constrains innovative redesign, rejects the concepts of Ackoff's idealized planning, disputes the premise associated with positive or constructive conflict, and prevents advancements and breakthroughs when decision making norms are defective or limiting.

William Ganison, from a 1961 journal article, (see Smith 1971), defined a decision as a selection among alternatives. He states, "When there are several participants, the selection of any given alternative will distribute rewards among them in a particular fashion. The reward which accrues ... is the payoff. His theory involves critical quantities called weights or resources and he views the procedures as a rule of games following mathematical properties. In contrast, a sociotechnical approach values other personal or social variables beyond the most rational aspects of a reward.

Wellins, Byham and Wilson (1991) formulated a systematic method toward responsible and informed Team Level Decision Making. Their new strategic method for empowering teams involved the awareness of a vision and mission, establishing leadership, the utilization of common shared values, a formal system, and key success result criteria

(p. 87). They place significant emphasis on selecting the most enlightened members of the team and equate the potential of the group success with personnel selection, training and skill development. Their key factors in Team Development are based upon commitment, trust, purpose, communications, involvement and a process orientation (p. 189).

3.9 On Proposal Texts

The text by Stewart and Stewart (1992) is a modern classic example of how to prepare a competitive proposal. The text addresses issues and methods including: Writing High Impact Resumes, Hard-Hitting Executive Summaries, Checklists, and Guides. A formal method of integrating graphs and text via storyboards is also included. Noteworthy is their discussions on pre-proposal and proposal activities since they acknowledge a series of processes and products toward formal preparation development. Discussions of various drafts reviews (Pink, Blue, Red and Green Team Reviews) were stressed. Despite the tutorial nature of the book, the text underscores the practicality of integrating processes with products (drafts) in a judicious, carefully scheduled method. Although it lacks the issues of dynamics between the process tasks and the draft products and does not address preoccupation, conflict, stress, problem avoidance or technical writing dynamics, it cannot be faulted since these were not the intention of the text.

Holtz and Schmidt (1981) appropriately named their text "The Winning Proposal: How to Write it", describing precisely its contents. Written especially for federal agency procurement solicitations, the text addresses the step-by-step methods in proposal

development. Despite its tutorial nature, the authors included partial sections on ethics (honesty), uncertainty (ambiguity in the statement of work), common faults and failures, problem solving (analytical strategy) and persuasion, albeit briefly and with little research basis.

Loring and Kerzner (1982) prepared a similar text describing the methods and procedures of proposal preparation but from a management point of view. Besides the expected tutorial narrative, the authors addressed the Proposal Manager's problems and methods to manage conflict. For example, they address issues including financial risk, managing the tight schedule, organization impact, ambiguity, authority and other project team problems (p. 58-59). With respect to managing conflict, the authors acknowledge that conflict can assume a different relative intensity over the life cycle of the proposal and that potential sources for conflict include regard for project priorities, administrative procedures, technical opinion/performance trade-offs, manpower resources, cost, schedule and personality. Loring and Kerzner suggest methods for conflict resolution derived from Blake and Morton (withdrawal, smoothing, compromising, forcing and confrontation) with very little more on the subject (p. 59-62). With respect to technical writing analysis, a short section on the strategic project variables is presented. Loring and Kerzner argue that for proposals to be successful, the development team must be aware of four significant strategic variables as follows:

1. Internal Environment (management, resources, wages, minorities, lay-offs and marketing forecasts)
2. External Environment (legal, political, social, economical, and technological)

3. Competitive Environment (industry, company goals, competitive history and present activity), and
4. Competitive Planning (return on investment, market share product line and competitive resources) (pp. 74-75)

This environmental perspective is refreshing since it encompasses external and competitive factors. In comparing the authors' observations with the P/P model, their notions of internal and planning factors are candidates for comparison to the P/P notions. The authors also list 14 reasons why proposal planning fails. These include not understanding corporate goals, poor financial estimates, unknown objective, poor guess work, and improper personnel (p. 81). Of the 14 reasons listed, "Plans encompass too much in too little time", was the closest issue related to the proposed process/product paradigm.

Far too little studies have been conducted on the close ended engineering activity of proposal development. Dozens of texts addresses proposals but mostly from a 'how to' framework. For example Meadow's *Guidelines for Preparing Proposals: A Manual on how to Organize Winning Proposals* is one in a series of these cookbook essays. As reviewed in *Technical Communication Quarterly* by Sherry Burgas Little (Vol 1, No. 3, Spring 1992), Meadow's manual, in its seventh printing, was disappointing from a variety of perspectives. According to Little, despite collaborative team writing being a frequent part of proposal development, Meadows claims that the quality of a proposal is universally proportionate to the number of writers and editors involved (p. 5), which is unfounded. Little agrees that Meadow erred with its dismissal of small group influences

and pointed out several vague, trivial or obvious weak arguments in his effort including his claim that quality and group size are correlated.

Locke, Spirduso and Silverman (1987) prepared an informative planning text on grant proposals, as well as dissertations. They define the purpose of qualitative research as a method, "to describe and develop a special kind of understanding for a particular social situation, event, role, group or interaction ... This kind of research is descriptive in that text is the most common form of data ... Qualitative inquiry also is analytic or interpretive in that the investigator must discern and then articulate often subtle regularities within the data, ... and above all, contemplation of data are primary rather than secondary activities in this form of data" (p. 84). They also state:

"In all formats for qualitative study, detailed descriptions of content and what people actually say or do form the basis for inductive rather than deductive forms of analysis, that is, theory is created to explain the data rather than being collected to test pre-established hypotheses . . . what individuals say they believe, the feelings they express and the explanation they give are treated as significant realities. In that sense, there is a profoundly relativistic view of the world. The research is not seeking the kind of verifiable "truth" that functions in a cause and effect model of reality. The working assumption is that individuals make sense out of their experience and in doing so create their own reality. In qualitative research, understanding both the content and construction of such multiple and contingent truths is regarded as a valuable task of science" (p. 84, quotes in original)."

Their observations support several significant points including, the investigator has the control of interpretation through discerning subtleties, the investigation lacks a formal hypotheses or pursuit of a verifiable truth, and the validation of the research exists in a relativistic reality.

Holtz (1986) assembled a respectable text as a consultant's guide for proposal preparation. His methods include interactive development which acknowledges repetitive cycles of writing, typing, editing, rewriting, retyping, etc. But this is the extent of highlighting the benefits multiple drafts thereby avoiding an analysis of processes leading to product, leading to process, etc. The author briefly addresses the importance of meaningful communication and the essence of persuasiveness in proposal writing. He argues that an appeal using emotion is preferred and more effective than an appeal using reason due to the reader difficulty to understand the technical complexity of the material or because some stubbornly fail to believe concepts to which they are negatively predisposed. Emotional appeals, he argues, motivate far more effectively. Promises of success, economy, prestige, love, protection, and patriotism are examples which Holtz reduces to his basic motivator, security (pp. 148-159). This issue of security is directly applicable to proposal writing since the majority of proposal evaluation criteria is implicitly or explicitly based upon the perception of risk and Holtz agrees that risk is an extremely personal and individual perception. For example, he states:

"The motivator that is effective with one individual - fear or failure of an innovative and therefore presumably risky approach is proposed - may fall flat with another individual who wants to gain the attention of the corporate hierarchy by buying an innovative approach . . ." (p. 154).

As part of his research for his book, Holtz surveyed what he called a 'large number of consultants' with a questionnaire which provided some interesting data as well as opinion. His questionnaire appeared in an issue of the *Consulting Opportunities Journal*, a

bimonthly periodical which increased the number of respondents. The data he collected indicated:

- (1) A majority (55%) of proposal practices involved the use of boilerplate, that is, previously used materials
- (2) A majority (55%) included resumes, and
- (3) Proposals contained a high frequency of the description of the deliverables (74%) and an implementation schedule (77%)

Whalen (1994) is another author who prepared a road map text of proposal preparation. Unique in this text is its completeness of a wide range of topics beyond proposal development ranging from intense marketing, competition analysis, management tools and techniques, and proposal retrospect (reviews). The author describes common proposal problems early in his book. The problems were addressed from product standpoint, that is, what review teams frequently mentioned after evaluating losing proposals. These product problems included items such as no evidence, generic response, lack of genuine innovation or details difficult to understand, incompatibility or gaps with respect to the requirements, hard to follow, proposed personnel were inappropriate, and confusing differences in layout and presentation (pp. 1-6 to 1-7). From a process standpoint, the author insists that a comprehensive, accountable and detailed plan is required. Whalen specifies over 60 milestones toward submitting a winning technical proposal. Like other authors explaining proposal development with a series of checklist, samples, flowcharts and forms, the text is silent on integrating the relationship between the explanatory processes and their acknowledgement of the evolving products which Whalen and others insist benefit from periodic reviews.

Ornatowski views technical writing as rhetorical, involved with potential conflicting agendas and interests. He says technical writers are rhetoricians who continually make ethical choices while negotiating between conflicting demands. This is a serious problem since annually Americans spend approximately \$45 billion on business correspondence and, in his view, industry writing is mostly ineffective (Ornatowski, 1992). He cites Pauley and Riordan's explanation that technical writing is not only a means for an organization to enhance its goals but also that technical writing, written in plain objective language, purposes to inform or persuade a reader with specific and relevant facts. Effective technical writing is directed to the readers interest, and needs to be clearly presented not to cause the reader to add their own personal interpretation (p. 94). However the written message can be drastically changed by not highlighting all of the relevant facts. Ornatowski demonstrates this with examples of a published account of the nuclear accident at Three Mile Island which eliminated technical details of the failure and an aerospace engine test report where multiple retesting was not mentioned (pp. 93-98). Ornatowski also admits that politics (that which mobilizes resources to meet pressing needs) is always present in any organization preparing technical documentation, especially proposals (p. 100).

Raign and Sims (1993) studied Persuasion Technique differences with respect to gender collaboration in technical proposal development. They found that discourse techniques used by men and women do not parallel a person's gender. They investigated effective and ineffective collaboration, gender effect and persuasion techniques used by proposal developers. They cite Lay who believes women, as nurturers, are experts on initiating and

maintaining collaborative relations while men are generally suspicious of the collaborative process and in an effort to gain individual recognition cause intergroup conflict. However despite this, Lay, Tebeaux, et al. realize that both women and men can possess one or both of the interpersonal tools normally labeled masculine or feminine. From the research of Raign and Sims, and in agreement with Lay, it was determined that a person's gender does not always determine their persuasive style. Of the three settings investigated, only one site involved women in the group. Accordingly, gender distinction in this research were noted but not for the purposes of determining a gender difference in styles.

Raign and Sims (1993) use definitions of successful collaboration in the proposal process which were considered for this research. They defined successful collaboration as when the group completed the task to the apparent satisfaction of all involved and when the group was successful in task assignment, meeting deadlines and implementing changes. Unsuccessful collaboration included situations when the group was unable to reach a decision or complete a task, an inability to accept assigned tasks or changes, and, failure to meet deadlines. This model provided a trigger for events which caused negative conflict in my research. Specifically, problems and delays in task assignments, decision making, accepting or completing assignments, deadline, failures and the negotiations associated with changes to the partial proposal product where triggers for more intensive note taking, investigation and interviewing.

Raign and Sims found effective collaboration linked with individuals who were good listeners, open-minded, able to compromise, executed good judgement, held firm on points

of difference if necessary, maintained flexibility, were sensitive to ambiguity, and possessed a willingness to commit. These provided an additional framework to analyze conflict cases, namely, observing the lack of these attributes or participants' behavior opposite of these qualities, (for example, bad listener, close-minded, rigid, lazy, etc.).

3.10 On Models and Perspectives

Putnam and Roloff (1992) state that effective research, including research involved with the theory of communications, when conducted from a communications or disciplinary approach perspective, has its limitations. They cite Bell who observed that each disciplinary perspective is partial and incomplete, bringing into sharp focus some phenomena elements while blurring, distorting and masking other features entirely (p. 13). In that regard the process/product perspective investigates multiple disciplines and research topics including decision making, communications, conflict theory, small group and collaborative writing to detect similarities and differences as a research model. Putnam and Roloff also suggest that researchers, especially those involved in communication research need to concentrate on integrating micro and macro levels of analysis. I agree with their position and found it worthwhile in my research strategy. Their multi-disciplined position is reflected in my literature search of several disciplines. My P/P model provides its own perspective which I apply and compare to subject matter outside of technical collaborative writing. As presented in this dissertation, I also analyzed my model and conflict situations from multiple levels of evaluation before I presented the results of my findings in my conclusion.

3.11 On Theoretical and Pragmatic Perspectives

Aubrey Fisher (1978) addressed the properties and significance of theoretical perspectives in the social sciences. Despite controversy, theoretical perspective provide insight into the inherent properties of various studies in the social sciences. Fisher claims that valid properties accrue whenever perspectives are applied, regardless of the discipline or field of inquiry. He specifically includes communication, psychology, sociology and anthropology. Perspectives also have their pitfalls with respect to relevance of the subject matter or view of which they are aimed. For example, Fisher relates Bohm's description of malaria research:

"Bohm typifies the incommensurability of theories with a brief historical description of malaria research. That same example also illustrates the inescapable fact that the perspective one uses to view any phenomenon determines to no small extent what aspects of that phenomenon are considered to be significant or relevant and, conversely, which aspects are deemed trivial and irrelevant." (p. 60)

The word *malaria* itself, according to Bohm, derives from the early association of the disease with "bad air." Thus, it was believed that anyone exposed to damp night air would contract malaria. As a matter of fact, we might hypothesize that the early theorists may have noticed swampy areas and pools of water and speculated that this excess water might contribute to the dampness of the air. Subsequent drainage of the ground water may even have resulted in decreasing the number of malaria cases and thus served to confirm their perspective.

We now know, of course, that the cause of malaria is not a humid atmosphere but bacteria carried by mosquitoes. Draining the swamps may have reduced the numbers of

mosquitoes by destroying their breeding grounds, but the dampness of the air is certainly irrelevant to the disease--its cause or its cure. In fact, knowing that the mosquito population contributes to the incidence of malaria may well have led later theorists to drain excess groundwater in addition to employing insecticides and antibiotics. But in the two perspectives of malaria, such action is based on totally different conceptualizations of the disease, leading to quite different conclusions--even though the action (draining groundwater) and the results (reduced incidence of malaria) may have been identical (p. 60).

Fisher also agrees on the worth of a pragmatic perspective. As applied to communications, this aspect accepts behavior as the fundamental component of human communication. In other words behavior is not an outcome or effect of communication, it is vitally embodied synonymously with communications. When generally applied, a pragmatic perspective is a set of multidisciplinary assumptions, concepts and principles providing a general framework for various kinds of phenomena including social investigations (p. 195). My P/P perspective, currently more pragmatic than theoretical, is presented as a general framework for the social and technical aspects in collaborative writing, especially since it uses multi-disciplinary assumptions and principles.

3.12 On Ethics

Ethics plays a role in conflict during proposal preparation as it is confronted in social exchanges, political maneuvers, economic considerations and legal change. Bryan suggests a conflict between the marketing role of written corporate documentation (a

highly competitive virtually amoral activity with its own rules) and the engineering aspect (demanding accuracy and objective descriptions) (Bryan, 1992). He points out how an engineers' compensation and career are tied to the profitability of the corporation rather than a professional code of standards (p. 79). Bryan warns that firms, either implicitly or explicitly, reward marketing success more than ethical practices. He cites specific examples such as embellishing the resume of an employee or including a resume where there is no intention of using the employee. He also believes that integrity cannot be taught.

3.13 On Leadership

Fisher (1986) provides some insight on leadership. By studying the social process associated with leadership and considering a new metaphor he repeats Shaw's 1981 observation on the importance of distinguishing between leader and leadership. He systematically uncovers several myths and concludes that the "leader as a good medium" is best suited to describe the quality of a team. He demonstrates that leadership is not influencing followers and that leaders do not behave in a particular style (such as democratic, autocratic, or laissez-fair). Furthermore, Fisher argues that groups do not have two leaders, namely, a social facilitator and task facilitator.

In the conducted research, the Proposal Manager, a special member of the small group, provided some degree of control and leadership. The Proposal Manager was also involved in most conflict situations.

3.14 On Group Performance

Ivan Steiner (1972) researched group processes, performance and productivity. He identified various attributes which affect group quality due to the nature of four general tasks, namely:

1. Unitary tasks - those which cannot profitably divide into subtasks and thereby cannot be performed by two or more individuals.
2. Conjunctive tasks - those requiring assignment to the least productive member.
3. Additive tasks - those requiring assignment to multiple members.
4. Discretionary tasks - those which can be assigned to various members.

With this framework Steiner attempts to maximize productivity through manipulating task assignments in the group to affect a best value outcome. In proposal development, the work group is faced with various activities which could be argued to fall within the classification of all four types of tasks. What is more significant in proposal development is the decision making in agreeing and assigning the various tasks to group members as well as the compatibility among the segregated task assignment. Steiner also argues how group size can, but not necessarily, impact productivity given the mix and types of tasks. Similarly, he posits that heterogeneous groups of equal size do not necessarily impact productivity since the specific task sets are situational. He states that complex task mixes, size and heterogeneity will positively contribute to group performance and overall productivity.

Steiner (1972) is also cited here because of his comments on the presence of observers and co-workers. He argues that participation in group activity exposes the individual to various stimuli which normally are absent in the solitary worker. An individual is aware of others, observes their behavior, and realizes his behavior is generally being monitored and evaluated in terms of performance. Steiner questions, does the presence of other members in a group affect the individuals motivation and tasks behavior? (p.132)

Steiner cites human subjects under observation have been found to turn fishing reels more rapidly, to pull more vigorously on a finger strength measuring device, and to solve math problems more rapidly. Conversely, other research demonstrates workers, in the presence of others, exhibit social inhibition which deters from performance (p. 132). Beyond Hawthorne, the effects of co-workers and spectators on performance have been easy to detect but difficult to explain. Steiner cites Zayonc's theory, based on a wide variety of previous research findings, that demonstrates that non-complex tasks are executed more productively if performed under arousal-provoking circumstances, such as time pressures or noxious punishment for efficiency. These two circumstances are very prevalent in proposal development. But conversely, when complex tasks are measured, performance is inhibited. Zayonc concludes that the presence of others facilitates the performance of well-learned responses and inhibits the learning of new responses. This presence of others must be more than casual since Zayonc's generalization has limitations and can be considered more viable when the presence of others is an identified spectator or interventionist (Steiner, 1972, pg 132). Therefore the relationship is somewhat speculative and not an unequivocal conclusion. By participating as both a researcher and a member,

influencing others becomes less of a dilemma since it can be considered that my presence was considered less of a spectator/evaluator/researcher and more of a participant since the arousal-provoking circumstances of my joint role were virtually semi-overt at worst.

3.15 On Social Research Observations

Greenberg and Folger (1988) address controversial issues in social research methods and contrast socio-behavioral sciences with other scientific disciplines. Despite a purely psychological and behavioral perspective, the authors comment on the process of observing. They cite and agree with Gergen's argument that socio-behavioral sciences are essentially non-empirical and the socio theories are "neither engendered, stimulated, sustained, corroborated, nor falsified by observation" (p. 11). Gergen states that this statement is true because of the inherent unreliability of social phenomena observation. Gergen's argument can be explained by questioning whose observation can be used to ascertain whether a "statement" is true or false. It is logical to first question what the "statement" means where meaning is inevitably dependent on a social consensus, definition and language. I agree that these social variables are distinctive and different from the scientific domain that requires reliability and unequivocal specification.

An additional reason to regard socio and scientific inquiry from different frameworks includes Greenberg and Folger's discussion of Gergen's enlightenment effects and Godow's comparison of socio to scientific research. Gergen's enlightenment effect refers to the consequence of researchers or subjects being predisposed to previous investigation findings. Godow's passage states: "A physicist does not have to worry that a rock will

learn about the laws of physics and then try to change its behavior" (p. 16). Enlightenment effects are situational, as are the majority of the social based theory, because humans are situational. Their value is to find perspectives, which are more times than not, methods of explanation. This is precisely the purpose of introducing the P/P perspective, as a means of insight through situational investigation.

Greenberg and Folger (1988) also address experimental field deception as a means to conceal the true purpose of the experiment in order to capture a more natural, less subjectively biased representation of the setting (pp. 40-43). Due to my semi-overt role and the nature and details of my research this is worth noting. Despite the fact that this potential problem is situational, the details of the process/product paradigm were virtually always concealed in my research and were never purposely implemented to explain or manage a conflict situation.

A related issue is my level of active involvement and role playing in the research. Issues arise in terms of ethical problems, professional image considerations and problems in conducting the research while simultaneously contributing. For example, the issue of any deception and my initial conditioning could lessen any participant's opportunity to freely act in a manner natural to the setting. Using Weick's definition, manipulation refers to the experimenters's capacity to cause experimental results and events at their discretion (Greenberg and Folger, p. 63).

My research involved a field study. Kerlinger would define this activity as an ex-post-facto scientific inquiry aimed at discovering relations and interactions among sociological variables in real social situations. The field studies involving participant observation are oriented towards exploration as well as hypothesis testing (Greenberg and Folger, p. 68).

Issues of research bias will include attention and accuracy with respect to recording and analysis. Accurate recording, strict observation procedures, concise verbal instruction, avoiding misdirecting, non-verbal behavior, verbal reinforcement or other differential treatment (Greenberg and Folger, p. 127) are techniques I became aware of and used toward removing research and researcher bias. Primarily, I used accurate recording and strict observation through the use of field note forms, (Appendix A), and during the interviews I used concise verbal instructions, avoiding misdirection and verbal reinforcements as techniques to accurately ascertain participants' comments on conflict situations without introducing researcher bias.

The interviews, conducted after the proposal development, were post experimental inquiries (Greenberg and Folger, p. 161). Therefore, the interviewers' responses contribute significantly to the effectiveness of the field research. I analyzed their comments to determine if my line of questioning was manipulative and that my methods were appropriate, and, determined that manipulation was avoided.

3.16 On Group Productivity

Susman (1976) used Ackoff and Emery's position on purposeful systems and behavior to explain work, work objective, and goals. According to Ackoff and Emery, a purposeful system can choose its own course of action toward an objective and if it fails to achieve the goal associated with that objective, it may change its goal in order to pursue that objective. Susman argues that workers who chooses their own goals and activities in order to meet their objective behave in this purposeful manner. Interestingly, Ackoff and Emery state an objective is a desired outcome that is not obtainable in a time period under consideration and an objective merely progresses toward the outcome despite it may be obtainable at a later time. Furthermore, progress toward an objective can be achieved by the pursuit of goals that are obtainable in the given timeframe (p. 27).

This is directly applicable to the Process/Product perspective and proposal development where the objective is to produce the ultimate manuscript and the goals are the intermediate partial products, which determine the reprogramming of activities over a fixed timeframe. Susman's research acknowledged the study of processes of the primary task through problem solving activities including planning, designing and learning among others. He also correlated the conjunction between the social and technical system and acknowledged the importance of producing the desired outcome (the product), stating that the "best match" occurs when a work group can produce its product in a manner most compatible with the tasks environment (and the sociopsychological dynamics of the members), similar to Emery and Trist with respect to the joint optimization theory. Susman's treatment was the closest found to focus on both process and product although

not as proposed by the P/P model. Susman agrees that to facilitate the "best match", consideration is needed in five major areas, namely:

1. The definition of the primary task, (planning or process-oriented)
2. Performance measurement (product-oriented focus)
3. Dealing with uncertainty (product-process dynamic)
4. Facilitation (process-oriented), and
5. Enabling conditions (process oriented) (pp. 171-173).

The above have been parenthetically annotated with their potential relations to the P/P model notions.

Fisher (1974) argued a curvilinear relationship between small group cohesiveness and productivity. He claimed that productivity increased as cohesiveness increased to a limit and then started to decrease slightly at maximum group cohesiveness (p. 33). Fisher states the group process embodies two dimensions, namely, the task and social dimensions and furthermore productivity and cohesiveness respectively are outputs of these dimensions, which are coincidentally similar to the joint optimization theory in the socio-technical tradition. From a P/P perspective, Fisher's task dimension can be associated to various applications of the model's Types I, II, or III. Fisher's social dimension would be applicable to Type IV.

Fisher contrasts the four phase model of Bennis and Shepard which includes Dependence/Authority Relations, Resolution/Catharsis, Interdependence, and Consensual

Validation/Maximum Productivity, (p. 134), with the Tushman model of Forming, Storming, Norming and Performing. Fisher's own explanation of the Decision Emergence processes includes the phases of Orientation, Conflict, Emergence, Reinforcement (pp. 140-145). Fisher contributes several factors toward effective group performance and decision-making, including active verbal skills, sensitivity of group process, commitment to the group, flexibility with respect to progress, methods used to confront social problems, and avoiding formulated answers, as well as, the ability of being critical, creative and honest.

With respect to capturing the research setting, Fisher (1974) also admits the value of group participants responding to oral interviews and written questionnaires (as well as maintaining dairies). He believes there is an effectiveness in avoiding specific answers to specific questions in lieu of inquiring into what group members think has happened and to comment on their role in the group (pp. 226-227).

Fisher (1974) also addressed the issue of the effects of the observer on groups. This subject has been researched by Sherif and Sherif, Herrold, Barker and Wright. Fisher concludes that the observer of the group may affect behavior, especially during the earliest phases of interaction, but overall the impact does not significantly affect the group process when the observations are conducted with valid research methods (pp. 234-235).

Cummings and Malloy (1977) clearly addressed a method to improve productivity in organizational settings. They state to improve work the strategy must include information

about what modifications or factors lead to positive outcomes (pp. 2-3). This suggests a focus on products as well as processes. They address critical Action Levers which provide conditions for successful autonomous group functioning including information/feedback, technical/physical factors, autonomy (that is, task discretion and variety), interpersonal/group process, and pay/reward systems (p. 42). This first Action Lever is most applicable to the process/product paradigm, especially its inherent dynamic.

Cummings and Malloy (1977) also addressed the roots of conflict in organizational group work. They contribute conflict as a result of employees want for challenge and growth, influence, a commitment to the work while maintain dignity and social responsibility, an immediacy of career objectives, attention to emotional aspects, self-esteem and openness, and more cooperative versus competitive methods. (pp. 52-53). More times than not, Cummings and Malloy argue that organizations create an environment counter-productive toward these needs.

3.17 Synthesis of the Literature Search

The results of the literature search illustrate that numerous authors have different viewpoints on the causes and notions related to destructive activities and conflict associated with group work. Furthermore, no author associated destructive conflict from a framework similar to the Process/Product model or the model's explanation types in terms of Process or Product notions. Several, however, included concepts and variables associated with isolated components of the P/P model. Cummings and Srivastara, (paragraph 3.2), introduced process influences, a motivator of their social system.

Weisbord, (paragraph 3.2), described process thinking and task-process snapshooting. Clegg, and independently, Larson and LaFasto, (paragraph 3.3), assembled a list of variables contributing to work group inefficiencies. Similar lists were created by Goodman (paragraph 3.5), Hackman and Oldham, Wilemon, and Loring (paragraph 3.6). A comparison of these lists results in more contrast than consensus. Minor similarities to the process and product oriented components of the model existed in the aggregate of all lists due to the frequently repeated variables associated with poor planning, misguided coordination, and low quality output or results.

The literature search also demonstrates a lack of agreement in the relationships between decision making, group effectiveness and conflict. Festinger (paragraph 3.7) emphasizes the temporal processes in decision making in his explanation of conflicts. Hirokawa and Poole (paragraph 3.8) emphasize communication processes and reinforced the controversy and lack of consensus on difficulties in monitoring, analyzing or altering group effectiveness. A similar disagreement is found with decision making in general. Bales and Strodtbeck use a three phase descriptive decision making model; Fisher relies on a four phase model; and; Poole's focuses on five phases. Poole with Hirokawa further argue that phase boundaries are unclear and unpredictable, and that phases occur in interlocking tracks interrupted at irregular intervals. Gouran and Hirokawa considered factors why groups arrive at low-quality decisions, which, like other lists compiled in the dissertation, demonstrates the varying opinions of conflict and group ineffectiveness, with less agreement than consensus. The research also suggested that investigations of group

effectiveness involve analysis which concentrated more on processes than results, that is, outputs or products.

With respect to Proposal Texts (paragraph 3.9), it was demonstrated that very little, is written in a rigorous, analytic fashion and a majority of this literature merely reflect checklists of what to do or what to avoid during this form of collaborative writing. On topics including models, perspectives, ethnics, the social aspects of leadership, group performance and social research (paragraphs 3.10 through 3.16), a case is made for the potential value multidisciplinary perspectives which should necessarily include factors beyond process and product notions alone. Susman provides group productivity factors which can be easily classified as product or process oriented notions. However, Fisher includes productivity methods associated with social problems and included the significance of being critical and honest. Cummings and Molloy addressed productivity influencing factors such as interpersonal processes, dignity and social responsibility, immediacy of career objective, attention to emotion aspects, self-esteem and cooperation. The significance of these variables suggest productivity and conflict avoidance, as well as their related explanations, can easily fall into areas reserved for social, ethnic and political oriented notions thereby justifying the importance of the Type IV classification of the P/P model.

3.18 Additional Literature Research

Issues relevant to participative observation, research methodology, and qualitative evaluation are discussed in the following chapters since they are more closely related to the research methods.

As a result of this literature search contained in this chapter, a unique contribution is established. Firstly, the dissertation presents a distinct combination of previous research issues which heretofore had not been assembled. By combining the backgrounds of small groups, conflict theory, decision making, collaborative technical writing and their associated theory, the dissertation presents a novel multi-discipline framework for the intended study. Secondly, as acknowledged as a research deficiency in the literature, this study advances the study of collaborative technical business writing, particularly complex proposal development in an industry setting. Thirdly, as a result of numerous examples, evidence exists that previous research associated with the disciplines related to technical collaborative writing, conflict and decision making have a pronounced preoccupation with process analysis as compared to a product oriented focus, a potential perspective deficiency specifically articulated by the model I propose, namely a Type I explanation. Accordingly, the objectives of the literature research were satisfied within the framework of the intended research conducted..

CHAPTER 4. DESCRIPTION OF THE STUDY

4.1 Methodology

The theory advanced in this research precedes both substantive and formal theory of Glaser and Strauss, namely Orienting theory. Orienting theory (Whyte, 1984, pp. 118-120) guided the method of my participation and the analysis of participants' comments as they contributed to each proposal preparation work group. Orienting theory was also the basis for recording events and associating these events with the general characteristics related to collaborative technical writing and work group conflict.

Herbst (1959) was among the first behavioral scientists to argue that quantitative studies, relying on the results of a large number of cases, had the disadvantages of being shallow with respect to any single case study, not representative of a rich and full individual context, and, using the implicit assumption that persons and groups were substantially identical. His coalfield research is a milestone for the study of autonomous group functioning. In the classical socio-technical tradition, and with the background of Trist, Wilson, and Emery, he designed a conceptual framework for the study of group functioning and validated the value of studying one or a few cases with a qualifiable techniques and observation methods and approaches. His position influenced my decision

to rely studying three sites in depth as opposed to a shallow investigation of a large number of cases.

4.2 On Participant Observation

William Foote Whyte (1984) significantly influenced my dissertation with his field research methods, especially participant observation and semistructured interviewing. There are cautions to research techniques such as these of which I totally agree. He reminds, "that if research was to be truly scientific, researchers' values must be set aside" (p. 19). He admits his urge to include his values to positively influence and improve the people he favored to observe and discusses how he gradually abandons the idea by adapting action project, currently referred as action research. He is also a proponent of the realization that research has to be opportunistic and that participant observations offer a unique learning opportunity. He cites several cases which illustrate the potential of participant observation to enable the field worker to place individuals in a group context and gain a realistic picture (pp. 23-26). Since participation is so intense and intimate, the problem of maintaining perspective and objectivity is significant. For example, there exists the dilemma about how closely the researcher's behavior should conform to that of the group being studied; a problem I address within my dissertation by discussing my dual role as both a participant and an observer in Chapter 7.

Whyte also warns that a researcher who combines paid work with research must consider whether the nature of the job available will provide the appropriate application of research (p. 30). This complication did not present a problem in my research and in fact, the

opposite more probably is true. Since I am completely comfortable participating in the proposal activity after over a decade of highly similar activity and over two decades of participating in the industry environment, compensation during my research did not consciously contaminate the activity. In proposal development, as in most challenging work activities with deadlines, or as in projects where people enjoy their work, there is a tendency to get immersed in the intensity of enjoyable work and completely forget one's own compensation. This intensity can be a catalyst to one's activities to opportunistically be both a participant and observer but not necessarily both at the same time. One minor distraction was concealing my dual role of participant and researcher from the sponsor and initially the other participants to avoid an apparent conflict of interest or present a less than otherwise ultimately focused contribution. Accordingly, my participation was primarily semiovert. Whyte suggested that this role is appropriate in organization studies with little difficulty and suggested that it may be helpful to let someone know generally of your research interest. At all settings, I have informed most participants and sponsors of my general proposal development research interest without explaining that their setting would be a focus of my investigation. Also, because proposal development is my profession, Whyte's planning and problems of entering the field or the workplace, securing a gate keeper, or obtaining access routes, (pp. 35-63) posed very little difficulty or necessity.

With respect to the dilemma that the dual role of observer and participant is problematic, I found it less than significant or debilitating. The researcher is both, neither and either one at different times just as we are children, parents, spouses, students, and citizens,

among other roles, simultaneously and individually without conflict. Proper contextual behavior is a primary solution, that is, appropriate focus and applicable adjustment and selection of priorities as an individual plays out multiple roles. Whyte also warns of other problems with this dual method and acknowledges that retrospective participant observation lacks the ideals of scientific methodology (p. 33). All things considered, the advantages of participant observation in social research and theory outweigh apparent shortcomings since the method provides the potential of gaining resourceful insight and unexpected discovery.

Whyte also recommends that when a field situation reveals opportunities outside of the original research design it is worthwhile to pursue the new opportunity (pp. 36-37). I found that this opportunity could be used to determine the nature of the dual role dilemma as well as to determine if I could successfully isolate my predisposition, preoccupation and prejudice associated with my preconceived notion of the value of a product/process perspective. This issue is my research design and did not present itself until I was already conducting my field study.

I used Whyte's methods of field relations, formalizing field methods and observation techniques applicable to an organizational environment, (pp. 65-96), including immediate field note forms, and semistructured interview guide forms, used to record and capture an accurate context of the observation. During the proposal development, a majority of raw data was obtained by combining participation, and observation with interviewing (informal questions and discussions) of anyone in the group whenever I felt they had sensed a

problem or delay, or, whenever they expressed or encountered a difficulty associated with the proposal development.

During many of my discussions with the participants, Whyte's freedom from following a standard order and wording of my questions or probing (pp. 97-98) created a natural line of inquiry and a more accurate method of capturing the background and the context. This is not to say that the probing was random or lacked rigor. I attempted to interface with all or as many participants as possible with equal periodicity and distribution. Often I would greet participants with sincere questions such as, "How is the proposal going? (general inquiry), Do you feel you will make your deadline?, Are you on schedule?, (temporal inquiry), Is your write-up strong? Does it meet all the specs?, (performance inquiry), or, Are you staying within your budget [budgeted hours]?, and (cost/budget inquiry). For the most part I attempted to probe major areas of conflict, problems, delays and difficulties, namely; time or schedule, technical performance or quality, cost or budget, and any other generic quality which was outside of the cost-schedule-technical performance triangle. According to Whyte, this was my focus of significant events (pp. 101-103), namely negative occurrences. Despite my preoccupation to record virtually all aspects of negative or counter-productive occurrences, I also recorded very satisfying events whenever they presented themselves, since they were within my design criteria of recording unusual and exceptional incidence.

Whyte also addresses the credibility and justification of the sampling strategy recognizing that a perfect design is not attainable, especially in case study applications. I selected

purposeful sampling with an emphasis of focusing on extreme or deviant cases, a type specifically noted by Whyte. Whyte's definition has equal significance to both highly successful events as well as notable failures with an intent to provide information for a client or decision makers. My intent was to focus more on the negative conflict situations while maintaining notes on outstanding successes only if they could later be transformed into evidence of a conflict avoid event. Due to my participant responsibilities and the fact that other participants were sometimes physically dispersed and interacting without my knowledge, my sampling during the project could not conceivably capture all conflict events as they unfolded and therefore my total strategy also had elements of random and convenience sampling from a purist perspective.

Whyte also warns that probing using open-ended questions are often initially unsuccessful or have lesser meaning in uncovering a meaningful insight into a process under investigation (pp. 103-108). Accordingly, I attempted to strive for clarity, probed more deeply at times, listen for repetitive consensus of destructive conflict, and keep an open mind to the motivators of problems being discussed with consideration for social, personality, economic, family pressure, stress, professionalism and job security origins.

Whyte provides a series of techniques I used with respect to recording, cataloging and evaluating interview data, (pp. 113-127). For example, with respect to capturing qualitative statements verbatim, I systematically recorded note taking during the interviews and prepared written notes as soon as possible after each observation. Whyte also explains the significance of capturing the background, the interviewers attitude during

questioning, the chronological phase of the activity and other details which may contribute to the context of the situation. Whyte discusses eliminating indexing or cataloging bias which was especially relevant with respect to process versus product issues. This was accomplished by subjecting all identified negative conflict occurrence to all four general types of explanations including two subtypes. I avoided labeling conflict in Process/Product terms during the data gathering and during the initial analysis phase of the research. Whyte also points out the importance of maintaining consistency in evaluating cataloging with generic techniques such as, who did what with whom, to what, when, and where. I maintained consistency through the use of screening previously labeled conflict, which was not described in terms of process/product, into one of six types/sub-types. Whyte suggests considering and documenting participants comments with respect to ulterior motives, their mere desire to please (anger or hide) including idiosyncrasies, and evaluate their role as a well-meaning or destructive informant. I recorded anomalies of this nature when evidence was observed substantiating that such situations presented themselves.

Whyte also addresses ethics with specific references to the project sponsor, participants and colleagues associated with the investigation (p. 193). I agree with Whyte that formal codes of ethics are of little value. Three key issues here are considerations for the value of my contracted services, the dangers associated with deception, and anonymity associated with the research. Firstly, there is the question whether or not the project sponsor receives less than contracted for since the researcher assumed a dual role as a participant and an observer. In my cases, I argue that each corporation unknowingly

received more than anticipated. Virtually every night was used to recopy and expand field notes, study the significances of statements and observations, analyzing planning and current status, and validating real and perceived problem areas. This contract-specific retrospect would not have occurred to the extent performed if it were not a research setting, and, as the result of such analysis and preoccupation, unexpected efficiencies were probably realized. I can ethically report that any gain in productivity resulting from the after-hour activities compensated for the minimal lost time or focus in observing and recording the events and details associated with the research, despite such opportunities could be continuously presenting themselves to me since I was personally well aware of the professional and research compromises under my dual responsibility.

Secondly, my minimal deception of being a researcher did not expose participants to serious risk and the nature of the data could not have been obtained with a full research disclosure, part of Whyte ethical criteria (p. 206) and accordingly the semiovert posture reasonably appeared justified.

Thirdly, with respect to Whyte's guidelines in regard of obligations in publication (p. 219), anonymity of the organization, its name, specific location and details as well as the identity of individuals have been maintained.

Whyte also provided guidance in the analysis of the data which was used as advice in my research. Whyte warns against premature closure, (p. 226), that is, a position taken before the conclusion and deliberation of all observations for all details associated with each

setting and settings. Whyte also mentions the impact of technology and sociology with Trist's research in sociotechnical systems, (Whyte, p. 257), which establishes a meaningful framework that appreciates and considers both socio-technical aspects as well as economic and other relevant data, especially significant in research involved in orienting theory. Whyte also justifies the theoretical basis for my dissertation stating that prior to substantive and formal categories of theory proposed by Glaser and Strauss, the logical steps in determining the nature of a meaningful research is orienting theory (Whyte p. 257). Orienting theory, in my application, is appropriate, especially in light of studying the technical collaborating writing exercises and the social behavior conducted by groups participating in the assignment. Whyte concluded his field research text with words which are most appropriate in that regard, namely;

"While most people most of the time do things in standard ways, there is enough creativity in the human species so that in any field of activity we can find people who are doing things in new and promising ways. To grasp the nature and significance of these social inventions, we must learn to understand the technical as well as the social problems they are intended to solve. If we can then describe these social inventions systematically and place them within a conceptual scheme that permits us to suggest their applicability to similar problem situations elsewhere, we can contribute both to the advance of science and to the enhancement of human welfare." (Whyte, p. 286)

4.3 On Qualitative Evaluation

Patton (1980) also had significant influence on this dissertation with respect to the qualitative evaluation methods used in the research. My selection of an open-ended, nonstandardized interview guide and evaluation methods, (p. 9), was based on Patton's principles. Patton, like Whyte, also stresses the importance of accurately selecting, describing and analyzing the background, context and significance as well as

understanding and interpreting the observed data. Patton also provides insight on the validity of such methods, namely;

"Qualitative modes of understanding the world are rooted in philosophical and epistemological traditions that require explication in order to establish a context for making decisions about the usefulness, credibility, validity, and appropriateness of various qualitative evaluation strategies." (p. 12)

The suggestion that methods in the research are nonstandard is not to imply any lack of rigor. Moreover this concept is better expressed as flexible and capable of capturing human activity phenomena. Patton describes his focused evaluation method and an evaluator's role as active-reactive-adaptive, suggesting that a large repertoire of techniques solve the multifaceted problems of sociotechnical qualitative research. An active-reactive-adaptive researcher uses innovative, flexible research design, works with any and all data and seeks "the most useful answers within the real world of politics, people, and methodological prejudice." (p.18)

Patton defines qualitative data as "detailed descriptions of situations, events, people, interactions and observed behavior; direct quotations from people about their experiences, attitudes, beliefs, and thoughts; and excerpts or entire passages from documents, correspondence, records, and case histories ... collected as open-ended narrative without attempting to fit program activities or peoples' experiences into predetermined standardized categories . . ." (p. 22). I used Patton's definition in the collection of my research data and his advice in the analysis of this data.

Open-end responses provide a means for depth and detail yet their analyses is difficult because the responses are neither systematic nor standardized (p. 28). Patton suggests the evaluator must provide a framework to capture accuracy and thoroughness with respect to understanding of the activities as part of the researcher's strategy. Patton suggests realizing three fundamentals and ideal baselines in the formulation of the strategy, namely;

1. **Holistic View** - to understand phenomena as a whole attempting to understand programs with the programs context as essential towards the understanding. This is opposed to the study of measurement of parts of gathering data about isolated variables, scales or dimensions.
2. **Inductive Approach** - making sense of a situation without imposing preexisting expectations and attempting to detect patterns without a statement of a hypotheses before data collection. The attempt here is to understand multiple interrelationship either within programs or between programs, as appropriate.
3. **Naturalistic Inquiry** - to observe in methods which do not manipulate the research setting and with an emphasis on the naturally occurring situation and could appropriately involve the evaluator to enter the program at pretest and post-test points or making a comparison to a control group. (Patton, pp. 40-43)

These three concepts are idealistically used in combination to some degree toward getting closest to the phenomenon under study, and, principles from all three were used in the strategy of the dissertation study. Patton also explains that a strategy is derived from various philosophical epistemological and methodological traditions and viewpoints. Based on Patton's explanation involving Strike, Bogdan and Taylor, Comte and Durkheim, and, Deutscher and Weber, my framework partially relies on *verstehen* (human beings can be understood since their behavior is meaningful) and phenomenological (we can understand human behavior from the actor's own reference) (see Patton, pp. 44-46).

Patton also discusses three popular models used in evaluations, namely, transectional, goal-free and decision-making (pp. 54-58). Although the decision-making model was the closest to my design, all three models fell short for my application. Patton explains the details and benefits of a model-free, utilization-focused approach to evaluation which was more seriously considered and used in part of my strategy since I planned for the utilization of the data before it was collected. However, Patton's utilization-focused evaluation is directed primarily for decision makers and information users and consequently it is not totally applicable.

Patton also details process evaluation, which attempts to understand the internal dynamics of an operation. Process evaluation asks questions focusing on the following:

1. What are the factors that come together in the activity?
2. What are the strengths and weaknesses?
3. How do participants move through the program?
4. What is the nature of interaction and dynamics?
5. How is the product or outcome produced rather than looking (merely) at the product alone? (Patton, pp. 60-62)

Despite the thrust of question 5, this evaluation method also influenced my strategy due to the emphasis on strengths, weaknesses, dynamics and interactions. It may appear contradictory to use, in part, a method which potentially falls into what I label a Type I explanation or deficiency since there is an apparent preoccupation with process over product by the virtue of number 5 above. I felt this was not a serious flaw and consequently included an expanded evaluation technique for determining and assessing

negative conflict situations by incorporating product analysis, that is, concern of the evaluation of the product at its various stages of development, and, inquiring on the nature how the processes are related to the intermediate and final products. Furthermore, of all documented analysis techniques researched involving evaluation, decision making, conflict, and group work, Patton's process evaluation method was the only treatment that encompassed a majority of the research premises associated with the process/product paradigm. His method acknowledges the three major elements in my model namely; process, product and dynamic interactions. Despite its name, which apparently skews the method toward a process fixation, Patton's baseline evaluation method required additional concerns, so as to include the important missing ingredients I attempted to research. These additional concerns of what I will call a Process/Product evaluation method or design strategy, go beyond Patton's premises, and address issues such as:

- a. How is the process designed and how does the envisioned or intermediate products contribute to that process?
- b. What are the interactions, dynamics, and compromises, if any, between process design or activities and intermediate products or outcomes?
- c. How are product strengths and weaknesses correlated to process implementation?, and,
- d. How are process implementation strengths and weaknesses correlated to planned and actual product development?

After considerable deliberation on these issues, I concluded that the added concerns omitted the focus on the explanation of collaborate technical writing conflict and were too broad to be used as research questions.

Patton's process evaluation, even when modified, influenced my overall approach due to its relevance to the research settings. Patton's process evaluation relies on qualitative open-ended approaches to allow the researcher to investigate the nature of the situation as opposed to validating confirming or rejecting a specific hypotheses, (p. 61). This method is especially appropriate for multi-site investigations (p. 68).

Patton also explains implementation evaluation and formative evaluation methods. While the first method inquires on experiences, actions, organization and accomplishments of a group, the latter emphasis an evaluation and judgement of a program (Patton, pp. 68-73). Only some of the issues associated with implementation evaluation, dealing with the nature of experiences and accomplishments, were applicable to my work. Issues dealing with formative evaluation were not strictly applicable since my investigation was limited and despite the assumption that a process/product model leads to understanding of the technical writing enterprise, which is a potential precursor to evaluation and improvement.

With respect to the appropriateness of using qualitative methods in collecting relevant research data, Patton provides a 16 point checklist including many points depend upon the client or decision makers sponsoring the investigation, which is not strictly relevant for my dissertation (pp. 88-89). Eliminating the issues dealing with clients sponsoring the research, there was overwhelming evidence that qualitative methods were more appropriate for my investigation. Reasons included a need to describe participants activities, the information needed about the program processes, description,

implementation and outcome effectiveness, the diversity among programs, the lack of standard measure, and, the potential of new insight.

4.4 On Sampling

My sampling strategy is best described by purposeful sample for extreme cases (Patton, pp. 100-105). I was interested in observing extremely good or extreme bad feelings, results, comments and concepts associated with technical writing development. Initially, I was interested in only negative outcomes but as a result to capture any occurrence dealing with conflict I accidentally included extremely successful events because I extemporaneously associated these events with the opposite of conflict. Expressions of frustration, delay, pronounced satisfaction, or successful accomplishment via comments and non-verbal gestures (frowns, physical or facial signs of helplessness or despair, etc.) occurred during the semi-over (virtually covert) observations, discussions with the participants during the development, and open-ended interview questions after the completion of the proposal.

Patton addresses the issues of validity and reliability of observational data primarily on the basis of the effects of the observer on what is observed (pp. 130-134). I considered this from two aspects, namely, my impact on the proceedings, and, the participant's contribution because I was there in my research capacity. I argued that neither aspect had significant negative impact on the conducted research because it was very natural that I was a member of the group. My background, experience and career provided smooth entry into the setting. Furthermore, I took extra care not to decrease my professional

efficiency or perspective since I was in a research role. I attempted to put in the hours I would have if I had not been observing. I wrote notes and expanded amplifications on breaks, spare time, off-hours, and nights. I avoided prejudgment of the observation to the best of my ability. If I sensed I labeled an event as an extreme situation (positive or negative), I probed to determine its nature as well as focusing on decision making affecting the event. I was well aware of Heisenberg uncertainty principle and the intrusion of researcher changing the situation he is observing (pp. 189-191).

Patton discusses and defines four possibilities of the researcher's participation and observation, namely, complete participant, participant as observer, observer as participant, and complete observer based upon distinctions of whether or not the researcher's role is concealed (pp. 131-132). My discussion of these possibilities in Patton's terms is slightly inappropriate since degree of concealment is not a significant point. During my research I was never a complete participant or complete observer since I always was preoccupied with the alternate role, wondering if I was neglecting observation for participation or visa versa. When I functioned in what I will call participant observer, I was compelled to observe with slightly higher priority than joining the activities without a research purpose. When I functioned as an observing participant, I attempted to place the research purpose to the background but not exclude it entirely. Attempting to be the perfect participant and observer simultaneously, and equally effectively, was impossible -- similar to the tradeoff between serving the process and product requirements of a technical endeavor at the same time without compromise of either. I believe either we 'plan' and at that instance of time we cannot tangibly contribute to the product or we 'produce'. In my case I was capable

of observing and participating but never conscientiously, totally and simultaneously at an exact instance of time.

A similar dilemma occurred in the focus of data collection. In my attempt to collect particularly meaningful and useful information and insight into the technical writing effort, I selected extreme cases and development decision making as triggers to intensify observation and probing. Patton discusses this as "sensitizing concepts" and admits that this is one of the trade-offs a researcher makes in deciding what to study and how to design and conduct the research experience (pp. 135-137).

I used field collection forms as a tool, found in Appendix A, to record the site, site number, the background of the extreme case and my notes. The same tools were used to collect and analyze the conflict situations

I included my own interpretations and description of the events in my data collection from a participant point of view, an observer point of view, and often as both. I functioned more as a participant observer during breaks and unplanned activities. I attempted to increase my sensitivity of the proceedings, realizing that everything that occurred in the development could be potential research data. During the development I engaged in informal conversations, status meetings, and collected and reviewed program status records as well as passively observed for sources of data. Because I realized that this method may have provided only limited data, I designed the post-development semi-structured interview guide to discover new, old or other areas to probe into the previous

events. These realizations and techniques were clearly planned in advance using Patton's guidance on the potential significance of informal interactions, unplanned activities and program document (pp. 143-165).

Reliable, rigorous and valid research demands the isolation and separation of one's own prejudice from influencing the proceedings, events, questions, discussion and interviews. I found this difficult especially in the latter stages and latter settings since I was becoming more confident that the process/product perspective was a valid explanation model for the problematic events, effectiveness and conflicts of the technical writing activities. I became more of a conscientious effort to keep this notion in check as the research progressed.

With respect to open-ended post development interviews, I accepted and utilized Patton's advice to use a general interview guide approach found in Appendix A. I felt that this complemented the spontaneous and informal conversational interviews semiovertly used during the development (Patton, pp. 197-201). Patton offers and describes three variations in Qualitative Interviewing. The first method, the informal conversation interview, was too spontaneous and did not provide detailed descriptions of conflict situations. During the proposal development, I used this method and collected only generalities which required more indepth probing. Patton's third method, standardized open-ended interview, was initially considered as the interview schedule, but failed since it prevented me from pursuing situational topics in any great detail. Accordingly, I used Patton's remaining interview suggestion, the interview guide technique. The interview guide focused on

program activities, surprises, expectations, strengths, weaknesses, likes, dislikes, delays and conflicts using Patton's advice of creating a framework in which respondents could express their own understanding and interpretation of the proceedings (pp. 201-205).

Again using Patton's advice, the content of my informal probing during the development as well as the framework for my semi-structured interview involved realizing the distinctions between various types of questions that are applicable in research investigations (Patton, pp. 207-209). I used experience and behavior questions to elicit descriptions of participant's activities in the development as well as opinion and value questions to determine interpretive desires, goals and intentions of the collaborative writing. These can be contrasted to other types of question such as feeling, knowledge and sensory questions which were equally applicable to the investigation. Feeling questions aim to understand the participant's thoughts of the efficiencies and disappointments with the development, while knowledge questions attempt to capture the relevant facts surrounding noteworthy conflict events. Lastly, sensory questions investigate if attitudes were seen or heard in dialogue surrounding special events. Since I was attempting to capture the nature and explanation of conflict in the collaborative technical writing setting and have no means to predict expected results, the knowledge of how to thoroughly probe was revealed by the awareness of these distinctions. Experience and behavior questioning probed into what occurred. An example I used was, "Tell me how you were involved in this (conflict related) situation". Opinion and value questions addressed how participants felt on specific conflict issues while feeling questions addressed how participants felt in general. My research framework and strategy

resulted in not assigning important significance to the distinctions between these two types of questioning. An example of a combined opinion and value/feeling question I used was, "Did you feel this (conflict related) situation is justified?" Knowledge questions were used as fact finding inquiries and sensory questions were not knowingly used. An example of a knowledge inquiry I used was, "What were the details associated with the (conflict related) situation?"

I also was prepared to observe and record unusual body language, gestures, posture, eye contact and voice characteristics when destructive conflict related comments were made although these characteristics occurred infrequently. Background data and identifying characteristics if relevant to the question were also recorded (Patton, p. 209). Problems of proposal content were more significant during the latter phase of writing than the initial stages. Besides attempting to be open-ended, neutral, singular and clear, I often started with noncontroversial questions at the beginning of each question, with a political sensitivity to sequencing. The wording of questions was of particular concern not to reflect my own inevitable prejudice (Patton, pp. 210-231). In cases when participants were reluctant to engage in conversation of research interest or avoided answering interview guide issues with depth or detail, possibly because of personality, political, emotional or philosophical reason, I used role-playing (simulation questions) and repetitive probes (follow-up) questions (Patton, pp. 233-239). I found that often probes were required even for those who were inclined to discuss research issues. Possibly due to the neutrality, clarity and singularity of the question, I found answers (and discussions) were either too shallow or verbose with a narrowness of topic, that is, repetitive or equivalent

descriptions of the same topic without introducing new concepts, ideas or substance. More times than not, a probing question broadened the response since I would append or address inquiries regarding the who, where, what, when, or how, after a response dwelled or addressed only on one aspect of the topic being discussed or these five basic questions (Patton, p. 238).

With respect to proposal development, realize that of these five basic questions, three are answered by the background of the activity, namely; the 'who' are the group participants and colleagues associated with the reviews or the corporation, the 'where' is the proposal writing environment or setting, the 'when' reflects the collaborated writing time span ending on the haunting due date of the submittal. The last two, 'how' and 'what' represent the basic inquiry into the processes and products of the writing activity. A more elaborate discussion on the 'how' and the 'what' as it related to basis inquiry and the P/P model will be presented later in this dissertation.

While transcribing the discussions and interviews, I avoid the use of recorders or special equipment. I expanded my notes, especially for the semiovert discussions, as soon as possible following the inquiries or comments (Patton, pp. 248-251).

The analysis of the data was to organize the findings into patterns in general problem-oriented categories, to investigate how groupings could be explained with the theory of previous researchers, and, ultimately to determine if the patterns fit process/product explanations. When this model was first conceived, I had thought that conflict might be

explained or be contributed to one of two types of problem explanations (currently defined as general Type I and II). As I tested this theory on previous settings (before formally starting my dissertation research), I found that a third type, (the Type III dynamic involving both process and product), more adequately explained negative outcomes. After the extensive literature search, and based upon the findings of the research, it became apparent that conflict could be associated with issues outside any individual or combined process-oriented or product-oriented focus and accordingly defined the Type IV category. During the research, after the conduct of activities at site 1, it became apparent that conflict could be explained and associated with product or process oriented issues but not with the simultaneous preoccupation of the other. Accordingly, I modified the model and added a sub-type to each of the Type I and Type II explanations. My actual research finding supported that all four general types, including the two sub-types, were necessary to capture all negative occurrences. The interpretation involved the association between organized patterns and the sets of explanations. Negative occurrences were then applied against the process/product explanations, and the Types Ia, Ib, IIa, IIb, and III, as defined, were used as filters.

I suggest that my investigation is toward orienting theory (Whyte, 1984, p. 238). Patton describes a theoretical predisposition with regard to the focus of a particular study leading to three types of theory, namely, labeling theory which associated beliefs in behavior with a predisposition toward bending characteristics; speculation on causality which considers the relationship between program processes and observed outcomes; and, theories of

action which considers how users of the research can test their own theories how programs operate (Patton, pp. 276-279).

Patton also discusses generalizations which, due to their context-bound limitation, have minimal value when derived from qualitative data in many applied environments, a position shared by other researchers, such as Cronback, Huxley, Stake, House, Blake, and Guba (Patton, pp. 279-281).

Patton's discussion of the predisposition of three theory types and the notions of generalizations have unusual applicability to concerns of my investigation. The focus of my study has elements of all four of these notions without falling into any one exclusively. The more accurate description of my focus is best described by Whyte's orienting theory. Regardless, Patton's second concern for theory, that is, speculation on causality, is a meta-example of the basis of my research. This qualitative analysis concern, which considers the relationship between program processes and outcomes, is itself a process/product paradigm. Speculation on causality attempts to find possible relationships to explain patterns in collected data but both relationships (that is, program processes versus outcomes, and, patterns versus causality) may be systemic and cybernetic in nature, influenced by mutually supporting feedback. In other words, outcomes lead to processes, which leads to outcomes, reciprocally etc., and explanations lead to patterns, which leads to explanations and so on.

Patton also describes a process/outcome matrix as a tool to organize the research data (Patton, pp. 318-320). Each entry in the matrix is a linkage, that is, a theme, pattern, or program activity, which is categorized with a specific pair, namely a program process versus a program outcome. This process/outcomes pair is represented orthogonally on the mutually perpendicular axis of the matrix as expected. Accordingly, although his model addresses notions similar to this dissertation, the isolation of the pair has a significant difference. Unlike Patton's tool, my model acknowledges the independence and interdependence of process and product (outcome), aspects outside a process/outcome pair, and a focus that the P/P model can be a perspective of research rather than a data organization tool. I would suggest that my paradigm is more a philosophical point of view or an analysis consideration for the conduct of research and engineering activities.

I also sense Patton realized a limitation of his matrix when he wrote:

"Even the process/outcomes matrix was aimed at providing a mechanism for organizing and describing the themes, patterns, activities, and content of the program, rather than at elucidating causal linkages between process and outcomes. There is a fine line between description and causal interpretation." (Patton, p. 324)

I agree with Patton that the organization of processes and outcomes in such a matrix does not unequivocally establish a causal link. I suspect that any relationship, linked, or dynamic between a pair, could be inherent in one pair while being quite unrelated in another despite the latter pair may be associated with the same theme. Although outside the scope of this research, it may be interesting to apply Patton's tool when the total set of observed data is merely and exclusively a collection of process activities or program outcomes but only one set not including types from the other set. Any relationship on an entry in Patton's matrix with the pair on the axes would demonstrate a unique dynamic

and any entry left in isolation would represent a positive or negative preoccupation of a noteworthy theme.

As Patton suggests, I used an inductive analysis method focusing on the categories of the findings, as they emerged from the collected data instead of imposing the suggested model onto the data. (Patton, p. 306) I used the P/P model only as a filter, after the categories of conflict, expressed in non process/product oriented terms, were validated and substantiated by repetitive confirmation of other participants supporting the negative occurrences.

Developing a category system was based on part of whether or not a valid conflict situation was perceived. Once established, the data was filtered into the 'how' (process), the 'what' (product), the 'how and what' integrated in some relationship (combined process/product) or some other category which completed the four general filtering categorizations. These related to my Type I, II, III, or IV categories. Type I and II explanations were then sorted by sub-Types Ia or Ib, ad IIa or IIb. Patton's discussion of Guba's views on category systems was used as a guide in my definition of Types and process of evaluation to avoid problems of convergence, divergence, or unclear categories (Patton, pp. 311-313).

Patton discusses validation, verification and truth toward the goal of conducting useful, reliable and meaningful qualitative research. On truth, Patton agrees that search for absolute truth in qualitative research and speculation on causes, conduct, or consequences

reduces to an unsolvable exercise (Patton, pp. 268-274). He states, "all we can provide is perspective" (p. 37). With respect to validation and verification of the data analysis, Patton suggests the researcher tests the confidence in the analysis and create a method which the researcher can verify the findings (Patton, pp. 326-327). My approach with regard to the confidence in my data analysis was based upon using the extensive literature search dealing with research methods, especially Patton and Whyte, and applying a structured systematic set of procedures at each research site. The focus was to verify that destructive conflict was described, perceived or realized by the participants' comments and observation notes. I also relied on my 20 year background and familiarity with proposals, combined with a logical and straightforward design of interpreting disruptive events and categorizing the observation findings. This familiarity with proposals and the recently acquired literature methodology allowed me to detect conflict, extreme situations and their associated noteworthy data. My research and methods, based primarily on Whyte and Patton, assisted me in avoiding the classical analysis problems in qualitative research by applying logical and established methods of data analysis.

Absolute verification of the findings is beyond the scope of this dissertation. With respect to verifying initial findings of the orienting theory, I submit the supporting results from the multiple settings, the failure to find negative cases, the lack of competing explanations, and the appropriate fit between the data and the analysis, all of which are initial evidence of a self-verification (see Patton, pp. 327-328). A significant amount of additional study would be needed toward absolute verification or validation. My research involved limited multiple settings, was (and is) highly situational, and the potential of

other unique circumstances have not and could not be tested. This is expected in Orienting Theory. In paragraph 4.14, I discuss the issues of validity and reliability as they relate to conflict type classifications of the P/P model.

Patton also provides a four-way test to determine if the presence of the evaluator distorts the findings of the study (Patton, pp. 333-337). I claim, it is a given, that it is impossible to completely remove the researcher from research merely on the basis that ownership of the study belongs to the qualitative researcher. The design, conduct, observations, analysis, evaluation and even the data is the personal reflection of the evaluator. However, that is not the issue that Patton raises. The effects to be addressed here are distortion, or, an inaccurate, nonobjective perspective. The four steps of Patton's test and my associated comments to each of Patton's issues are:

1. Participants react to presence of the evaluator. Due to my legitimacy in the setting, unnatural reactions were not observed.
2. Changes in the evaluator with respect to the measuring instrument or method. Despite my tendencies to increasingly appreciate the value and limitation of my model as the research progressed, I fought the urge to change my conduct, discussion methods, observation techniques, data recording criteria, inquiries or interview guide practices during the study, especially in the latter settings.
3. The evaluator predisposition or biases. To the best of my ability, which in its own regard is a personal perspective of myself, I equally fought the urge to establish a position which would validate or establish a relevance that was preconceived.
4. Evaluator incompetence. Here again is an introspect. After years of successful completion of scholastic training, a career involved with extensive technical collaborative writing, especially proposals, and hundreds, possibly thousands of hours of preparation, that is, surely no less than 1,000 hours of research preparation and conduct, and approximately 1,000 hours of data analysis and reporting which is currently still in progress as of this writing, incompetence is highly suspect.

Despite my one-for-one justification at each step in Patton's test, I will concede a dilemma that I, being the closest to the research, am both the best qualified to justify each position, while I am simultaneously the most likely to carry forward any prejudices, if they existed, during the research, into the justifications provided. Any researcher addressing the step 3 test could never ultimately prove his position if he were unknowingly prejudiced. Neither could the problem associated with this described dilemma be proven. The most attainable and worthwhile position is to be knowingly prejudice, that is, realize we are influenced by our background and previous experiences, and strongly attempt to avoid our predispositions or biases to influence the research proceedings. I suggest that total and unequivocal objectivity is unreasonable and unattainable.

I followed Patton's advice to neither strive for overestimating or underestimating my effects (Patton, p. 335) and devoted a separate chapter and various subsection discussions in this dissertation on my dual role as a participant and observer. I also recorded my observations about myself in the data collection. My control mechanism on my effect was a strong awareness of potential prejudice that could occur, and did occur at various times during the research. I strived to conduct my study in a scholarly and serious manner, based upon a significant amount of literature research, documented guidance, academic committee advice and objectivity.

4.5 On the Research Plan

The research approach and methodology was based on the research techniques and methods of Qualitative Evaluation and Participant Observation (Patton, 1980 and Whyte,

1984). Participant Observation was well suited in this application due to the orienting and opportunistic nature of the investigation. Participant Observation offers opportunities that cannot be duplicated by other methods and provides possibilities for encountering the unexpected phenomenon that may be more significant than originally anticipated (Whyte, 1984, pp. 23-27). The research involved a systematic and quantitative study of collaborative technical writing conflict within Proposal Preparation Work Groups with respect to the general failures without a preconceived perspective of the P/P model. Determining conflict situations was ultimately obtained via the use of semistructured interviewing, (Whyte, 1984, pp. 102-104), validating that previously observed counterproductive occurrences were justifiably negative conflict. The emphasis was placed on the identification of conflict associated with undesirable or negative proposal preparation outcomes. I was considered one member of each Proposal Preparation Work Group under observation. My own observations of conflict, given my prejudice and knowledge of the model, were recorded separately whenever possible. My objective during the project was to maintain the observed scene in the actual context (as if it were not observed or manipulated through inquiry), especially since this nature setting can lead to a truer understanding the operational behavior and dynamic. During the research, I evaluated my role as a participant in the enterprise to establish a clear group identification avoiding research contentions (Whyte, 1984, p.70-72).

4.6 Research Objectives

The research objectives were limited in the framework of proposal preparation work groups within the defined P/P perspective and included an investigation of a new

understanding of conflict and model applicability. My first objective was to learn the types of conflict occurring among technical proposal preparation work groups engaged in collaborative writing. Through observation and analysis, I gained hands-on exposure to conflict situations with heightened awareness due to my previous literature research. These observed conflict types, which were purposely not forced into categories associated with the Process or Product notions, were used as a checklist of topics and a general interview guide during the post development interview to discuss specific proposal writing events. A second objective was to determine if the P/P model easily explains occurrences of conflict in terms of the first 3 Types of Explanation categories as I defined, including sub-types of non-dynamic process or product oriented problems and a fourth type which excludes process or product oriented issues. I concluded that negative occurrences were applicable to all types and subtypes. My third objective was to determine if the model provides insight into conflict and conflict explanation in this setting. New insight into conflict avoidance management was not attained, however, an effective method of classifying and associating specific negative conflict to explanation type was successful. The model provides a tool for the practicing manager to gain pragmatic skills in the timely detection and understanding of destructive conflict from a new perspective. Lastly and ultimately, I attempted to establish a basis to confirm or deny that the P/P model has the potential to, not only explain, but also manage or avoid conflict in the proposal development setting, given the model is appreciated and applied. Despite that classifications of negative conflict was accomplished with reasonable difficulty, any speculation on conflict management and avoidance is premature. Furthermore, the model and the awareness of its proposed theory was not applied.

4.7 On the Research Postulate

The premise of the research was: in the defined technical proposal preparation settings, patterns of conflict associated with collaborative writing will emerge that could be explained and possibly avoided, predicted or better managed, if a P/P perspective were employed. The hypothesis affirms that the process/product model adds a new explanatory understanding to conflict situations occurring in collaborative writing of technical proposals. The research postulate positively proposes that negative outcomes associated with collaborative technical writing will be more eloquently explained, classified and understood with the new language and perspective of the proposed paradigm facilitating effective collaboration, cooperative information sharing, and overall productivity.

4.8 On Semi-overt Observations

My participation was initially in a semiovert role (Whyte, 1984, p. 30). Some proposal preparation work group members and others in each organization realized that besides my contribution to the proposal, I was receiving a graduate degree with a focus toward understanding effective proposal preparation. Yet none of the participants were aware that their particular setting was under investigation, although it is conceivable they may have suspected some research motivation near the end of the project when I requested their support of an interview session. Near the end of the project, virtually all available participants were asked to save some time at the end of the project to comment on the lessons learned and effectiveness of the group. Including myself as a participant, sixteen out of twenty participants were available and granted me this interview. Four were not available due to their early departure from the project, primarily off-site participation, or

unknown location after the project. Further disclosure of the participant's role in my research was deemed to be defeating the goals of the research. For example, if all participant realized that the research study included individual and group collaborative technical writing, some participantq may alter their behavior due to the study. Furthermore, my client may not have appreciated my simultaneous research role in the project.

I attempted to capture the accurate interactions within and between each proposal preparation work group. During the project I recorded my impressions and the candid participant's remarks in this semiovert role. At the end of each project, in an overt manner, I interviewed participants in an attempt to (1), identify conflict occurrences, and, (2) comment the nature and their perspective of the conflict.

4.9 On Conflict Occurrences

The Qualitative data collected consisted of relevant detailed descriptions of situations, verbatim remarks, events, people interactions and the observed situations of each proposal preparation work group. The descriptions were designed to be factual, accurate, and thorough without being cluttered by irrelevant trivia yet detailed to appreciate the situation and capture what actually takes place (Patton, 1980). The recordings are accurate descriptions of people activities and interaction associated with technical proposal collaborative writing and direct quotations and in some cases descriptions of the relevant conflict but not in purposeful process or product terms, per se. Direct quotations and descriptions from the proposal preparation work group members about their negative

proposal writing experiences were recorded as accurately as possible in a semiovert manner taking notes by hand and filling in necessary detail immediately after the event, and similarly during the interviews.

4.10 On Overt Interviews

At the end of the project, open-ended questions, asking participants to describe previously identified conflict related issues and other topics, were asked to learn if participants observed relevant conflict. A sample of semistructured interview guide forms is provided in Appendix A. The series of discussions lasted between 30 and 45 minutes, with the exception of three hurried interviews which lasted less than 15 minutes, two of which were conducted by telephone, which may have attributed to their brevity. Sixteen participant interviewees, including self-interviews, were conducted over three settings, and a total of over 20 participants were observed to some degree over the conduct of the research.

4.11 Recording the Occurrences of Conflict

All conflict noted by the observer during the project and all conflict occurrences mentioned by the participants during and after the project were recorded, despite whether they would be explained or not by the P/P model. Emphasis was placed on conflict situations associated with technical collaborative writing as opposed to totally unrelated social or personal issues such as arguments concerning politics, sports or religion. The compiled list of situations were a tabulated toward analyzing the undesirable outcomes. By undesirable outcomes, it was meant any significant task execution and output

performance not meeting standards as defined by a community within the proposal preparation work group or outside the proposal preparation work group (that is, the customer(s) and other proposal work groups, individuals, and executive groups inside the organization, who may review or receive the draft or final deliverable, as applicable). Issues dealing with disruption, rework, deficiencies or problem areas were recorded as negative conflict. In a few cases, highly successful comments were observed and recorded despite the fact that they were not directly associated with conflict but moreover its antithesis. discussed with the interviewee. During the interviews, I encouraged each interviewee to elaborate on the background, circumstances, perceived causes, and the related circumstances of previous observed unusual occurrences or any negative experiences.

4.12 On Data Collection

Wilemon, Loring, et al. have provided examples of the manifestation of the small group conflicts during proposal preparation identify issues such as ambiguity, differences of opinions, lack of authority and resources. Accordingly, I considered the different types of small group conflict, previously listed in Table 2. Before conducting the research, I prepared a semi-structured interview schedule depicted in Table 3. This schedule was designed to be the basis for my formal research. Fortunately, before formally starting my research and after casually participating in an earlier proposal effort, I used the schedule to determine its effectiveness. I found it to be cumbersome and ineffective. The major problems were relevance and lack of addressing critical issues. After three attempts, I decided to use the interview guide approach based on Appendices A and C.

Topic Type	Preliminary Researcher's Comments	Sample Questions/Solicited Comments
Orienting	Explain my intent to learn the efficiencies and inefficiencies with respect to the writing activities of the project, and ask,	Would you comment on the relevant successes of the writing activities of the project as you see them? Please elaborate, [if too brief or unclear].
Individual Focus	Explain it is realized that despite all preparation, some projects encounter problems, and ask,	What type of writing activity problems did you encounter? Please elaborate, [if too brief or unclear].
Group Focus	Focus on the group including events that may or may not include the individual	What type of proposal writing problems do you feel the group encounter? Please elaborate, [if too brief or unclear].
Personal Satisfaction	Orientation toward the Positive	Did you experience any personal satisfaction with respect to your proposal writing participation? Explain the circumstances [social/technical].
Dissatisfaction Focus	Individual's perspective	Did you experience any personal dissatisfaction with respect to your proposal writing participation? Explain the circumstances.
Dissatisfaction Focus	Individual's perspective on Group Dissatisfaction	Were there other proposal preparation incidence of dissatisfaction you observed involving you with the group or with the group in general? Explain the circumstances.
Dissatisfaction Focus	Continue to investigate Individual's perspective on Group Dissatisfaction	Continue: Were there other proposal writing incidence[s] of dissatisfaction you observed involving you with the group or with the group in general [specify and explain]?
Problem Amplification	Return to the individual, other problems	You mentioned that you alone had some proposal writing problem[s] [specify], can you elaborate on that?
Problem Amplification	Continue probing individual's problems, dissatisfaction and negative outcomes until all mentioned are commented on	Continue: You mentioned that you had some other proposal writing problem[s] [specify], can you elaborate on that? [until all individual problems discussed].
Problem Amplification	Return to the group. Attempt to verify open technical communication, collaboration, cooperation, information sharing else identify problem area.	You mentioned that you detected some Group proposal writing problem[s] [specify], can you elaborate on that?
Problem Amplification	Continue probing group problems, dissatisfaction and negative outcomes until all mentioned are commented on	Continue: You mentioned that you detected some Group proposal writing problem[s] [specify], can you elaborate on that? [until all group problems discussed].
Technical Performance	Focus on the technical Performance compromises made due to limited budget and time constraints	Despite our limited time and budget, did you detect any successes or failures with respect to our technical writing and performance contribution? Explain and elaborate.
Semiovert Observations	Attempt to discuss candid individual and group comments overheard and conflict observations previously recorded	During the project I noticed some technical writing problem(s) associated with [researcher specifies]. Do you agree? Explain and elaborate, until researcher mentions all possible occurrences.
Conflict Focus	Discuss conflict	Can you comment on any explanation of the/these [specify] occurrence[s] that caused conflict?
Negative Outcome Focus	Discuss and explain any/all negative outcomes	Can you comment on any explanation of the/these [specify] negative outcome[s]?
General Additional Topics	Completely open to any other comments the participant may want to add	Before I conclude and thank you for your contribution in my research, can you think of anything else you wish to mention with respect to the activities of our proposal writing and preparation?

Table 3. Sample of Semistructured Interview Schedule

Given the framework of different types of conflict behavior and interaction, the task of data collection can better be described appreciated. In general, I recorded statements by the small group or by those interacting with the group which were associated with dissatisfaction or poor project outcome which were directly associated with collaborative technical writing. Interactions, comments and events which triggered data recording varied over a wide range of topics. The subjects of these topics included specific comments by the individual being observed or interviewed, the group or a subset of the group including or excluding the individual, or a person or persons outside of the collaborative writing group. The topics referenced the past, present or future and normally related to some accusation associated with difficulties in cooperatively advancing or meeting the technical writing goals and objectives of the technical proposal.

During the proposal development, I used a semi-overt strategy to observe notable occurrence and recorded exceptional findings, especially those associated with problems or conflict, on a prepared Field Notes form. A sample form is found in Appendix A. I focused on notable or exceptional events, that is, an occurrence which was out of the norm of usual behavior, events or activities expected in such proposal development settings. Despite my preoccupation to record any problem, conflict or difficult situation, I felt I recorded a representative set of observations which reflected the situation particularities which I was involved in or aware of for each setting. Furthermore, the recorded data was useful in terms of the objectives of the research since they captured the significant conflict occurrences. For each observation I recorded the site, my role (as researcher or participant), the details of the observation, and the potential conflict

situation, that is, the unusual nature as suggested by the observation. If I had additional comments related to the observation, I used a background note entry, referenced by number to record supporting details as soon as possible after the observed occurrence.

As recorded on my Field Notes form, my (dual) role as participant or observer was selected for every observed occurrence. Refer to Appendix B for the field notes data collected. This selection was not as trivial as I or one may have expected. When I was directly associated with the observation, I normally indicated a participant status. When I was merely observing others, I would indicate an observer status. However, there were numerous observations, as indicated in the Appendix B data, that I was clearly in a dual role and in those cases I indicated both status. This dual role subject is presented in more detail in Chapter 7.

After the development and as participants completed their assignment or were released from the project, I conducted interviews in primarily an overt manner to address the potential conflict issues recorded on by the field notes. For each site, the conflict issues were analyzed and reduced to a list of condensed conflict situations. This reduced list was added to an interview guide in preparation for my post development interviews. Each site was prepared separately yet it was surprising to find numerous similarities of potential conflict situations among the three sites. Common themes include issues concerning the proposal format and interpretation of the specification. The details of the observations and the reduced list of conflict situations were combined to establish a final interview guide. The final list was supplemented with general topics of positive and negative

experiences and closing remarks. For each participant interviewed, I reviewed, recorded and used previous applicable observations directly related to that participant. The applicable observation numbers from the field notes are recorded on the interview guide to personalize my inquiry. See Appendix A for the blank form used in the research. Appendix C provides the verbatim and associated data collected.

To establish the interview, most of which was conducted face to face with the exception of three, which were only available by phone, I initiated the interview with the participants' views on positive experiences he or she perceived, observed or experienced in the project. After that introduction I asked participants to elaborate on previous identified (potential) problem or conflict areas to get their opinion on the nature of the issue. I recorded verbatim responses and after the interview elaborated on recorded and non-recorded data through a series of numbered referenced notes.

This established a basis for potential conflict issues regardless if they were destructive or constructive. Conflict situations which were destructive, by supporting evidence of the observations and interviews, were subjected to the P/P model. I interviewed the Proposal Manager (Participant PM) at each site to get a full perspective of perceived conflict issues. The Proposal Manager was a small group member at each site yet this position had special purpose and provided different functions within the group. In all cases, the PM contributed the least amount of original writing material, provided the most general guidelines of direction and strategy, and was the final decision maker of controversial (detailed) issues which could not be resolved within the remaining subgroup. I also

interviewed myself, (Participant X), to better address the issues of my dual role as participant and observer and to provide my personal view on the potential conflict and problem areas experienced on each project.

4.13 On Categorizing into Explanation Types

A formal approach to associate participant's conflict description responses to the four Explanation Types was developed to aid in the classification. Explanation Types Ia and IIa address a misguided emphasis on the opposite focus with respect to the P/P model. For example, a Type Ia explanation would be associated with negative conflict resulting from a consensus that far too many status checks, scheduling and rescheduling exercises were conducted during the collaborative writing project given that these process checks lead to disruption or delay. Conversely, a Type IIa explanation would be associated with an overwhelming agreement from the participants that negative conflict occurred from far too many requests for the premature assembling of incomplete and partially written sections into review drafts for monitoring purposes given that this product preoccupation caused, for example, rework or delays. Types Ia and IIb were reserved for a counter productive pre-occupation to a process or product oriented issue respectively, which would not have been remedied by an opposite tact.

The general Explanation Type III is more complex and broader in scope since it deals with all other conflict explanation issues. The Type III Explanation would involve, for example, a technical performance/resource tradeoff conflict influencing both the scheduling and production of the proposal or would be associated with some other global

Process/Product issue. Some possible global issues included proposal preparation conflict situations involving various types of technical incompatibility or the inability to handle uncertainty, as well as language and communication problems directly impacting both the processing and production of the proposal. Interestingly, a language problem might not only be explained, but also possibly be clarified, by the P/P model. Language allows and limits efficiencies of most efforts. A Process/Product perception provides a potential for an expanded and more efficient vocabulary. Language guides the way we think, observe, classify, construct, and act in our world. The model attempted to remove a type of blindness and prejudice associated with the strict distinctions between Process and Product. The model attempts to provide a unique insight, understanding and the ability to explain the existing conflict phenomena with a new perspectives and language. It is implied that with the model's perspective, conflict misconceptions would be put into a proper perspective due to the awareness or articulation of the competing forces of the Process and Product activities. Negative conflict situations which are not captured by the filters established as the general Types I, II, and III are categorized into the fourth type which is reserved for negative conflict situations not explained by a Process/Product focus such as social, ethical and political issues.

4.14 Classification Validation and Reliability

Kerlinger (1973) provides the most common definition of validity based upon the question: "Are we measuring what we think we are measuring?". He addresses content validity as the sampling adequacy of the content with the emphasis on the substance or content of a measurement being representative of the content or universe of the content

of the property being measured. Furthermore, he contrasts this with content validation, that is, in the form of a question: "Is the property of the item being measured and is this item representative of the universe?" (pp. 417-418). Kerlinger, who focuses on quantitative research, explains the difficulties in establishing validity due to its dependence on judgement, which is equally, if not more, problematic in qualitative situational research. Since my research involved such a limited sample, I cannot imply three sites constitutes a universe of experiences of all destructive conflict. This was never intended. However, the model was designed to capture the universe of all equally significant, mutually exclusive and totally inclusive cases of explanation types. From the P/P model perspective, the categories fall into four distinct areas contributing to destructive conflict, namely, product-alone, process-alone, process and product in combination, and, neither process nor product issues. These four categories (Types) constitute a mutually exclusive universe from a process/product framework. The subdivisions into subtypes are also designed to provide a mutually exclusive and capture of all items within a type. For example, Type I (Product Neglect) is subdivided into the cases where the process concerns were overemphasized and all other cases of product neglect given no unusual process concerns. Note, that if it was determined that process concerns were underemphasized, the category would be associated with Type II, a process neglect type. Furthermore, if both product and process aspects were dysfunctional Type III would be applicable and if both product and process aspects were functional, Type IV would apply. Therefore, the model provides a distinct classification of all possible destructive group conflict explanations associated with various neglects or unproductive preoccupations with process and product oriented notions, either separately, combined, or

classified as neither. Therefore, if we rely on the consensus of the group to agree that unproductive rework, delays and disruption has occurred, the validity of what the group believes is being measured (observed) or realized is self-established. Although, valid destructive conflict is established by the group's consensus, agreement of a classification type/subtype is not, however, guaranteed. The model is merely a tool to articulate various neglects, preoccupations, dynamics or exclusions of process/product aspects of the writing effort based upon previously established destructive conflict.

Kerlinger also provides a discussion on the topic of reliability in research which addresses the dependability, stability, consistency and repeatability of measurement (pp. 404-405). If the P/P model's classifications attempt to apply a measure of the type of agreed upon destructive conflict, and since it has not been demonstrated or proven that all group members or researchers may agree on the specific type/subtype, reliability remains an open issue. A group or practicing manager may easily realize a more obvious delay or disruption of an effort. However, by applying the model, one may have difficulty in distinguishing between a Type Ia (process overemphasis/product neglect) with a Type III (process/product dynamic or other controversial distinctions). This, I contend, is not a shortcoming of the model. The major thrust of a group or practicing manager is to maintain or improve productivity through the decrease or elimination of avoidable destructive conflict. By applying the model, a new framework in terms of product/process notions is now afforded. Whether or not a specific situation would be reliably or repeatedly classified into the same type/subtype is less important than surfacing and correcting the agreed upon destructive aspect. The model provides a new forum to discuss

the activities in terms of 'what are we accomplishing' and 'how are we accomplishing' and associating problems of progress with a new language and perspective which is self-correcting. Despite the fact that consensus of a subtype classification is not immediately or ever realized, a focus is applied to the root cause or explanation of the destructive problem and is therefore identifiable. The self-correcting aspect results from this focus on identifying the explanation which facilitates a solution by languaging in universal set of fundamental issues concerned with planning or production neglect or preoccupation or some other (Type IV) identifiable complication.

4.15 Evaluating the Proposal

Overall data evaluation is a function of how well the Technical Proposal activity was measured by a competent evaluation community. In other words, was the enterprise a success, that is, a winning or potential winning proposal? This presents a series of difficulties in establishing the criteria of successful collaborative writing of a technical proposal since the enterprise involves various evaluators and is accompanied by cost proposal. The cost issues contained in the cost proposal were not under the control of the technical writers. For example, the technical proposal could be successful but lost based upon the associated price bid by the offering company. Another difficulty is the situation when the formal evaluation decision by the Federal Government's evaluation team, assigned to accept or reject the technical proposal, does not agree with the evaluation of the company insiders and the firm's final review team. Furthermore, the final results of the Federal Government evaluation may not be a definitive win or loss. Both the Government and the company insiders could assign an indefinite or partial qualifying

score associated with the technical proposal. Moreover, the government could cancel or indefinitely delay the procurement or refuse to share specific technical success, failure or measure of the evaluation. Regardless, the issue of the absence, disagreement, or unavailability of a definitive win or loss of the technical proposal by a competent evaluation community, must be addressed. It was proposed, that even in the absence or discrepancy of an official evaluation determined by the Government, that the relevant success or failure of the technical proposal would be determined by the most competent evaluation team available, albeit, that of the company insiders, and that the evaluations of proposal preparation team, as well as, other company insiders and outsiders who had access to review and evaluate preliminary and final drafts would also be considered towards the relevant success or failure of the technical proposal.

The actual situation of the research conducted resulted in the temporary absence of an official and ultimate determination and this absence was used as an additional point for discussion, thereby permitting the utility of the case findings. As of the writing of this dissertation, the Site 2 proposal was overwhelmingly a successful winner, the Site 3 proposal was technically qualified but is undergoing a Best and Final, cost only, competition, and the Site 1 proposal lost based upon price, although it was classified by the government as technically acceptable. This Site 1 proposal evaluation was based upon a combined score of both technical merit and cost, and, after a successful protest, it is currently being recompeted.

4.16 Data Evaluation

From the collection of data, a systematic evaluation was conducted. The comments, situations, and background observed in the semi-overt manner during the project and the survey results obtained after the project were analyzed to validate if these were reasonably associated with collaborative technical writing negative conflict. The evaluation attempted to eliminate conflict situations which were associated with constructive conflict that actually benefitted the project. For the negative or destructive conflict situations, a sorting into the three general Explanation Types commenced and for Types I and II, a further division was made into sub-types. Consideration was first given to each conflict issue in terms of the situation's complexity, whether it existed for a short instant of time, whether it occurred in an early or latter phase of proposal development and determining if the conflict was associated (or easily explained) merely with a focus on the incorrect preoccupation or lack of attention of process versus product issues. The remaining cases were judged to determine if dynamic circumstances involving process and product notions exist. After this evaluation, attempts to explain the overall results were conducted and documented in Chapter 6. When appropriate, highly successful events, the resolution of constructive and other conflict were included in the evaluation.

4.17 On Evaluation Approach

An inductive approach to evaluation was used as the research strategy, that is, the primary attempt was to make sense of the situation without imposing preexisting expectations (Patton, 1980, pp. 40-41). Only when the research data suggested, through repetition and emerging reinforcement, were conflict occurrences categorized into meaningful Types.

The evaluation exercise included an initial review of all observation by number for each site to determine a list of post-development interview issues to discuss with each participant. Relevant observation numbers were assigned on an individual basis. The evaluation after the interviews consisted of assembling all observations, observation notes, and conflict reference notes for each site in a list of substantiated destructive conflict before subjecting them to the classification of the six sub-types, Ia, Ib, IIa, IIb, III, and IV. At the end of each setting, the responses to the previously observed conflict issues and the opportunity to respond to other topics using an interview guide form were probed. These work group negative experiences were associated with both individual and group responses (collectively). The review of proposal preparation memorandum and status reports were collected and analyzed to determine if additional information could be contributed to data collection. However, this data merely confirmed the list of problem areas. The determination of conflict and work group conflict awareness was based upon the emerging repeatability of collected data. However, results of the data collection for one setting did not purposefully influence the questions or approach of the subsequent settings to maintain equivalent initial conditions. Also, at each organizational setting, all applicable findings were added to the data collected. Semiovert conflict observations and interview responses associated with Technical Proposal Preparation collaborative writing conflict were collected for determining conflict groupings. Proposal preparation work group conflict groupings were identified based on high frequency. The analysis consisted of significantly more of a qualitative approach than quantitative appraisal by design. Lastly, after I organized this list of real and perceived conflict events into six sub-group type categories, I commented on all of the findings of all the settings.

CHAPTER 5. GENERAL BACKGROUND OF THE SITES

5.1 Introduction

Three independent sites were selected by convenience for the research settings. Each site had specific similarities as well as differences. Common to all sites selected for the research were a series of constraints normally found in proposal development. These constraints included the limited time to complete the effort, and the limitation of accomplishing the task given the uncertainty associated with incomplete or ambiguous directions included in the government's request for the proposal, as well as the scheduling and assignment decisions, that is, who would accomplish what, by when, within a limited budget. As expected, the time to complete the final proposal document was known at each site and often participants commented that it would be challenging especially shortly before the deadline of the submission. At two sites, the government granted extensions, providing additional development time, but also providing more clarification of the requirements which involved additional tasking or rewording. Participants were frequently asked during the development if they felt they had sufficient time to complete their portion of the proposal. Some of the more significant occurrences and general comments included that on ten occasions, participants positively and overwhelmingly were confident that they had enough time to complete their assignment yet all of these positive statements occurred in an early phase of development, that is, no more than one-third into the

project, (implying an initial perceived lack of a schedule constraint). On seven specific follow-up inquiries of these ten occurrences, the participant revised their perception and felt that time would be a limiting factor in their development with regard to completing their assignments, including four occurrences that were observed after the government granted an extension in time due to changing requirements (schedule constraint).

Often we, (the participants including myself), felt that less than sufficient resources were available, especially with respect to identifying additional people to accomplish newly identified tasks, editing or rework. On eight occasions we identified either typing as the much needed resource for updating revisions, or, commented on the inadequate equipment capability to print or reproduce lengthy documents (resource constraint). Several comments were observed and recorded regarding participants questioning the technical value of our own work due to insufficient resource data, including, what is typically called raw materials or boiler plate, such as, previously written text describing corporate or individual experience and current management practices (technical performance constraint). Often, the work group criticized their own work and the work of others stating it was not current, relevant, persuasive or accurate. Company and outside personnel assigned to review intermediate drafts also provided similar criticism. The criticism of others' work normally was justified on the basis that it did not address the specific or intended directions in the government's request for the proposal including their own personal interpretation of the instructions or their own perceived vision of what the final proposal should address.

The above demonstrated that the schedule/cost/technical status model would have been somewhat applicable for monitoring the high frequency of exceptional occurrences, understanding negative outcomes, or explaining potential destructive conflict.

The sites also had marked differences distinguishing one from another. Unique characteristics among the three settings included:

- (1) At the first site, the proceedings occurred in a fashion that was decided by consensus of participant's comments to involve normal difficulty with regard to the steady progress of the proposal development and the ultimate technical final draft. Comments from participants describing the general and specific problems encountered included responses and descriptions such as, "as expected", "about average", "as usual" and "not too bad".
- (2) At the second site, we were overwhelmingly pleased at how efficiently the proceedings were conducted and made comments that this was the easiest, lowest stress, and one of the best run proposals experienced by the writers. From my own personal opinion and from a consensus of participants, this project was not overly staffed or unusually easy. Also, the time provided to accomplish the task was reasonable, neither very challenging nor abundantly sufficient. I attribute the ease of accomplishing the task to notable cooperation, compatibility and a strong skill mix of the group, despite this occurred by coincidence. One participant commented after the project that he felt the project, "went well because we always told each other what was going on . . . and we shared portions of our write-up".
- (3) At the third site, several disasters, significant negative outcomes and disappointments occurred, accompanied by much rework. Several of the participants and reviewers had negative comments on both the content and control of the project and the intermediate proposal drafts, as well as the final document. Several constructive and destructive conflict situations occurred at status meetings and interactions among the participants.

5.2 Site 1 Background

The first research site occurred at Image Plus, Inc. (a pseudonym), a Northern Virginia subsidiary of a nearly billion dollar national parent company. Proposal site 1 work groups consisted of nine full time individuals and two part time individuals. Over 95% of the

work was conducted on site at the client's facility supplemented with limited write-ups supplied by off-site employees. The work dynamic was cooperative. Assignments were made initially with little collaboration. As outlines and partial products were produced, collaboration increased. My role in the group included preparation of the executive summary, scheduling and reporting to the Proposal Manager.

5.3 My Participation, Responsibility and Control at Site 1

My role at Site 1, in terms of control, influence or possible manipulation, was limited by choice and situational chance. I was the foremost part an equal member of the writing team with some higher status since I had direct interface with the Proposal Manager. My unique responsibilities included obtaining project status and reporting progress and problems to the Proposal Manager. Because of this close interface with the assigned Proposal Manager, it is reasonable to say I had some degree of influence which I applied carefully to the progress of the projects opposed to my research. In the limited instances where I had a position of influence, I purposely acted as I would if I were not conducting research. I also never applied or made reference to product/process notions or P/P model theory at this or any other site. None of the employees of my company were assigned to this project or any other site to avoid the unique complications of their awareness of working with superior (myself) who has some control of their careers or knowledge of my research of P/P principles (which have been introduced in my company). A majority of my time was devoted in writing an Executive Summary and introduction to the complete proposal which required an extensive amount of collaboration and interface with the other contributors.

A balance of control was obtained. I was working directly for the company and accordingly had somewhat of a subordinate role. However, I was simultaneously a hired professional consultant who specialized in proposal development and, therefore, afforded somewhat of a superior role with respect to my opinions. However, the majority of time we cooperatively collaborated on most issues of discussion. I often compromised on due dates, technical direction and proposal format issues and other group members often compromised their position on similar issues I or others opposed. As the project progressed, I felt the group organization lacked distinctions of subordinate and superior role playing. Delegation and activity selection were conducted to facilitate progress. My participation proceeded as if I were not conducting research, and lacked the application, principles or notions of the P/P model. Moreover, I felt other perceived me as an employee of the hiring firm, which resulted in formulating a natural working group without special considerations, roles, or influences. At group and small group discussion meetings, I neither over-dominated nor under-provided my participation, comment or control. On one to one interactions, often I felt it was providing guidance as expected by an outside consultant, yet there were situations when others volunteered guidance and direction for my work which I used or considered.

5.4 Site 2 Background

The second site was at Systems, Inc. (a pseudonym), a Washington, D.C. based system integration firm with a Corporate parent sales exceeding \$1.6 Billion. The bidding division had over 1,500 employees, nearly \$200 Million in sales and had participated in over 175 government contracts worth over \$700 Million. They were pursuing a follow-on

contract. The government request for proposal timeframe was extremely short, less than 30 days, but the firm was confident they could produce a winning proposal since they were currently performing the work. They required a proposal coordinator to schedule the collaborative writing exercise, monitor status and participate in the writing. Six writers, including two females, contributed to the technical proposal. I assisted in the strategy and development of, management sections and an executive summary, which was not mandatory but normally accompanies federal proposal submittals.

I planned an early aggressive red team review to minimize risk. The final (red team) review was conducted by five executives and resulted in minor changes and a general positive response to the near final draft we prepared. The majority of this proposal consisted of 19 resumes and a detailed management plan. The 19 resumes proposed were the existing staff currently supporting the contract. Some of the proposed resumes did not meet the specifications addressed in the solicitation. Despite the fact that all 19 persons were currently assigned to the job, the new requirements were slightly different than the accumulated experience of these incumbents. The resume editor had also modified the wording of the text which changed the common and normally accepted vernacular of the information technology industry. Despite the editor's improved grammatical presentation of the material, experienced information technology engineers and technicians referred to certain terminology in a specific manner which was not reflected by the editor's changes. This involved some rework since modifying the words for grammatical purposes would have been unacceptable, demonstrating a company's lack of knowledge of the subject matter.

One writer at Site 2 who was responsible for setting the style of the document and compiling all of the separate files into a single document expressed the problem that headers, footers and font settings were unstandardized and asked all participants to stop modifying their files with regard to style. Actually, certain writers wanted to use special effects in presentations outside of the limited standards established. A compromise to sparingly use nonstandard styles was reached. As a result, rework of the style originally suggested by certain imaginative author was necessary.

It was discovered late in the development that the individual resumes had to be signed by the proposed employee, certifying that the information presented in the final submittal was accurate. Since the proposed staff was located all over the country including Hawaii, logistic and timing problems occurred. The ability to edit the resume after signature was then impossible since an original signature had to be submitted.

Despite these general difficulties, some of which proved to be constructive conflict occurrences, the proposal effort was accomplished with significant efficiencies. Overtime, extra typists, and weekend hours previously scheduled went unused.

5.5 My Participation, Responsibility and Control at Site 2

My role at Site 2 involved virtually no cases where I employed unnatural control, influence or possible manipulation. I was quickly established as an equal member of the writing team, probably because other group members were experienced in proposal writing and working in similar groups. Beyond creating the Management and Executive

Summary sections of the proposal, I directly reported to the Proposal Manager. My close interface with the Proposal Manager had little observed effect to the degree of influence I was entitled. In the limited instances where I had a position of influence as a result of being the status keeper, I avoided manipulation and participated in a natural fashion, that is, employed decision making and control on the basis of the most productive progress of the project.

Despite working directly for the firm, I felt I was not treated as a subordinate or superior. The majority of time we cooperatively collaborated on most decisions, problems and issues associated with the planning and production of the project. I observed other group members compromised their position approximately as often as I compromised mine. I felt the group organization was tight with a high degree of cooperation. Assignments were allocated with regard to maximizing productivity and I neither had or imposed special influence. At group and small group meetings, I felt as an equal stakeholder in the proceedings and was treated without special regard. On one to one interactions, I sometimes provided and sometimes accepted guidance with respect to proposal strategy, content, format and closure.

5.6 Site 3 Background

Site 3 was a newly acquired division of a large organization with total sales of over \$1 Billion. The division, New Networks (a pseudonym), specialized in designing and implementing nationwide information systems technology. The federal agency requested a new solution toward complete automation of their diversified data processing and the

utilization of the latest industry standards was a primary focus of the government. The proposal had to address relevant past performance and innovative solutions to a broad Statement of Work (SOW) which involved virtually every modern aspect of designing and implementing information technology. The organization of the proposal was vague in the sense that offerors had to address the SOW but not in any separate or defined section. The proposal was page limited so the method of how to address the SOW was critical. The instructions for proposal submittal were clear to one extent. Offerors were required to submit three sections namely, Past Performance, Resume and a Management Plan. Some members of the group suggested we address all technical issues by reflecting how the firm had accomplished similar efforts on previous contracts. Members objecting to this focus argued that this would not provide a methodology of how New Networks would accomplish the work. Opposing members suggested we address all technical issues in the Management Plan (as opposed to the Relevant Experience section) to demonstrate what the company would do when they win the contract. This was a major conflict issue. Due to the page limitation, we could not address SOW technical issues in both sections of Past Performance and the Management Plan. We initially agreed to use a temporal compromise, that is, if we had past performance directly applicable to SOW issues, we would address those technical issues in Section 1, Past Performance. For issues never accomplished in the past, our proposal would elaborate on how the company would accomplish the SOW technical issues in Section 3, the Management Plan. Therefore, it was initially decided that the SOW issues would be split into the two sections and we would provide an explanation and road map of this proposal organization early in the proposal in the Executive Summary. Upon completion of the first draft using this

method, reviewers objected to this split approach and recommended that all technical issues be reorganized into the Management Plan section, under a subheading called Methodology. The group reworked the draft for another review team (consisting of many reviewers of the first team), who rejected the re-organized draft on the basis that technical issues were not addressed until the very end of the proposal. Their new direction was to move and blend all technical issues into the Past Performance, Section 1. This involved large amounts of rework for the group. This controversy was discussed, tentatively decided, and ultimately reversed in various fashions several times, causing significant destructive conflict. Simultaneously, the number of pages allocated to Resumes, Section 2, was constantly in flux. Decisions to limit resumes to two pages, then three pages, or four pages, impacted the page allocations reserved for the other two major sections, which were constantly undergoing revisions.

5.7 My Participation, Responsibility and Control at Site 2

My role at Site 3 involved little control, influence or personal manipulation despite the fact that I attempted to influence certain proceedings which I felt were unacceptable. I was less than an equal member of the writing team possibly because of my outside status and the dominating style of other group members. My responsibilities included writing various technical and managerial sections of the proposal, often with changing direction. I was also responsible for reporting to the Proposal Manager. I possibly lost some degree of influence due to resentment that I was assigned this management liaison position. I often felt somewhat subordinate, despite my consultant role. I, like others in the group, was often challenged on their position with very little cooperation or compromise. The

majority of time I felt as if I compromised too frequently or quickly, possibly to a fault. Decisions made on due dates, technical direction and proposal organization were occasionally changed or compromised. I felt the group had various members at different times providing influence, politics, and control, often at cross purposes. At group and small group discussion meetings, I felt frustrated I could not influence the proceedings on specific issues I felt were critical, such as the proposal organization. On one to one interactions with certain members, I often sensed animosity, yet with others I had effective two-way cooperation and ease at exchanging guidance. A majority of the negative circumstances occurred early through midpoint of the development cycle. Towards the end of the project, cooperation and collaboration increased in an effort to accomplish closure and an end to the more negative than positive experience. Even at the end of the project, I felt I had neither over or under influenced the latter stages of the proposal development at Site 3.

CHAPTER 6. FINDINGS AT THE SITES

6.1 Introduction

The evaluation of the findings involves the analysis of observed and recorded details to ultimately classify the destructive conflict into the P/P model category of types and subtypes. These categories are:

- Type Ia. A counterproductive preoccupation with Process when a Product focus would have been more appropriate.

- Type Ib. A lack of focus on a Product-oriented element of the project caused by any factor other than a preoccupation with Process.

- Type IIa. A counterproductive preoccupation with Product when a Process focus would have been more appropriate.

- Type IIb. A lack of focus on a Process-oriented element of the project caused by any factor other than a preoccupation with Product.

Type III. Any other explanation associated with both of the Process and Product notions, such as those associated with the dynamic between the two notions.

Type IV. Type IV is reserved to address situations of conflict which could not be explained by any of the types or subtypes.

The findings at the sites, both individually and collectively, are specifically based upon the observations and the verbatim comments of participants during the proposal development as recorded on the field note forms used in the research. I also used the descriptive comments and background notes recorded during the proposal writing and the verbatim comments of participant expressed during the post-proposal development interview. The findings also consider the descriptive comments and conflict reference notes recorded during the interview found on the Appendix B and Appendix C forms. Additionally, I rely on the elaboration and descriptions written during the conduct of the research but presented here in this chapter (in the discussion and evaluation subparagraphs associated with each destructive conflict situation). The majority of this data is contained in Appendix B and Appendix C. To meet the objectives and goals of the research, the total set of data was analyzed to determine reasonable and valid cases of destructive conflict, substantiated by a consensus of the data, and associating each occurrence with explanation types as defined by the P/P model. Discussions and justifications of selecting a P/P model conflict explanation type are also provided.

6.1.1 Time as a Resource

One unique factor in proposal development as an engineering development activity is the strict sense of a deadline, that is, an uncompromising fixed time to complete and deliver the final document. Government agencies virtually never accept late proposals and proposal writing teams are keenly aware of this fact. Accordingly, time management is an ultimate consideration in proposal development. Through many observations in my research I monitored the general status of technical quality, problems encountered, and the participants' perception if they had sufficient time to complete their portion of the effort to their own standards or goals. On numerous occasions participants assured me that they felt they had sufficient time to complete their sections yet a preponderance of these responses occurred early in the development. Toward the end of the development the same participants reversed their perception and answered they wish they had more time. I labeled this phenomena the 'addict's ignorance', that is, a term analogous to an addict who believes because he has sufficient drugs at the present time, does not realize that over time his resources will be expended and the desire for more will return. Unlike certain sports games and similar competition, in life, the clock can't be stopped.

6.1.2 In-House Proposal Review Evaluations

With respect to another observed phenomena associated with Red Team Review evaluation, I used a 'ceiling-floor' analogy. This observed concept relates to the perception and possible reality of a grading standard that in-house Red Team Review and other proposal review members apply to preliminary drafts of the proposal. Observations substantiated that writers perceive that the review team will neither completely reject or

completely endorse the preliminary draft. Furthermore, they will provide a score within a pre-established range, bounded between a floor (lowest) score and a ceiling (highest) score. This perception may actually occur in practice. I am not suggesting this range is universal but merely that a range somewhere between "requires extensive rework" and "requires additional work" exists. Reasonably, differences of the range are perceived and most likely occur, based upon the review team members, company and other circumstances. Despite this, I am suggesting there is a perception and possibly practice that Review Teams will not reject a preliminary draft beyond a company or team established lower limit possibly because; it is difficult to defend; it is politically unwise to discredit the writers; it may reflect that the reviewers did not understand the requirements or the submittal; it may cause the reluctant reviewers to be assigned to correct the draft since they are intermittently familiar with its faults, or; some other sets of reasons. Furthermore, I suggest that Review Teams will not overwhelmingly endorse a preliminary draft possibly because; its preliminary status indicates there is an expectation for improvement; they may feel any document can be improved given the additional time; an endorsement will involve the risk that the proposal, as is, is a candidate as a winner which may turn out to be a loser; and, they can separate themselves from this risk of general acceptance and its finality; their lack of criticism could be misinterpreted as not understanding the more complex nature of the effort; or, some other set of reasons.

In any case it was observed within the corporate culture of proposal development at these three sites that most review teams have a narrow and somewhat ineffective range of

criticism which many participants are aware of, tolerate, and virtually circumvent in the practice of proposals. As a discovery within my own research, I believe that such a phenomena, if it truly exists, is an interesting topic as a future research agenda candidate.

6.2 Findings at Site 1

Based on the total set of data observed and collected at Site 1, the destructive conflict described in the following subparagraphs was observed, analyzed and reported. For each destructive conflict situation, a substantiation, discussion and evaluation are presented. Extensive references to the Appendix B and C research data are provided for each destructive conflict situation.

Destructive Conflict (DC) Site (S) 1-DC1

As Site 1 (S1), the first Destructive Conflict (DC1) reported is associated with the Interpretation of the Specification, that is, details associated with the content and scope of a Quality Management program. The substantiation for this destructive conflict is based upon the following Appendix B and C research data:

Observation O3, O4 and O11

Background Notes N1, N2 and N5

Red Team Review comments

Participant 1's comments on Negative Experiences and Conflict Reference Note
(CRN) #1

Participant 3's comments on Page Allocation and CRN #10

Participant 3's comments on Subcontractor Selection and CRN #12

Discussion of S1-DC1

This issue involves the perceived details required to satisfy an ambiguous RFP specification requirement to provide a Quality Management write-up. Participant 3 felt that since he was assigned the responsibility to provide a quality write-up, he had full authority to define what it was, its length, and its contents without regard for the general guidelines and strategy for the complete document. Despite warnings that his write-up was strategically inaccurate, the Red Team and other participants (PM, X, and 2) determined that his product was too long, not applicable, and contained irrelevant TQM issues, items specifically and previously brought to his attention.

The analysis associated with the nature of this destructive conflict involves the lack of deciding and planning the constraints and content of a quality plan. Participant 3 argues for a product-oriented position to include and emphasize Total Quality Management. From O3 and O4, the group fails to address the critical underlying issue, which strategically must decide the extent of the quality description to be included in the proposal. Participant 3, despite the challenges of Participant 2, forces a product-oriented closure supported by O4 and N1. From N5, this action led to unnecessary rework and was further identified as a deficiency by the Red Team. From CRN#1, Participant 1 tolerated the indecision and from CRN#10 and CRN#2, he admitted that the strategic issues was never resolved and the initial activities lacked adequate planning.

Larson and LaFasto, (see paragraph 3.3), who researched characteristics associated with group work, might associate their notions of 'Clear goals' and 'Collaborative climate'

toward avoiding such negative outcomes. From Hackman and Oldham, (see paragraph 3.4), parameters associated with negative effectiveness of group work, such as, 'Output not meeting quality norms' or 'Incorrect task performance strategies' would be applicable in this case. From a process/product perspective, evidence points to a faulty focus and counterproductive preoccupation with the content of the quality section (the product) when a collaborative process-oriented planning focus of how to resolve the specification ambiguity would have been more appropriate.

Evaluation of S1-DC1

The rework associated with modifying the Quality section of proposal could have been avoided. Participant 3's research and writing of areas previously decided not to be applicable caused disruption at meetings, delays in the draft of the Executive Summary, and unnecessary management of the overall page allocation. The root problem was an ill advised concern of his product (write-up) without concern of the overall strategy (process). Accordingly, the P/P Model explanation associated with this negative occurrence is determined to a Type IIa.

Destructive Conflict S1-DC2

An additional occurrence observed and analyzed as destructive conflict is associated with Inadequate Source Data, that is, details associated with acquiring, researching and using, (in some exact or modified style), new and previously written marketing materials and proposals which would and could have contributed to a worthwhile proposal. The

substantiation for this destructive conflict is based upon the following Appendix B and C research data:

Observations O6, O10, O12 and O15

Background Notes N3 and N6

Participant 1's comments on Technical Input and Quality and CRN #3

Participant 1's comments on Source Material Availability

Participant 3's comments on Source Material Availability and CRN #11

Participant 3's comments on Rework

Participant 3's comments on Subcontractor Selection and CRN #12

Participant 4's comments on Negative Experience and CRN #13

Participant 4's comments on Amount of Resources and CRN #14

Participant 4's comments on Source Material Availability and CRN #16

Participant PM's comments on Source Material Availability and CRN #22

Participant PM's comments on Rework

Participant PM's comments on Subcontractor Selection and CRN #23

Participant X's (self) comments on Source Material Availability and CRN #25

Participant X/s (self) comments on Subcontractor Selections and CRN #26

Discussion of S1-DC2

The source material should have originated from two major sources, namely, the client's old proposals, including available marketing materials, and, the subcontractor's existing marketing information (proposals, materials, resumes, etc.). With regard to client information, numerous proposals were available but most data was irrelevant, outdated,

and incorrect. Subcontractor data was received late and in many cases was incomplete. Writers appropriately researched the assembled source data to avoid unnecessary new work since the existing write-ups may easily be revised. Effective revisions of the available material were not accomplished since the assembled data was inappropriate. Rework and delays were experienced. Adequate attention to assembling timely and accurate source and research material is an issue associated with the proper concern for the effective process and efficient product generation.

The analysis associated with the nature of this destructive conflict involves two distinct problems. With regard to the client's source material, from O6, O10, O16, N6 and CRN#13, Participant 4 has difficulty because relevant data was not available initially, and later was inappropriate but used anyway. This involves poor planning and forcing a partial product as a result of improper planning. From CRN#3, Participant 1 indicates an expected reliance on old proposals as a starting point for proposal development. He also feels that management was not supportive in this area. From his response to Source Material Availability, (Appendix C), there is a sense of poor organization, collaboration and coordination of source materials. From CRN#11, Participant 3 agrees and expressed some frustration, especially from his comments on Rework. From CRN#13 and CRN#16, Participant 4 senses poor planning, but from CRN#22, the PM disagrees supporting a notion that writers will use what is available even if it is not totally applicable. From CRN#25 and CRN#26, I felt the situation could have been managed.

This problem can be expressed in terms of Weisbord's Task-Process snapshooting, (see paragraph 3.2). Weisbord (1987) explains "the task-process relationship describes a subtle chicken-egg interplay between ends and means, methods and goals, motivation and output" (p. 221). The dynamic between process (planning) and output (product) appears to be applicable, especially since the writers forced the development of premature and inaccurate partial drafts on the basis of irrelevant source data. Larson's and LaFasto's parameters of 'Competent team members', 'Standards for excellence' or 'External support' could be used to explain the development difficulty. The problem could also be explained, in part, from the lack of some of Goodman's performance variable, such as, a Clear engaging direction, Leadership, or Adequate resources, (paragraph 3.5). From a P/P model perspective, a compromising dynamic involving poor planning choices combined with poor production choices explains the difficulties.

With regard to the late subcontractor's source material, a less complex difficulty occurred. From O12 and N6, the strategic decision to select a subcontractor in a timely fashion is recognized as a significant and potential risk. Participant 3 admits to the delay on the basis of CRN#12 and from CRN#13, Participant 4's frustrations are articulated. Participant 4, from CRN#16 identifies and substantiates a planning problem. The PM, from CRN#23, attempts to justify the delay which was actually caused by political issues uncovered in negotiations. This is somewhat of a poor excuse. The PM lacked the appreciation and complexities actually involved with integrating subcontractor data. Early subcontractor selection solidified with a firm agreement was essential in the proposal development process. From CRN#26, the critical step could have been initiated sooner

and if it was determined that this timeliness could not be accomplished, a possible no bid or alternate subcontractor should have been considered. This issues deals with a difficulty in the planning process which is not influenced by a product oriented focus.

Parameters of Hackman and Oldham, namely, Incorrect task performance strategy and Frustration are somewhat applicable, (paragraph 3.6). From Larson and LaFasto, the difficulty can be explained by the lack of a Results-driven structure or External support. From Blakelee's perspective, (paragraph 3.4), and Thrall's point of including reading with writing in the collaborative process, (also paragraph 3.4), the PM failed to appreciate this collaborative aspect since he read the initial drafts and failed to see the significance of integrating subcontractor data. From Myers' research, (paragraph 3.5), the PM missed an opportunity of an improved product through review and his impression that subcontractor data could be easily appended to the proposal. From a P/P model perspective, the destructive conflict associated with the delay of integrating subcontractor data in a less than persuasive style is explained by a lack of process oriented focus. A premature product oriented focus or preoccupation with product notion is not justified in this case.

Evaluation #1 of S1-DC2

This will be evaluated from two perspectives. The first evaluation will not consider the issue of late data from the subcontractor, which is discussed in paragraph 6.2.2.3. This first evaluation addresses the availability of appropriate source data. Despite the fact that additional time is required to assemble valid source material, this process step normally saves times and provides a more complete ultimate product. The source material has a

potential to contribute directly to a more efficient creation of the final product especially since it qualifies and includes previous valid technical writing. A dynamic is working here which is an investment into the concerns of both the process of how to create the document as well as what the document could also be, since applicable source document sections ultimately were discovered. According this is associated with a Type III explanation.

Evaluation #2 of S1-DC2

With regard of the late data from the subcontractor, which caused delays with respect to the resume and subcontractor corporate experience write-ups, a less dynamic problem occurred. The lack of assembling the necessary material in a timely manner is associated with a Type Iib explanation, namely; a lack of focus on a process-oriented step caused by factors not associated with the product-notion.

Destructive Conflict S1-DC3

An additional occurrence observed and analyzed as Destructive Conflict is associated with the lack of Adequate Resources, that is, details associated with having minimal typing and graphic illustrator resources and talent to meet the expectations and strategic objectives of the proposal. The substantiation for this destructive conflict is based upon the following Appendix B and C research data:

Observations O9, O13, O14, O16, O18, O19 and O23

Red Team Review Comments

Background Notes: N7 and N8

Participant 1's comments on Amount of Resources and CRN #4

Participant 1's comments on Amount of Resources and CRN #9

Participant 4's comments on Sufficient Time

Participant 4's comments on Amount of Resource and CRN #15

Participant X's comments on Negative Experience and CRN #24

Participant X's comments on Amount of Resources

Discussion of S1-DC3

A majority of the writers used their own PC to prepare draft sections in their own style, format, font and word processing language. Some writers modified the data on screen and felt comfortable with this method. Later in the development documents were shared, reviewed and redlined by others and, more times than not, writers updated their own material at their own work station. Some writers use a part-time typist to prepare and update their work. Before and after the Red Team Review, a temp was hired to handle the increasing load of updates and compilations into a common word processor standard format version. This process was extremely underestimated and resulted in slow turn-around time, causing the delay of the production cycle. These delays were avoidable and predictable yet authorization to secure additional production resources were not made available until it was discovered that the version sent to the Red Team did not include significant updates (in progress) by the limited production personnel.

The analysis associated with the nature of this destructive conflict involves a lack of focus on the physical production of the document. From O13, O14 and O16, the lack of production resources was identified early and throughout the development. From O23, this lack of typing, graphic and reproduction support services proved to be critical. From N7, the production problem contributed to a lower degree of collaboration. From CRN#4, Participant 1 and others had to ineffectively schedule additional activities at the end of the project. This justifies the realization that there was a lack of the importance of producing partial product (drafts) reinforced by CRN#9, which identifies a lack of production coordination. Participant 3, from CRN#9, agreed on the ineffective use of available time given this predictable deficiency. This can not be attributed to a preoccupation with planning but more clearly with a lack of planning and appreciation of significance of timely review drafts. The political and organizational difficulties of waiting for a lengthy authorization process to hire temporary help complicated the matter.

Once again, Larson's and LaFasto's External support parameter is applicable. Schrage's emphasis, (paragraph 3.5), on the significance and potential of technology is also applicable to a lesser degree. The first two of Hackman's and Walton's process-oriented factors, (paragraph 3.5), are relevant to this destructive conflict with respect to, (1), the degree of the group's output met the timeliness of the users/receivers, and, (2), the degree to which the processes enhanced the capability of members working on future independent drafts of the proposal. For example, from O9, my development of the Executive Summary was directly dependent on the detailed write-up of the sections by other participants. Since edits and revisions were not being produced in a timely manner, I

experienced delay in providing a comprehensive and complete summary of the proposal. From a P/P model perspective, a lack of focus on the product-oriented element of the project as a result of a lack of vision in the planning explains this difficulty.

Evaluation of S1-DC3

Reasonable management and planning predicted a typing shortfall before it existed, yet the company, perceiving that all writers could independently merge their work easily, failed to appreciate the magnitude of physically producing a draft document. This is associated with a lack of focus of the product oriented element of physically producing a manuscript. Accordingly, this is associated with a Type Ib explanation.

Destructive Conflict S1-DC4

An additional occurrence observed and analyzed as Destructive Conflict is associated with Personality Conflict, that is, details associated with a lack of cooperation between Participant 2 and Participant Z. The substantiation for this destructive conflict is based upon the following Appendix B and C research data:

Observations O21 and O23

Background Notes N9 and N8

Participant 1's comments on Personality Conflict and CRN #6

Discussion of S1-DC4

Participant Z was a last minute, part-time addition to the group whose only function was to supply statistical information on Corporate experience. Apparently Participants 2 and

Z had political or personality problems in the past. Participant Z was not respected by Participant 1. Regardless if it was politics or personality, there was a lack of cooperation between Participant Z and his associates and the statistical data received from Participant Z, late in the development, was particularly incomplete and in some fashions unusable. As a result, write-ups which were virtually complete except for some fill-ins had to be reworked. This caused unnecessary and unplanned rework.

The analysis associated with the nature of this socially-oriented destructive conflict involve issues outside of the process or product oriented notions. From O21 and O23, Participant 2 has negative comments of Participant Z, combined with the preconceived notion that his contribution will be late and of little value. From N8 and N9 we find that despite a new sense of heightened cooperation and collaboration, these two individuals maintain a history of mistrust and political friction. Participant 1, from CRN#6, shares these negative feelings. Participant Z, either because of his inabilities or his lack of cooperation, failed to contribute effectively. A history of political rivalry between these two different sites contributed to the negative outcome and rework.

Rosen's emphasis on social and organizational issues including Interaction and Motivation are applicable here, (paragraph 3.2). Clegg's trait of Isolation and how it relates to group inefficiency could also be applicable, (paragraph 3.3). Forman also addressed quality issues related to the formation of a team on a basis of having worked together previously, (paragraph 3.4). Given the political history of the individuals involved, Forman's observation of this issue, which she reports impacts the quality of the written document,

is also an explanation for the conflict. Bosley indicated the significance of cooperation in effective teams, (paragraph 3.4), which is very similar to Schrage's importance of co-worker relationships and how they are directly related to group productivity. Lastly, Hackman's and Walton's third of three group effectiveness factors addresses the social aspects of growth and personal well-being of the group members. These researchers provide a degree of additional explanation to this problem which is directly associated with a lack of cooperation, respect and political stability. From a P/P model perspective, the social nature of these issues is outside of a process or product oriented lack of focus or preoccupation.

Evaluation of S1-DC4

This issue cannot be strictly associated with either process or product notions due to its' political or social nature and is accordingly associated with Type IV.

6.2.1 Research Results at Site 1

The following provides a summary of the Site 1 Destructive Conflict:

<u>Destructive Conflict P/P Model</u>	<u>Explanation Type</u>
S1-DC1	Type IIa
S1-DC2 (Evaluation 1)	Type III on the basis of Source Data quality
S1-DC2 (Evaluation 2)	Type IIb on the basis of Source Data timeliness
S1-DC3	Type Ib
S1-DC4	Type IV

Given the circumstances and occurrences at Site 1, a majority of explanation types were experienced. Furthermore, the problem areas associated with other reworks were evaluated as virtually constructive conflict since, participants admitted to improvements in their work as a result of their revisions. Page allocation did not present a major problem since it was not substantiated to cause a major delay or disruption. All other observations and comments were positive or within the norm of the technical proposal activity.

6.2.2 Site 1 Proposal Evaluation

The Executive Review (last in-house review) of this proposal was somewhat optimistic and resulted in very minor comments. From that viewpoint, the proposal was a success. The Government evaluation was based upon a combined merit of cost and technical value. They selected five companies, including this client during the final evaluation round and assessed all five proposals as totally acceptable. However, due to price, they awarded the job to another firm. Upon notification, two of the four losers filed a protest which reversed the initial decision and the firms were allowed to resubmit new pricing for their submittal, which is currently being re-evaluated by the Government.

6.3 Findings at Site 2

Based upon the total data associated with Site 2, the following Destructive Conflicts are reported to be observed and occurred as described in the following subparagraphs.

Destructive Conflict S2-DC5

At Site 2, an occurrence observed and analyzed as Destructive Conflict is associated with selection of Incumbent Engineers, that is, details associated with deciding whether two engineers, currently assigned to the contract, should be rebid as candidates despite the new requirements for the follow-on contract exceeded their qualifications. The substantiation for this destructive conflict is based upon the following Appendix B and C research data:

Observations O29, O30, and O34

Background Notes N10, N11 and N15

Participant 2's comments on Interpretation of the Specifications and CRN #29

Participant 3's comments on Time as a Resource and CRN #32

Participant 5's comments on Signature and CRN #37

Participant PM's comments on Logistics of Resource Signatures and CRN #42

Participant X's comments on Negative Experiences

Participant X's comments on Technical Quality

Participant X's comments on Interpretation of the Specification and CRN #43

Participant X's comments on Rework

Discussion of S2-DC5

The main problem associated with this issue is one of indecision to accept or reject a position of bidding the existing two engineers for this job given an uncertainty. The specification asked for engineers with slightly more experience than the current engineers supporting the contract. The technical Statement of Work specified duties and abilities

exactly equal to the job performed by these engineers. The PM, as well as the group, had difficulty on whether or not to replace engineers. This caused a delay in formalizing their resumes. Since signatures were required, this delay almost prevented their submittal, (despite additional problems of terminology described below in Destructive Conflict S2-DC6).

The analysis associated with the nature of this destructive conflict involves a lack of planning focus. From O29 and O30, the strategic issue of whether or not the engineers should be included was identified early. Its significance and necessity to have a timely decision was also identified early. From O34, disruption occurred as a result of this failure in decision making. From N10, N11 and N15, the solution to require the government to make a determination was short sighted. There was no contingency for the government to be silent, stern or ambiguous with regard to their response. This series of responses could have been anticipated since they are the most logical and most frequent received government responses. From CRN#29, Participant 2 recognizes that the decision delay was a planning error. Participant 3, from CRN#32, admits to the disruption and delays in the planning shortfall which caused the last minute resume rework. From CRN#37 and CRN#42, both the PM and Participant 5 support this position. My position, expressed in the Appendix C Interview Guide Sheet and CRN#43 can be summarized as a blindness to accept a contingency position as well as a lack of planning for the contingency. I agree this non-committal position caused negative outcomes and delays. The PM had political pressures to maintain the existing staff, yet this was offset by the group's pressures to prepare a compliant bid.

Weisbord's attributes of Leadership and Joint decision making are applicable to a degree in this case. Equally, Clegg's emphasis of Poor project policy and Ineffective crisis management can be offered as explanation of the negative outcome, (paragraph 3.3.). Goodman's factors associated with effective group work, namely Clear engaging direction and Leadership could also be applied here as partial explanation. Hackman's and Oldham's criteria of an Incorrect task strategy, Wilemon's reason of Ambiguity among members (paragraph 3.6), and Loring's conflict source of Lack of attention to significant project parameters are equally appropriate. From a P/P model perspective, the negative outcome can be explained by a lack of focus on strategic process-oriented decision making. Furthermore, the notion of a preoccupation with a product oriented element of the project can not be justified in this case.

Evaluation of S2-DC5

In the time critical development of proposal, important strategic decision associated with staff assignments are critical. Delays in this decision nearly jeopardized the project. This displayed a lack of attention to the process oriented task of planning the staffing of the effort and is accordingly a Type IIb explanation.

Destructive Conflict S2-DC6

An additional occurrence observed and analyzed as Destructive Conflict is associated with the Logistics of Resume Signatures, that is, details associated with securing the signatures of the candidate staff on their original resumes due to rework of terminology. The

substantiation for this destructive conflict is based upon the following Appendix B and C research data:

Observations O32 and O34

Background Notes N13 and N15

Participant 2's comments on Proposal Format and CRN #30

Participant 2's comments on Rework

Participant 3's comments on Rework and CRN #34

Participant 5's comments on Interpretation of the Specifications and CRN #36

Participant 5's comments on Rework

Participant 5's comments on Logistics of Resume Signatures

Participant PM's comments on Logistics of Resume Signatures and CRN #42

Participant X's comments on Time as a Resource

Participant X's comments on Rework

Participant X's comments on Logistics of Resume Signatures

Discussion of S2-DC6

After a writer, Participant 5, prepared the resumes, an editor (Participant 6) changed the terminology to reflect grammatical accuracy. However, with this modification, technical familiarity was lost and technical errors were introduced.

The analysis associated with the nature of this destructive conflict involves a preoccupation with production when a planning focus would have been more appropriate. From O32, O34 and N13, it was incorrectly taken for granted that unplanned editorial

improvement to a proposal is beneficial. On the surface it appears logical that subjecting a draft for editorial correction would eliminate inconsistencies, typographical, format and grammatical errors and accordingly an improved product would be produced as a result of this revision process. However, in the description of work activities, typical in resume preparation, words such as troubles, (as opposed to problems), easter-egg, (as opposed to elimination), breakout, captured, IC, large scale, and other terms have a significant meaning reflecting the common and familiar technology being described. Listing equipment in size or complexity order is more appropriate than a grammatically acceptable alphabetically ordered list. As a result, the editor modified wording which distracted from the technical significance of the description of the work. From N15, the rework necessary to correct the revisions caused disruption and almost caused a non-compliant bid. As stated in O34, time to completely improve the resumes was impossible due to the original signature requirement. From N30, N34 and N36, Participants 2, 3 and 5 agreed that the editorial revisions were technically inappropriate. From N42, the PM admits to the poor planning and lack of strategic decision making. My comments on rework support the planning deficiency.

I felt as if the PM underestimated his role as an observer and evaluator of the group activities. His influence was not appreciated by the group or himself. The research of Steier and Jorgenson, (to be discussed in paragraph 7.2 and the implication discussed in paragraph 8.6), is analogous and applicable in this case. Weisbord's parameters on Leadership and Influence equality are also applicable, as well as, Hackman's and Walton's first two of three principles. Hackman's and Oldham's rule of an Incorrect task

performance strategy could equally be applied to explain the negative outcomes. Wilemon's reason of Members disagreeing on project goals has partial applicability as well as Loring's emphasis on valid Project priorities. Tjosvold's advice of Elaborating, Searching and Integrating, (paragraph 3.6), is a candidate model which could have surfaced the constructive contingency alternatives that could have avoided the negative outcome. Using Poole's and Doelger's observations, (paragraph 3.7), where changes in the group's phrases should be considered in group decision making, provide a lesson that would have been beneficial. Using this lesson, it would have been more obvious that delaying this decision had an accumulating and increasing negative impact as the project evolved. Gouran and Hirokawa, (paragraph 3.8), provide seven factors associated with low quality decision making. In this case, six of the seven are related to this case, namely, Faulty information, (government direction), Inferential deficiencies, (the engineers may be accepted since they are currently assigned), Faulty assumptions (the government response will solve the dilemma), Misunderstanding alternatives, (not accepting alternatives), Misevaluating alternatives, (not accepting the worth of contingency planning), and Improper influence of the group members, (allowing the PM to stall the strategic decision). Susman, (paragraph 3.16), formulated five characteristics associated with effective group outcomes, three of these, namely, Dealing with uncertainty, Facilitation and Enabling conditions are also applicable with respect to explaining the negative outcome of this case. From a P/P model perspective, this destructive outcome is clearly process-oriented and associated with poor planning. Furthermore, no evidence is provided to support a preoccupation with product oriented notion.

Evaluation of S2-DC6

This involves a lack of corroboration and poor process planning since the resumes were submitted to the editor very late in the development and without specific instructions to maintain technical terminology integrity. But moreover, the focus was on the product, to presumably improve the resumes with an editor's input, without proper regard to a detailed (better planned) procedure. Accordingly, this is associated with a Type IIa explanation.

Destructive Conflict S2-DC7

An additional occurrence observed and analyzed as Destructive Conflict is associated with Standardized Format, that is, details associated with combining several writers' input into a standardized final manuscript. The substantiation for this destructive conflict is based upon the following Appendix B and C research data:

Observations O31 and O32

Background Notes N12 and N13

Participant 2's comments on Proposal Format and CRN #30

Participant 3's comments on Negative Expenses and CRN #31

Participant PM's comments on Proposal Format and CRN #40

Participant PM's comments on Rework and CRN #41

Participant X's comments on Negative Experiences

Participant X's comments on Proposal Format and CRN #44

Participant X's comments on Rework

Discussion of S2-DC7

The writers had a product oriented focus to prepare their write-ups somewhat in a void of a total proposal production strategy. After incorrect merging of all write-ups into one, the issue of standardization and format preferences causes rework and unnecessary reformatting. Some writers purposely specified and utilized unique fonts and styles for presentation purposes. Unfortunately, these were removed during the merging which contributed to unnecessary work and later were re-introduced for presentation purposes.

The analysis associated with the nature of this destructive conflict involves a prematurely inappropriate preoccupation with product issues which circumvented predictable process-oriented planning issues. O31, O32, N12 and N13 establishes the premature closure to develop a product and the resulting rework since standardization goals were inadvertently but predictably overlooked. It can be argued that it is naive to assume that the style, font selection, content, format and typographical details of several writers will compatibly merge together when planning for such compatibility was unscheduled. If the compatibility issues were previously raised and compromised, the rework may have been classified as constructive conflict. But this was not the case. The individual autonomy and creative strength of each individual's contribution provided a collection of innovative styles despite non-standardization which merely required collaboration toward consistency. Each member had their own presentation and editorial style with their own advantages and compromises. The editor's role of incorporating standardization was conducted in isolation of the group. From CRN#30, Participant 2 admits that the editor, Participant 6, is rigid and normally assumes this responsibility. From CRN#31, differences of opinion

with respect to style and format were articulated by Participant 3. Yet from CRN#31, the group also had a tolerance for compromise. From CRN#40, the PM delegated the responsibility to the group as a whole. From CRN#44 and my associated comments, the issue is associated with a failure to detect a standardization problem until it was changed by the editor, surfaced and caused a controversy which led to unnecessary rework.

Applicable explanation of this negative outcome could be associated with Chern's variance control, (paragraph 3.2), Larson's and LaFasto's Collaborative climate, (only if one agrees that the editor's stubbornness caused the rework), Forman's and Katsky's Inattention to writing and processes, (paragraph 3.4), Hackman's and Oldham's Group output below quality norms or Incorrect strategy, Wilemon's Ambiguity among members or Disagreement on project goals, Loring's Project priorities or Administrative procedure deficiencies, or Gouran's and Hirokawa's factor of Faulty assumption. From a P/P model perspective, the explanation is associated with a counterproductive preoccupation to produce an integrated version of document when a process oriented focus toward establishing constraints and guidelines of standardization and exceptions would have prevented the necessity to reintroduce previously established styles outside of a strict standard.

Evaluation of S2-DC7

Accordingly, the issue is associated with a Type IIa, namely; a counter-productive pre-occupation with the style and format of the product when a process focus on planned standardization, and exceptions to standardization, would have been more appropriate.

6.3.1 Research Results at Site 2

The following provides a summary of the Site 2 Destructive Conflict:

<u>Destructive Conflict</u>	<u>P/P Model Explanation Types</u>
S2-DC5	Type IIb
S2-DC6	Type IIa
S2-DC7	Type IIa

No other destructive conflict occurrences were evaluated since all other problem areas were minor, unsubstantiated or were associated with positive, constructive issues. Based upon a consensus of the comments, this effort proceeded with unprecedented efficiency and very little conflict of any nature occurred. All other issues of rework, Red Team comments or PM reviews of the drafts did not involve any destructive conflict.

6.3.2 Site 2 Proposal Evaluation

The final in-house review of the draft submitted was given high grades by the client's staff. Actually only two words were changed in reference to the title of a previous contract. The Government evaluated the proposal as Good to Superior and awarded the contract to the client. The two engineer's resumes were submitted and approved by the government because of their applicable experience. Both engineers are currently still assigned to the contract effort in the same capacity as the previous contract.

6.4 Findings at Site 3

Based on the total set of data observed and collected at Site 3, the following destructive conflict was observed and occurred as described in the following subparagraphs.

Destructive Conflict S3-DC8

At Site 3, an occurrence observed and analyzed as Destructive Conflict is associated with Proposal Organization, that is, details associated with the placement of technical Statement of Work descriptions. The substantiation for this destructive conflict is based upon the following Appendix B and C research data:

Observations O37, O38, O39, O44, O45, O48, O49

Background Notes N16, N21, N22, N23 and N24

Participant 1's comments on Negative experience and CRN #45

Participant 1's comments on Interpretation of the Specification and CRN #47

Participant 1's comments on Re-organization of the Proposal

Participant 1's comments on Status Meetings/Review and CRN #48

Participant 2's comments on Interpretation of the Specification and CRN #52

Participant 2's comments on Re-organization of the Proposal

Participant 2's comments on No Subcontractor Source Data

Participant 3's comments on Negative Experiences and CRN #55

Participant 3's comments on Interpretation of the Specification

Participant 3's comments on Re-organization of the Proposal and CRN #57

Participant PM's comments on Interpretation of the Specification and CRN #63

Participant X's comments on Time as a Resource and CRN #68

Participant X's comments on Interpretation of the Specification

Participant X's comments on Re-organization of the Proposal

Discussion of S3-DC8

The Government's Request for Proposal (specification) was ambiguous on where to address the technical Statement of Work issues although it was clear about the organizations of the other sections required by offerors and the fact that technical issues should be addressed. Since the Government asked for a 3-section response, specifying that Section 2 should exclusively include resumes, offerors had the option to include the technical details either in Section 1, Past Performance or Section 3, Management Approach, neither of which are natural candidates for technical issues. Since the Government was equally unclear on the issue of permitting a fourth section in a response, a possible option for offerors could have been to add technical requirements as a separate, additional section. Throughout the development of the proposal, the work group presented and argued various approaches. The difficulty was that group decisions were tentative and frequently reversed causing significant rework. The rework was beyond mere re-organization since claims and presentations presented in Section 1 and 3 were continuously being rewritten. The process of cross-referencing, to avoid repetition within the page limited proposal, was unnecessarily and continuously undergoing changes.

The analysis associated with the nature of this destructive conflict involves a failure to make the strategic decision of how and where to include technical details in the proposal. From O37, O38, and O39, the group recognized early that the outline and organization of the proposal was controversial and significant. From O44, O45, O48 and O49, the destructive nature of the rework is evident. From N16, N21, N22 and N24, a failure in planning and lack of direction is admitted. From CRN#47, Participant 1 articulated this

frustration and admission that it was a group fault. From CRN#48, we discover the general ineffective planning sessions. From CRN#52 and the other Participant 2's comments, a consensus begins with respect to poor planning and a lack of autonomy with respect to proposal organization decision making. This is supported by CRN#55 and CRN#57 and the additional comments provided by Participant 3. From CRN#63, the PM defends any lack of autonomy with respect to proposal organization despite evidence indicating otherwise. My own comments indicate observations and impressions of unnecessary rework in several areas over the course of periodic proposal revisions, which were unnecessary given proper planning. The call for drafts also indicate a product oriented focus which is suspect since the outline for these drafts were undergoing rapid and repetitive change.

Other researcher's work on small groups, their productivity and effectiveness, and conflict situation could be used to explain these negative sets of outcomes. Explanation could be derived in varying degrees from Weisbord's Task-process relationship, Larson's and LaFasto's Clear goal, Results-driven structure, Competent team members, Collaborative climate or Leadership, Forman's and Katsky's Inattention to both the writing and the group processes, Hackman's and Walton's first two principles, Hackman's and Oldham's Frustration or Incorrect strategy, several of Wilemon's eight reasons for conflict, or Loring's Project priorities or Technical opinion versus performance tradeoffs. With respect to the PM's management of this situation, he underestimated his influence as a contributor and evaluator. Insights provided by Steier and Jorgenson, (paragraph 7.2), can be applied to this negative outcome. From a P/P model perspective, a dynamic between

producing an ill defined product which lacked sufficient process controls exists. The negative outcome of this case is somewhat paradoxical since the production of a more complete outline and first draft was justified. The production could have constructively led to a better plan which could have produced a better product.

Evaluation of S3-DC8

This occurrence of destructive conflict results from not strategic deciding on a time critical decision of 'how' the document will be organized and 'what' the document will be, that is, a presentation that addresses technical issues in a specific place or places. The rewrites were not contributing towards an improved revision but merely correcting a false assumption of re-organization. Accordingly, this destructive conflict is associated with both the "how to proceed" and the "what it will be" notions of proposal development and it is categorized as a Type III explanation for this occurrence of conflict.

Destructive Conflict S3-DC9

An additional occurrence observed and analyzed as Destructive Conflict is associated with Page Allocation, that is, details associated with establishing, modifying, and managing a page limited proposal, especially a large quantity of resumes which were required for the submittal. The substantiation for this destructive conflict is based upon the following Appendix B and C research data:

Observations O39, O40, O41, O42, O46, O49, O51 and O52

Background Notes N16, N17, N18, N24 and N26

Participant 1's comments on Page Allocation

Participant 1's comments on Status Meetings/Reviews and CRN #48

Participant 2's comments on Negative Experiences and CRN #50

Participant 2's comments on Page Allocation

Participant 4's comments on Negative Experiences and CRN #59

Participant 4's comments on Page Allocation

Participant 4's comments on Rework and CRN #61

Participant PM's comments on Page Allocation and CRN #64

Participant X's comments on Page Allocation

Discussion of S3-DC9

Determining the page count, given the circumstances associated with conflict S3-DC8, was unmanageable since the page allocation was virtually a moving target, that is, constantly changing. The major difficulty surrounded the resumes. Initially 20 resumes were required to be submitted in the proposal limited to 150 pages. Via an amendment to the RFP, the Government increased the minimum number of resumes to 40 while increasing the maximum allowable page count to 200 pages. Participant 4 reasonably argued that he may require up to four pages for some (not all) key candidate resumes to address all RFP requirements including technical details. This was a major point of discussion. Furthermore, Participant 4 could not accurately provide a total page count for all resumes since he did not have a complete roster of candidates who would be submitting resumes, especially from an unidentified subcontractor. Given the missing candidates, he prepared thorough resumes of the partial list of identified candidates, most of which were four pages. Over the course of the development, the resumes were revised

to two pages for physical page count reasons only, and, after they were reviewed and determined to be unsatisfactory, revised again to four pages. The page count allocated to resumes was never attained but as a result of concise presentations in other proposal section, the extra resume pages turned out not to be a serious problem at the time of submittal.

The analysis associated with the nature of this destructive conflict involves a lack of confidence in planning page allocations and the lack of appreciating that dynamically changing page allocations significantly disrupts the collaboration process. The total page count was a given and could have been intelligently disrupted among the sections. Revisions and tradeoffs could have been managed during the course of the development. From O39, O40, O41 and O42, the potential for destructive conflict is identified. From O46, O49, O51 and O52, the unnecessary rework of resume and section revisions is uncovered. From N16, N17 and N18, the issue of poor planning and the premature call for partial drafts is revealed. This is supported by N24 and N26. From CRN#48, Participant 1 provides his opinion of the poor planning sessions. Participant 2's comments and CRN#50 support this position. Participant 4's comments with CRN#59 and CRN#6, establishes the unnecessary rework associated with the resumes. The PM admits to the lack of control with his comments and CRN#64. My comments suggest that the premature calls for intermediate drafts were too excessive and unreasonable since a major factor, page allocation, was poorly planned.

This negative outcome could be associated with Larson's and LaFasto's Clear goal or perhaps better, Results-driven structure. Also applicable in explaining this negative outcome to varying degrees are Hackman's and Walton's second principle, Hackman's and Oldham's Incorrect strategy, Loring's Project priority or Administrative procedures or Susman's Primary task definition, Dealing with uncertainty, Facilitation or Enabling conditions. From a P/P model perspective, the call for premature drafts without establishing appropriate page limitations leads to a counterproductive preoccupation with production when a strategic planning focus would have been more appropriate. Since the page count was a known, it lacks an essential dynamic connecting what the document should be and how to plan or produce it. Therefore, the subtlety of associating this with a Type III explanation is not justified. A superior explanation is in admitting the failure to strategically plan how the pages could have been initially allocated.

Evaluation of S3-DC9

A focus on page count is necessary in a page limited creation of any manuscript but not to the fault of creating unnecessary rework. A false perception that all resumes would necessarily be four pages caused most of the problem. The pre-occupation here was on the product oriented nature of the resumes when a more process oriented focus of securing all available resumes would have been more productive. Furthermore, the fact that Participant 4 received several candidates late in the development, contributed to the overall poor quality of the complete set, a point Participant 4 admitted to during the interview. Accordingly, the explanation type associated with this destructive rework is a Type IIa.

Destructive Conflict S3-DC10

An additional occurrence observed and analyzed as Destructive Conflict is associated with Call for Intermediate Drafts, that is, details associated with the PM calling for premature drafts of incomplete write-ups. The substantiation for this destructive conflict is based upon the following Appendix B and C research data:

Observations O41, O43, O44 and O50

Background Notes N18, N20, N21 and N25

Participant 1's comments on Strategic Planning and CRN #47

Participant 1's comments on Rework and CRN #49

Participant 1's comments on Negative Experience and CRN #50

Participant 2's comments on Strategic Planning and CRN #53

Participant 3's comments on Status Reviews and CRN #57

Participant PM's comments on Technical Quality and CRN #62

Participant PM's comments on Strategic Planning and CRN #65

Participant X's comments on Status Reviews and CRN #70

Discussion of S3-DC10

Several times throughout the development, the PM asked for unannounced versions of most sections. In attempt to improve control, and manage what he felt was a major problem area, namely, page count, he prematurely reviewed drafts which were in process and not ready for review. The scheduling of one outside review and the Red Team was also previously not planned for and a request for rescheduling was denied. As a result,

writers' poorly assembled partial products were unjustifiably evaluated as not ready, incomplete, or unacceptable for review.

The analysis associated with the nature of this destructive conflict involves a preoccupation with product checks disrupting the evolving development of the collaborative technical writing. The creations of intermediate drafts (product checks) as well as status meetings (process checks) are not only necessary, but also beneficial to the development of proposals. However, too many such checks have the potential to disrupt and delay the technical writing process and can cause rework. There must be a balance between process and production activities and the group, which is closest to the details of the collaborative writing activity, are the best judges to determine this balance on the basis of the particulars of the development. From O41 and O43, the PM prematurely insists on incomplete drafts by calling for unannounced document reviews which prove to be predictably faulty. From O44, the effects of unnecessary rework become evident. From O50, we see further evidence on a dependence of frequent document reviews which cause risk in the development. N18, N20 and N21 support the untimeliness of these requests and the apparent rework. From N25, the impact of effectively using the remaining time productively is surfaced. From CRN#47 and CRN#49, Participant 1 comments on the planning deficiency and how this caused rework. Participants 2 and 3 support this position. From CRN#62 and CRN#65, the PM admits to the improper use of time, delays and reworks possibly not appreciating his own influence with respect to usurping the group's autonomy. From CRN#70, my position is presented that too many draft reviews occurred and instead of allowing the drafts to evolve, the group was forced

to take major steps backwards as a result of the "baby and bath water" syndrome, (explained in CRN#70).

The negative outcome of this case can be associated with Larson's and LaFasto's notions of Results-driven structure or Collaborative climate. The first principle of Hackman and Walton is also applicable. Hackman's and Oldham's rule of Incorrect task strategy could be used to explain the destructive conflict. Loring's notions of Project priorities, Administrative procedures and Event scheduling are equally applicable. The negative outcome can also be associated with Gouran's and Hirokawa's attribute of Improper influence of a group member or Holtz's method, (paragraph 3.1), of effectively utilizing repetitive proposal drafts in complete cycles. Also applicable are the notions of Cummings and Malloy to improve productivity, (paragraph 3.16), such as the significance of autonomy and effective group processes. From a P/P model perspective, this negative outcome is explained by a counterproductive preoccupation with the product (the written in-progress drafts) when a process focus to allow a more mature evolution of the development, (as agreed upon by the consensus of the group), would have been more appropriate.

Evaluation of S3-DC10

Given the preponderance of changes in direction, a premature product check of a partial written section under the false perception that a product inspection was immediately necessary to insure control, is a preoccupation with a product notion and product checking without regard for the required evolution of a reviewable product. This destructive

conflict related to meaningless reviews of preliminary materials is explained by a Type IIa.

Destructive Conflict S3-DC11

An additional occurrence observed and analyzed as Destructive Conflict is associated with Call for Status Meetings, that is, details associated with numerous status meetings for planning and controlling the project. The substantiation for this destructive conflict is based upon the following Appendix B and C research data:

Observations O39, O45, O47 and O50

Background Notes N16, N20, N22 and N25

Participant 1's comments on Strategic Planning and CRN #47 and CRN #48

Participant 2's comments on Status Meetings and CRN #54

Participant 3's comments on Strategic Planning and CRN #56

Participant 3's comments on Status Meetings and CRN #57

Participant 4's comments on Status Meetings

Participant PM's comments on Status Meeting and CRN #65

Discussion of S3-DC11

The PM called for mandatory meetings every Monday, Wednesday and Friday although several were missed due to numerous unscheduled meetings. We had unscheduled meetings, often with some group members neither aware or requested to join these normally impromptu assemblies. Status meetings are normally a positive group technical writing activity, especially since it can contribute to collaboration. However, the call for

too many meetings which result in frequent reversals of direction, the lack of decision making on critical strategic issues or the absence of status reporting is detrimental, especially when major strategic decisions like page allocation or organization become reversed. The consensus of participants indicated too many unproductive meetings.

The analysis associated with the nature of this destructive conflict involves a preoccupation with process checks disrupting the evolving development of the collaborative technical writing. A consensus derived from the participants' comments indicated not only were the status meetings ineffective, they were too frequent. On the basis of the observation, the status meetings tended to attempt to manage every aspect of the planning, and, due to the nature of this case, where such management prevented a natural evolution of the activity, the status meetings accomplished little. A negative repetitive cycle emerged, namely, an ineffective status meeting, (attempted to define too many detailed issues prematurely), led to ineffective action and development, which led to another hastily unplanned status meeting, etc. Because the group was attempting to constraint narrow issues prematurely and with uncompromising detail, the decision making was tedious and often inconclusive. This inefficiency led to poor direction and the resulting redirection caused unnecessary rework from the standpoint that the constraints were merely discussed, without decision, or reversed due to later insights which naturally evolved within the group. From O39 and O45, the indecision and premature nature of the issues as well as the frustration associated with the frequency of the meetings are evident. O47 and O50 are repeated occurrences of this real or perceived problem. N16 and N20 address the indecision and lack of planning at these meetings. N22 and N23

support the redirection and severity of the problem as well as its destructive nature. From CRN#47 and CRN#48, Participant 1 acknowledges the high frequency and constant redirection and disruption associated with the meetings. From CRN#54, Participant 2 agrees with the unnecessary meeting schedule and content. From CRN#56 and CRN#57, Participant 3 also perceives too many and ineffective meetings. Participant 4's comments on status meetings indicate their unproductive and inappropriate nature. Participant 4 suggests that substantive issues, such as the review of the resumes, which were appropriate to discuss at these meetings, failed to surface at such status reviews. From CRN#65, the PM's perceptions and my interpretation of the negative repetitive cycle from too frequent meeting is addressed. In total, the evidence supports a more destructive than constructive nature of these status reviews.

Explanation of this destructive conflict can be associated with Larson's and LaFasto's notions of Results-driven structure, Collaborative climate, or External support (in terms of allowing the autonomy associated with a group decision making to evolve and review status checkpoints). Hackman's and Oldham's rules of Frustration and Incorrect strategy are appropriate. Wilemon's Member disagreement or Low interdependence could be applicable. Loring's Project priorities, Administrative procedures or Event scheduling are also sources for conflict explanation in this case. Putnam's ineffective versus effective management aspects, (paragraph 3.6), could also be applied here. Filley's argument, (paragraph 3.6), of applying more attention in the direction of reconstruction of the root problem to avoid conflict could also be appropriate. Also applicable for explanation is Gouran's and Hirokawa's notion of Improper member influence. From a P/P model

perspective, the negative outcome can be explained as a counterproductive preoccupation with status reviewing (a process oriented notion) when a natural group driven evolution and production of more complete intermediate drafts would have been more appropriate.

Evaluation of S3-DC11

An inordinate amount of status checking through meetings during a time limited development indicates a counter-productive preoccupation with process steps to a fault when the more productive approach was to leverage the group autonomy to evolve a more collaborative product. Accordingly and similarly to S3-DC10, the explanation for these disruptive series of unproductive meetings is a Type Ia.

Destructive Conflict S3-DC12

An additional occurrence observed and analyzed as Destructive Conflict is associated with Subcontractor Input Not Available, that is, details associated with not selecting a team member in a timely fashion. The substantiation for this destructive conflict is based upon the following Appendix B and C research data:

Observations O40, O41, O43, and O47

Background Notes N17, N18 and N20

Participant 1's comments on Assignment of the Subcontractor and CRN #49

Participant 4's comments on Time as a Resource

Participant 4's comments on Assignment of the Subcontractor and CRN #60

Participant PM's comments on Assignment of the Subcontractor and CRN #66

Participant X's comments on Assignment of the Subcontractor and CRN #69

Discussion of S3-DC12

Despite numerous requests for subcontractor data, some political or priority issue prevented the firm from formalizing an agreement with a team member of the client's bid, namely the designated subcontractor. As a result of no formal agreement, the name and details of the potential subcontractor was withheld. This caused major problems since the subcontractor source data related to their personnel, management approach, experience and TQM methodology was unknown until late in the development. The resume section was most seriously impacted. Also, other section writers could not provide a meaningful or complete write-up or page count due to the missing data.

The analysis associated with the nature of this destructive conflict involves a strategic planning deficiency. The subcontractor's data was an integral part of several major sections of the proposal. It can be argued that the subcontractor's resumes and isolated paragraphs addressing their past performance and management principles could be easily added to the proposal without integrating difficulties. However, in persuasive and pervasive proposal writing, a more consolidated approach is required. When describing a technical or managerial approach in the proposal, a writer needs to reflect the capabilities, personnel background, past experience, lessons learned and methodology form all bid members on the offeror's team including its subcontractors. Accordingly, the subcontractor's source data is an essential ingredient of the evidence provided in an integrated proposal to persuade the government reader to select this bidder. O40 and O41 illustrate the difficulty associated with preparing the resumes. The lack of finalizing resumes in a timely fashion significantly impacted the difficulties associated with

managing the page count. O43 and O47 support the unusual delay in subcontractor selection and this contributed to negative comments received by the Red Team in their review of a resulting incomplete draft. N17, N18 and N20 support the delays, disruption and poor quality and quantity associated with this issue. CRN#49 and Participant 1's comments suggest that this ill-planned occurrence was frequently encountered and somewhat tolerated despite its negative overall impact. Participant 4's comments and CRN#60 address the direct impact on the resume development and its associated destructive delays. The PM, from CRN#66, defends his position that the problem was unavoidable but admits to its negative impact. Despite any unavoidable subcontractor selection delay, the problem only surfaced when the writers insisted on source data input. The fact remains that the selection process should have been initiated sooner to allow for delay contingency. The postponement of starting the subcontractor selection process is the root of this strategic planning error. The total of these observation comments including my own comments support the destructive nature of the unnecessary rework associated with this negative outcome.

Explanation of this destructive conflict to a degree can be associated with several researchers' notions including Hackman's and Walton's second principle, Hackman's and Oldham's Incorrect strategy, Wilemon's Low (poor) organizational support, Loring's Administrative procedures (to finalize the subcontractor selection), or Event scheduling, Gouran's and Hirokawa's Miscalculating alternative, or the observations of Raign and Sims, (paragraph 3.9), with respect to effective collaboration and their notions Executing good judgement and Willingness to commit. From a P/P model perspective, this negative

outcome can be explained by a lack of focus on a strategic planning issue of selecting and securing the subcontractor (a process oriented issue) which would have made the subcontractor source material available in time for the proposal development. The observations provide a consensus of its destructive nature. Furthermore, there was not evidence that the negative outcome was associated or explained by factors related to the product notion of the model.

Evaluation of S3-DC12

This was a strategic planning deficiency that lacks the proper focus on the process-oriented responsibility to identify the necessary source data in a timely manner and accordingly is explained by a Type IIb.

6.4.1 Research Findings at Site 3

The following provides a summary of the Site 3 destructive conflict:

<u>Destructive Conflict</u>	<u>P/P Model Explanation Type</u>
S3-DC8	Type III
S3-DC9	Type IIa
S3-DC10	Type IIa
S3-DC11	Type Ia
S3-DC12	Type IIb

The events observed at Site 3 identify situations involving poor planning and project execution deficiencies. Furthermore, other problem areas were observed such as a need

for typing resources, draft rewrite occurrences and Red Team review effectiveness. However, these incidences were evaluated as either constructive or trivial since they could not be substantiated by consensus as significant or destructive conflict.

6.4.2 Site 3 Proposal Evaluation

The firm was notified that their proposal was received and was being evaluated with several other offerors. Several other offerors who submitted proposals have been eliminated and the client's proposal was one of several that was determined to be in competitive cost range and technically acceptable for further evaluation. After undergoing a cost only Best and Final offer competition, the client's submittal was determined the winner.

6.5 Findings from the Process/Product Perspective

Based upon the findings, it has been demonstrated that the model does provide a means for explaining destructive conflict in the research settings but not without analyses of subtle distinctions based upon the details of the conflict. To identify which of the six explanation types/sub-types apply, a thorough analysis must be conducted on whether or not the problem area is associated with too little or too much process-or product oriented notions. Other subtleties exist in terms of what constitutes a pre-occupation (to a fault) of either notion and whether or not the opposite notion would be more appropriate. Also, after evaluating several cases, the issue of identifying a valid Type III process/product dynamic is somewhat unobvious.

Despite this critical comment of the model, distinction into Types can be made. The analysis must focus on what the nature of the root-problem actually is, that is, is the problem associated with how the project is progressing versus what the document is evolving to become. In terms of the how and what, the associations to P/P model types becomes:

Type Ia: A faulty overbearing focus on how (to proceed) when formulating what (the document should be) is the explanation of the destructive conflict.

Type Ib: A faulty lack of attention of what (the document should be) which is not caused by an overbearing focus on how (to proceed) is the explanation of the destructive conflict.

Type IIa: A faulty overbearing focus on what (the document should be) when formulating how (to proceed) is the explanation of the destructive conflict.

Type IIb: A faulty lack of attention of how (to proceed) which is not caused by an overbearing focus on what (the document should be) is the explanation of the destructive conflict.

Type III: A problematic situation which simultaneously must determine and execute the means to control both how (to proceed) and what (the document to be), albeit they are interdependently related, is the explanation of the destructive conflict.

Type IV: A problematic situation which is unrelated to all aspects of how (to proceed) and what (the document should be) is an explanation of the destructive conflict.

Despite the tedious nature of classification, the P/P model provides a significant contribution as a management tool which rewards the extra effort required to determine classification types. Namely, the model provides a means to explain destructive conflict, regardless of type, in terms of and as a result of the complex contribution or dynamic of managing the how and what. In technical collaborative writing, the model provides the insight that two simultaneous and often competing efforts are actually being conducted, namely, how to proceed and what will be created. Appreciating that aspect, and that aspect alone, given it has the potential to explain disruptions, delays and rework, is insightful within itself. The fact that it can be classified into types, is a positive first step toward avoidance or correction of destructive conflict. The fact that it requires the analysis of subtleties reinforces the insidious nature of the compromises associated with the how and the what of collaborative technical writing. On that basis, the P/P model is an orienting contribution toward the paradox of managing the contributions and dynamic between and among the how and the what associated with group writing.

6.6 Frequency Of Occurrence Of Model Types/Subtypes

Of the thirteen destructive conflict situations classified into Types and Subtypes, the result with respect to frequency of occurrence were:

<u>Type/Subtype</u>	<u>Frequency</u>
Ia	8%
Ib	8%
IIa	38%
IIb	23%
III	15%
IV	8%

The significance of this summary data, applicable to the situations and research conducted at the three sites, is the high frequency of Type IIa, which reflects an explanation associated with Process Neglect, while simultaneously having a destructive preoccupation with a Product Focus. Refer to **Table 4** for a summary of descriptions of the Types/Subtypes. The table also provides abbreviated definition and examples for each category. Furthermore, the next highest frequency observed and recorded is the Subtype IIb, the alternate classification associated with Process Neglect. The conclusion one can draw from this data implies that if the classification/identifications are valid, the three sites experienced a majority of destructive conflict as a result of poor planning and a majority of those cases had an associated product overemphasis. If these results are typical of future research and applications of the P/P model, the indication would suggest that productivity of collaborative technical writing could be most effectively increased with improvements in planning and more reasonable concerns for production.

Conflict Explanation Summary					
Type	Description	Type/ Sub- type	Destructive Conflict Explanations	Example	Frequency
I	Process Overemphasis/Product Neglect	Ia	Product focus needed in lieu of Process emphasis	Overplanning without a notion or realization of drafts	8%
	Process Concerns Reasonable/Product Neglect	Ib	Product Neglect occurring	Lack of knowing what is being created or lack of desire to produce collaborative drafts	8%
II	Product Overemphasis/Process Neglect	IIa	Process focus needed in lieu of Product emphasis	Prematurely developing drafts without planning or coordinating	38%
	Product Concerns Reasonable/Process Neglect	IIb	Process Neglect occurring	Lack of planning the development	23%
III	Process/Product Dynamic Issues	III	Product and Process Neglect or Overemphasis at cross purposes. In paradox mode - dynamic between how & what	Lack of accurately knowing both what will be produced or how to produce manageable drafts	15%
IV	Non Process/Product Issues	IV	Social, political, emotional or environment problems outside P/P classifications	Despite adequate planning and knowledge of what the drafts will be, progress is not proceeding	8%

Table 4. Summary & Frequency of Occurrence of Conflict Explanations by Types/Subtypes

CHAPTER 7. RESEARCHER AS A PARTICIPANT

7.1 The Dilemma of my Dual Role Participation

I was aware that my participation in the research setting as well as my professional background, personality, and prejudices could have undesirably influenced the study. Through this awareness, open and accurate research can be accomplished (Patton, Whyte, Punch). Punch (1986) discusses factors influencing research outcomes and errors in analytical reflection from a political and ethical framework. He stresses control, detachment and formalization as key elements in qualitative research fieldwork. In light of my strong view of the P/P model, maintaining my objectivity was a primary focus. The isolation and awareness of researcher bias is compounded in participation observation since the researcher must assume a dual role as both an observer and a researcher.

A dilemma of the insider participant researcher is that he or she could be both most qualified to participate in the activity and simultaneously be the one least likely to reliably record the activity. Issues relevant to this dilemma include bias, background, perspective, the researcher as a participant, and the participant as a researcher, as well as physical, technical, political, and physiological aspect of being either an insider researcher (observer) or participant at any one time but not both simultaneously and compatibly. This participant/observer dilemma was more challenging during my semi-overt role of the

technical writing activity then after the project when I conducted the interviews. However, a similar predicament played a lesser yet significant role during the interviews because I assumed the roles of both the interviewer and interviewee, hence a subordinate dilemma. By interviewee I mean that my comments to the survey added to the data. Regardless, the following procedural precautions guided my thinking when I was confronted with this dual role dilemma:

1. **Awareness:** I admitted that often I was a researching participant and at other times a participating researcher and that these two roles are at cross-purposes, distinct and serve different functions. By participating researcher, I mean the observer whose primary role, preoccupation and activity is devoted to the conduct of research and recording events. Conversely, by the researching participant I imply, being a part of the technical proposal group, contributing to the activities of technical writing.
2. **Separation:** Given this awareness, I participated and recorded observations from two frames of mind. One as the participant who was primarily concerned with the workplace activity and second the researcher, focused on observation and collection of data. Some difficulty arose when an observation could not be recorded immediately and before documenting the observation, I reflected on the observation from both mind frames.

3. **Balance:** Given the awareness and separation, I attempted to participate intensely on assignments involving little group interactions and observe primarily at all other times. Despite this potential unbalance and somewhat unnatural condition, I conducted a majority of my observation activities either at status meetings or whenever possible at the worksite and on a non-interruptive basis, especially during lunches, after hours and periods of non-activity.

4. **Recording:** Under these circumstances, I maintained an independent record of the attitude and focus of my own contribution, recording when and why my actions were that as an inside researcher versus a non-researching participant. Separate columns in my field notes recording tool (see Appendix B), labeled "Researcher as Observer" and "Researcher as Participant", were used for this purpose.

5. **Truthfulness:** I accepted that bias and background would influence certain research behavior. I realized that my prejudices, my selection of a frame of mind as either an observer or participant, and the inherent difficulty of choosing and switching between these two frames was problematic, and therefore, I maintained honesty and accuracy while recording in either frame.

6. **Reflective Analysis:** Although multifaceted, I considered problematic factors (frames, bias, etc.) in my interpretations of the notes taken and analyzed each from the dual framework of being both an observer and participant.

7. **Reporting Accuracy:** I used rigor in reporting the findings, my speculations and the particulars of an observed event. I annotated peculiarities and considered all factors before drawing a reasonable or possible conclusion.

8. **Acceptance:** I accepted the necessity of the constraints associated with my dual role. I realized and accepted the absence of a constantly monitoring researcher who must unavoidably shift into a pure participation mode. I accepted that my participation would be less than complete due to my added responsibility of observing as well as reporting on my dual role. I realized research conflicts could occur at transitions, that is, shifting into one of the dual roles. Special occurrences involving myself in either role were recorded as they occurred, even when the observer was the one observed.

7.2 Occurrences in Life

I consider the dual competing frames of mind or their resulting two modes of operations, that is, being both a participant and an observer, similar to many daily occurrences.

When we are involved in a conversation, we are both speaker (the participant) and listener (the observer) including the possibility of being a listener to our own comments. When we are involved in a complex conversation, say a meaningful argument, effective communication involves the formation, observation and monitoring of our own logical presentation as well as listening, observing and evaluating the other party's comments. When we write a letter or paper, we are both writer and editor (reviewer and examiner of our own work). Can humans effectively function if they are not accomplishing (in some combination, but not necessarily simultaneously) both the doing and the critical reviewing of the doing? This question represents the same issue as the participant/observer research dilemma.

When a man attempts to parent effectively, he is both the father (the participant) and the monitor of his actions in an effort to determine if he is interacting in a meaningful manner. Despite the fact that this monitoring is not as rigorous as research observation, observation is being accomplished in a fashion competing with the action of fathering. A father's participation and his observation are competing since the mere activity of one without the other has significant inefficiencies. If he blindly fathers only, for example, shouts some fatherly canned speech to his daughter on the danger of drugs, parental effectiveness is suspect, since he is not validating whether the message was truly received. Conversely, if he is too over conscious, to a fault, about whether or not he is relating to his daughter, he may lose sight of the content and logic of the message. When we effectively speak, we also observe the action of our speaking. For example, effective communication involves the monitoring of the verbal and non-verbal responses of the

listener. If we are overly preoccupied with the participation of talking and neglect the observation, we are potentially guilty of ineffective speech. As we are overly preoccupied with observing each and every reaction, word, inference, non-verbal cue, etc., of our listener and, to a fault, neglect our participation of responding to the continuing dialogue, we are potentially guilty of prematurely terminating or disrupting an ongoing meaningful conversation, since we drifted too deeply into analysis.

In life, as in research, both participation and observation exist in a competing and paradoxically complementary dynamic. The forces are complementary when the proper awareness and balance is maintained. Furthermore, this competing and complementary dynamic exists in the Process/Product paradigm. Here the participation activity is replaced with the product notion of what is to be accomplished and the observation activity is replaced with the process notion of how the action is to be accomplished. If this is accepted, I could retrofit a Type I explanation of ineffectiveness (conflict via a negative outcome) to the father who provides a canned speech on drugs to a disinterested daughter who fails to relate due to the content of the message. Similarly, I could assign a Type II explanation to the inordinate silence and possible termination of a meaningful discussion because one of the actors drifted too deeply into analysis of what the other said and did. In this analogy, the speech content is associated with the product notion and the action of listening is equivalent to the process notion.

Continuing this analogy, consider an example where a father and his daughter decide to list five mutually agreed upon rules the following night to eliminate their constant

arguments over the problem of drugs. After listing two mutually agreed upon rules, future discussions deteriorated into the wording of additional rules, the redundancy with the agreed to rules, arguments about returning and revising the original two rules, questioning whether the five or three rules would be sufficient, disputes on whether or not a rule list was a good idea or even attainable, and other arguments dealing with the issues of drugs. Consequently, this preponderance of mostly destructive conflict prevented them from agreeing to any agenda that night. Any one of these problems could be mapped to a Type III explanation. Furthermore, assume the real motivation for failure that night was a lack of respect for each other, whereby the father held the view that the daughter could never seriously contribute to an agenda of meaningful rules, or the daughter, being convinced that her dad was not in touch with the current real world situation of being a teenager, was insincerely participating in the exercise. In this case, I could assign this father-daughter personality conflict to the Type IV explanation, outside of a two competing parameter model of participating and observing.

The point of this analogy is to describe what might be common in nature, forces competing yet necessary, and situations where paired parameters simultaneously aid and distract from action. The parameters require balance. We must pay attention to both the 'how' and the 'what' with a delicate sense of awareness of how they compete and how they complement. Similarly, we must balance the appropriate qualities and quantities of the inseparable actions of participating and observing.

Steier (1991), in his writing on reflexivity and the significance of the role the observer in research, expands on Bridgman observation by stating:

"Bridgman (1959), in writing about doing science, suggests that we acknowledge our role as observer, and how our observations, which make science science, are made, by writing in the first person. His reasons include both a desire for 'faithful description' and to see things in terms of activities. While I agree with that I take as Bridgman's intent to make observers understand their active participation in their research claims, I would like to extend this. An I writing or telling research must always be understood as a participant in a conversation . . . It is a matter of always being aware of what conversation we are engaged in. We may be many I's in a research situation (Jorgensen, this volume)". (Steier, pp. 177-178)

I would go beyond Bridgman's position to "see things in terms of activities" and include intermediate and final outcomes/products. Bridgman's position is an additional example where research and researchers are preoccupied with the investigation of processes with lesser regard of the process-oriented factors such as milestones, products, intangibles or tangibles being generated or created as the result of a series of activities. A specific decision or an awareness is an example of product produced as a result of a series of activities. Steier identifies awareness by acknowledging the importance of "always being aware of what conversation we are engaged in". Awareness is the first of eight principles I use to sort out the competing roles of participant and researcher. Steier's example of a conversation is also conveniently appealing since I presented a fictitious father/daughter conversation as an analogy to make a point of the competing aspects of dual role situations. Steier's reference to Jorgenson is also noteworthy since I claim that we take on many "I's", not only in research, but also in life such as I the speaker, I the listener, I the observer, etc. My personal life is constantly compromised as I function as I the student, I the homeowner, I the worker, father, son, husband, etc. all with multiple perspectives and priorities. Despite these sometimes conflicting responsibilities, I, like

countless others, manage to function effectively through awareness, separation, balance, acceptance and tolerance of the multiple roles.

Jorgenson (1991), in her writing on co-construction, considers multiple I's during her conduct of an interview where both the interviewer and interviewee are observing each other. Her interpersonal perception is that the interviewer is liable to an inaccurate reading of the proceeding due to the influences on each other, such as, the reciprocal perspective-taking and guesses of the other's knowledge and anticipated responses. Although Jorgenson's situation is a two-person case dealing with the incompatibilities of shared knowledge, outlook and expectation, it can be applied to the one person case in the dual role of participant/observer. I have stated that the researcher should attempt to separate these two roles so that the researcher can effectively function in one of the capacities albeit at the expense of the other. Separation was the second of the eight principles I used to resolve the problematic dual role, yet separation in itself created a circular, paradoxical aspect similar to Jorgenson's perception. I experienced observation anticipations during my separate role as a participant which feedback to (influence) my observation capability. As a participant I tried to act normal, but the mere predisposition of attempting to act normal was both unnatural and notable, and thereby validly exceptionable and worthy of observation. Similarly, I had participation expectations as an observer (not only on my non-participating behavior but also on my unattached status of being an observer) which influenced my participation. Observing myself observing, so as to fully report on the dual role situation, was just as difficult as participating, as I would have participated, given the absence of the research. On that basis I experienced

the cybernetic nature of the dual role which included the circular, paradoxical dilemma found in other research settings.

Watzlawick, et al. (1974), in their writings of problem formation and resolution, addressed paradoxes. They cite and reference Wittgenstein, Bateson, et al. to make a case that paradoxes, which were once considered to be of no practical importance, provide a key to understanding practical problems (pp. 62-73). The study of paradoxes leads to significant breakthroughs, change, and the resolution of self-defeating, self-sustaining negative situations. The solution often involves a unique change in perspective, thereby adapting a new frame of the problem, so it might be reformulated and ultimately resolved. The authors used numerous analogies dealing with paradoxes to make their point. Analogies included in their writing included stories on family, dictatorships, mental hospitals, education and marriage.

Watzlawick, et al. suggests that paradoxical problems can be solved with reframing the dilemma outside of the basic (first order) attempt to change (Watzlawick, p. 82). The authors argue that breakthrough is accomplished by second-order change, that is, a higher order perspective. Specifically, they state:

"Applying second-order change techniques to the "solution" means that the situation is dealt with in the here and now. These techniques deal with the effects and not with the presumed causes, the crucial question is *what?* and not *why?*" (Watzlawick p. 83, quotes and italic in original.)

Realizing that the underlying solution for a paradoxical problem is the 'how', that is, how to arrive at a solution, the authors have identified the crucial issue of 'what'. Issues

associated with 'why' are usually political, ethical or motivational and possibly cause the problem, as opposed to, discovering a solution. When these considerations are applied to the Type III Process/Product Dynamic explanation for conflict in collaborative technical writing, a new framing is suggested. 'More of the same', that is, allowing the competing Process/Product dynamic to stall the progress of the writing is not advised. I suggest that when faced with destructive conflict and delays in deciding what the document will be (the 'what') versus 'how' to develop the document, the competing cycle must be broken. Although situational, a solution can be found by a virtual arbitrary selection of choosing a totally process or totally product oriented focus at the sacrifice of the other. One case study at Site 3 has demonstrated that two equally compounding and paradoxical dilemmas are directly associated with destructive conflict. These dilemmas can be explained as (1) attempting to define a process to develop a virtually unknown document product due to the controversy over the structure of the document, and (2) equivalently paradoxical, attempting to design a document product with controversial process methods which failed to be agreed upon. These situations involved unresolved discussions and incomplete decision making to define a direction which was reversed and re-reversed based upon 'more of the same' (and sometimes identical) reasons for reversal. These incidents were fruitless attempts to apply first order change methods to a fault. The unsuccessful effort caused delays and reworks and were therefore destructive.

7.3 Methods to Mitigate Risk

The research dilemma of participation and observation was an additional paradoxical complication to the conduct of my research, especially since I assumed the responsibility

to report on this aspect of the dual role. Despite its interesting web of difficulties and its parallelism to the P/P model (having two distinct conflicting positions with a compromising dynamic), this dilemma, given my participant/observation research method was unavoidable. Furthermore, it was reasonable to assume that research conflict would occur if I inappropriately was preoccupied with being a researcher as opposed to a participant or vice versa. In a strict sense, I missed research opportunities [while I participated] and caused unnatural circumstances altering the research setting, [while I observed] both potentially impacting the reliability and validity of the study, but only in a purely theoretical viewpoint. The value of my participant observation research hinges on a broader reliability and validity associated with understanding conflict in collaborative writing. As described above and in paragraph 4.14, my research tolerated the dilemma limitations. Given the eight general mitigating policies described in paragraph 7.1, I took three additional specific precautions toward my selection of the setting, namely:

1. To mitigate against undue influence, I avoided settings where my participation had a strong leadership or coordinating role including situations where employees or associates of my company participated. When this was unavoidable in one case, I accurately recorded and explained these special conditions and evaluated and reported on any added peculiarities.
2. To mitigate against bias and prejudices, I considered any conflict occurrences presented by participants despite my initial or final evaluation of conflict situations, especially if I was the source or involved in the conflict or disagreed with their viewpoint on the nature of the conflict. I was aware that degrees and severity of negative conflict can be observed differently with the eyes of other participants.
3. I never consciously used the model perspective in the management or manipulation of the projects under investigation. When this was unavoidable, I recorded and explained the condition and evaluated and reported it accordingly.

7.4 On Self-Applicability

Previously I suggested that a parallel analogy is the individual as the writer/reader, that is, both the participant and observer (planner, monitor and evaluator) of his own work. In this analogy, the product notion is associated with the physical production of the outline, drafts and revisions. The process notion is associated with the decisions to create or avoid outlines, the decisions of determining how detailed to develop an outline, the overall approach, the times to review and outline or draft, and the steps towards the creation and review of the document.

During the writing of this dissertation, I was exposed to compromises between writer versus reader, producing versus processing, and participant versus observing, all three pairs equivalently analogous. I realized that I had to set a schedule, boundaries, limitations, outlines, reviews and overall approach to this work but not to the extreme that planning, replanning, revising and reorganizing used all of my resources (a Type I explanation for failure). Equally, I realized the danger (negative conflict) if I spent all my time accumulating literature data, research data, observation data, and related content of the dissertation document (a Type II explanation of negative conflict). I was aware that this balance between creating and controlling the dissertation development was dynamic and that the selection and time of the modes and mode switches were critical. I would fail in obtaining my dissertation objective if my strategic method was faulty (which could have been classified as a Type III explanation). Lastly, I realized that distractions from professional work, family and personal life would challenge my dissertation goals and that my predisposition, bias, background and prejudices were

obstacles which had to be overcome and maintained with objectivity, else the project would fail (a Type IV explanation).

My reporting the research involved dual role dilemmas and precautions which created unique difficulties. As a partial solution I recorded research data under two separate categories, namely, the researcher as a participant, and, the researcher as an observer. This is reflected in my field notes found in Appendix B. Special situations and personal reflection were recorded, evaluated and integrated in the research finding. Yet all research settings have unique particulars and peculiarities. Even in a strictly controlled scientific research experiment, the researchers are the decision makers for the selection of what to study, what to control, what to use as measurement criteria, the parameters to measure, the effects to eliminate or assume negligible and so on. Uncertainties in the real world suggest the search for a perfectly controlled reality is unattainable. There is the desire to create or specify a universal or absolutely ideal research setting. Despite this lack of total control, researchers have been able to gain insight, reliability, validity and understanding of special settings with significant, sometimes unexpected, results, such as Western Electric at Hawthorne. Participative Observation within the work group, despite its dual role dilemma, was an appropriate means toward accomplishing my research objectives; those who know most about the work, perform the work. Understanding issues related to outcomes, effectiveness and productivity cannot rely on output measurement alone. To understand the group dynamics, decision making, conflict, and explanations of outcomes, one must participate as well as observe (Whyte, 1991, pp. 169-175).

Whether or not my model, my position on dual roles in participative observation, and the associated concepts contained in this dissertation become accepted depends greatly on other researchers' acceptance and advancement of the theory I propose. That is to say my writings would need to attain a status in the community of user. Whether it actually contributes to the understanding of technical collaborative writing conflict is not as important as its evolution, citings, refinement, use, and treatment of future researchers and users. Crable (1982) presented an argument that the way to understand and attain knowledge, and the changes in knowledge as it evolves, is through acceptance of his phrase and perspective, namely; knowledge-as-status. This perspective views knowledge as an argumentative claim that is consensual, but not timeless, and accepted by most of the competent judges of the claim. Obviously this definition is also a claim open to a self-referential attack since its consensuality, timeliness and unknown judges are not identified, a problem facing philosophies since Plato. Curiously, he attributes support for this perspective by using self-reference, saying that its plausibility lies in its own descriptive strength and by contract in the descriptive weakness of all other alternatives.

7.5 Conclusion and Observations on Observing

On the basis of the arguments and analysis presented, I suggest the following as postulates on the dilemma of the dual roles of observer and participant in research using participant observation.

- A. Participation is a necessary participant observation research activity which unavoidably distracts from the researcher's observations.
- B. Observing is a similar necessary activity which unavoidably distracts from the project participation.

- C. The researcher's choice to suspend participation and engage in observation is noteworthy (that is, should be reported) in his research report. This election involves the researcher's choice of suspending participation as well as the choice of what to observe and record. The researcher's report or dissertation should address an explanation of his decision to observe as well as what was observed.
- D. Observing involves conscious choices of what to observe just as participation involves conscious choices of how to participate.
- E. Observing involves all participants including the researcher as a participant.
- F. The researcher's observations and subsequent recording and reporting should include his own observation of his own role as an observer.
- G. From F, this implies it is noteworthy in research to observe, record and report on the researcher observing himself in the role as an observer. The process of observing research worthy observations can be expressed in terms of levels:
 - (1) 1st order observation can be defined as any observation of a participant including when the participant is the researcher.
 - (2) 2nd order observation can be defined as any observation of an observation such as when the researcher observes himself observing a participant including himself as a participant.
- H. The recursive activity of observing one's observations (and recording or reporting on one's recording and reporting), despite its continuum, has little research value beyond the second order since the observation of oneself observing his observing and beyond currently has minimal research data, support, or basis.
- I. Observing recording and reporting on one's self as a participant is possible from retrospect at a minimum. Despite attempts to separate the two roles of observer and participant, the subsequent awareness that one has participated creates the equivalence of observing when one monitors or recalls the participation.
- J. Observing observations, regardless if it is of himself or another, but particularly if it is of himself, involves observing, recording and reporting on the observation choices made in the first order observation. Observing one's own observation, that is, second order observation, also includes observation choices which are equally research worthy and should be included in the reporting.

- K. Observing one's own observing himself as a participant (second order observation) unavoidably distracts not only from the participant role but also from the first order observing on oneself in a particular role.
- L. Second order observing of the researcher himself as a participant equally unavoidably distracts from the observer roles at second order observation.
- M. The preceding postulates are best appreciated when one actually conducts participant observation, makes observation choices, observes oneself observing, reflects on the choices available at both levels of observation, and explains the choices made in a formal report or dissertation.

These postulates were formulated as an afterthought of the experience of conducting participant observation. Although I realized that I would record and report on my dual role in the research, I was unaware of the intricate ramifications of observation. I could have not prepared such an extensive list of assertions until I experienced and reflected on the recursive, competing challenge of being both the participant and observer and accepted the higher orders of observation, as well as appreciating the recording and reporting responsibilities such an activity demands.

CHAPTER 8. CONCLUSION

8.1 Expected Results

Due to the preponderance of related research in similar areas of conflict, small groups and others disciplines such as decision making, albeit with a different perspective, it was expected that some previously identified technical writing group conflict characteristics would emerge consistent with previously conducted conflict, small group and technical writing related research. It was also expected that both similarities and differences across the independent settings would occur. Given the research approach, general expectations were not predicted in terms of hypotheses. My intent was guided discovery, or orienting theory. Unexpected results, previously unexplained outcomes and differences across similar settings, although situational, contribute to significant findings toward understanding the technical proposal preparation work group writing conflict and the proposed P/P model. I expected to find unexpected results, categories and relationships with respect to conflict explanation and the technical writing dynamic using a P/P model. Accordingly, I maintained an open mind and questioning posture during the analysis, evaluation and conclusion phase of the research. Initially, I was convinced that all conflict could be explained by the three general explanation types. As I analyzed the observed data, I better appreciated the dynamic between process problems and product

problems (associated with the Type III explanation) as well as the need to classify explanations into sub-types and a fourth non-process/product category.

With respect to outcomes, it was somewhat logical to assume both favorable and unfavorable outcomes and explanations would occur, but not with certainty! Upon closure at each research setting, increased accuracy of predicting the next setting was not deliberately assumed nor was it experienced. It appeared reasonable but self-defeating to maintain this position due to an inherent sensitivity to situational variance.

I expected smooth entry into the setting and a strong ability to execute the research and although this occurred without major difficulty, primarily due to the full time nature and my direct contribution in the preparation of the technical proposal, I underestimated the time involved to collect, analyze and report the data. The data classifications presented involved moderate difficulty despite they were derived from the emergence of supportive confirmation of conflict. The difficulty was derived from the different perspectives of the individuals in each group. The analysis of the data was also moderately difficult because responses were neither systematic nor standardized and I needed to correlate observation data with interview data.

8.2 On Individual Sites

Each site provided sufficient observations and data, as well as frequent occurrences, to substantiate that collaborative technical writing of proposals involves significant conflict. Some of the observed conflict was constructive. However, each site had several incidents

of destructive conflict since such occurrences were associated with delays, rework and disruption. Furthermore, a majority of the destructive conflict was explained by associating the negative outcomes with either the single or combined effects of process or product oriented influences.

The lack of counter examples plus ability to classify conflict explanations contributes to the value of the findings. Due to the design of the model, with its Type IV classification, all destructive conflict necessarily had to be classified. However, it was noteworthy to find the results screened a majority (twelve out of thirteen) of process/product conflict explanations into the three general types leaving only social and interpersonal explanations previously identified by other researchers in the Type IV category for one of the thirteen observed incidents of destructive conflict.

Regardless of site, each conflict situation associated with a general Type I or Type II explanation was not perceived as a major problem and was sometimes not recalled at the end of the development. At two of the three sites, when a Type III destructive conflict associated with the Type III explanation occurred, participants perceived the issue to be significant, remembered, and worthy of comments.

8.3 Combined Findings

Participants' comments during the development and responses to the interview which were associated with exceptional occurrences on outcomes resulted in an overwhelming majority of negative perceptions compared to positive occurrences. Furthermore, when

conflict did exist there were apparently more cases of destructive conflict than constructive conflict. However, this observation is suspect since conflict occurring early in the development phase which at first appeared to be destructive sometimes led to a consensus later in the development which was associated with an improvement of the overall activities or final product and therefore was ultimately classified as constructive. Therefore, occurrences of conflict occurring late in the development phase, which never matured through such a positive transformation due to insufficient time or because they were truly destructive in nature, were detected and recorded as destructive. Since these later developing conflict situations did not bear fruit over their limited timeframe, a destructive label is justified.

Participant comments associated with exceptional occurrences often referred to the process steps earlier in the development and the proposal product later in the development. In preparation for internal reviews, even when these reviews occurred early in development, exceptional occurrences were associated with the proposal section itself. The lack of sufficient or inappropriate source data to meet participants' objectives was also a reoccurring observation or comment. Rework as a result of poor or incomplete data input was a common theme, especially among those who had the responsibility to develop resumes for the proposal.

8.4 The P/P Paradigm

As a result of this research, the Process/Product model theory proved to be a valuable research perspective in explaining and classifying conflict situations. This evidence

supports the claim that the theory can be a useful management tool to appreciate the competing and complementary issues of the planning, scheduling, review, and implementation of collaborative technical writing versus the production, draft creation, collaborative enhancing shared data and physical aspects of writing technical manuscripts. This is especially true for technical proposals where time limits for development are uncompromising. The research data supports that the model contributes toward meaningful explanations of negative conflict in a majority of the cases with the emphasis providing insight on the compromising nature of both notions. The model explanations provide understanding of factors contributing to negative experiences and this understanding provides a groundwork for control and avoidance of common conflict situations. With consideration for the model, it becomes too naive to state merely that what is needed for effective technical writing are two ideal premises, namely (1) knowing definitely 'what' a small group will produce, and, (2) knowing definitely 'how to' produce such a document. This simplicity falls short because:

- A. Neither. "What it is" (the product or document) nor "How to do it" (the process) is known early in a complex, innovative setting since both evolve as a result of earlier processes and partial products.
- B. The two ideal premises are interdependent, that is, to optimize what will be produced depends upon how it will be accomplished, which is dependent on what will be produced.
- C. The enterprise is the result of a group effort where issues of cooperation, collaboration, the personal and group ambiguity and interpretation impact both the product and process activities, as well as the dynamic forces between these two activities.

- D. They are competing premises. The more time, details, steps and checks incorporated into the knowing how to produce the product distracts from the time and attention in creating the document. Conversely, the more time, definition, details, partial products and descriptions devoted into knowing what will be produced distracts from the planning of the ultimately defined end product.

I also argue that the scope and application of the model is in the purest domain of the 'how' and the 'what', and accordingly is applicable outside the technical collaborative writing environment. I suggest that the P/P could be expanded to other group technical writing, given a firm deadline exists, non-technical writing activities, and other engineering activities, given some level of complexity. A level of initial unknown collaboration may be required, which would contribute to some degree of uncertainty on, what is to be produced by whom, and, how the group will function. Realize that the notion of product is re-examined here to extend beyond a physical entity, such as partial product, outcome (including an articulated decision), or a detailed plan of particular processes and now includes the output that is produced by anyone which influences both the product and process activities, thereby contributing to the individual and collective uncertainty of the process or product advancements. If either of the two ideal premises were clearly established, say, for a project with little complexity, the other premise could be simplistically defined and the model would not hold. In cases where either process uncertainty or final outcome product uncertainty exists, not only does the model apply, but also the alternative premise is subject to a wide range of alternatives.

Dewey (1978), in his writings on logic and the theory of inquiry, illustrates a fundamental significance of the how and the what by his descriptions on the conduct of scientific inquiry, namely:

"By description, the situations which *evoke* deliberation resulting in decision, are themselves indeterminate with respect to what might and should be done. They required that *something* should be done. But *what* action is to be taken is just the thing in question. The problem of *how* the uncertain situation should be dealt with is urgent. But as merely urgent, it is so emotional as to impede and often to frustrate wise decision. The intellectual question is what sort of action the *situation* demands in order that it may receive a satisfactory objective reconstruction. This question can be answered only, I repeat, by operations of observation, collection of data and of inference, which are directed by ideas whose material is itself examined through operations of ideational comparison and organization.

I did not include the scientist in the list of persons who have to engage in inquiry in order to make judgements upon matters of practice. But a slight degree of reflection shows that he has to decide what researches to engage in and how to carry them on – a problem that involves the issue of what observations to undertake, what experiments to carry on, and what lines of reasoning and mathematical calculations to pursue. Moreover, he cannot settle these questions once and for all. He is continually having to judge what it is best to do next in order that his conclusion, no matter how abstract or theoretical it may be as a conclusion, no matter how abstract or theoretical it may be as a conclusion, shall be grounded when it is arrived at. In other words, the conduct of scientific inquiry, whether physical or mathematical, is a mode of *practice*, the working scientist is a practitioner above all else, and is constantly engaged in making practical judgments: decisions as to what to do and what means to employ in doing it." (Dewey, p. 161 italics in original).

Note that Dewey admits through reflection that the researcher "has to decide what researches to engage in and how to carry them on". The researcher selects the research area and the research design details. When scientists conduct inquiry, the fundamental questioning verbs used in their vocabulary and their design are selected from the basic limited group of who, where, what, where, how, why, was, which, have, did, can, will, are, is, does, etc. Yet among all these, the most significant thrust of inquiry is associated

with the how and the what. It could be argued furthermore that the how and the what are the most fundamental of all questions in inquiry because, any alternate questioning verb assumes some knowledge or identification of either the how and what or both. For example, basic research questions using who, where, why or which or are, usually imply knowledge or identification of the what. Also, questions using when, did, will and why, normally imply some knowledge or identification of the how. Furthermore, questioning how or what are mutually self-reciprocating and do not necessarily involve the knowledge or identification provided by the other verbs. Questioning how or what relies on the identification of each other. In Dewey's writing, presented above, the how is referred to by how, and, the what is referred to as the decision, the something or the situation under inquiry. His writing also suggest the significance of the researcher "engaged in making practical judgements". This demonstrates an awareness of the researcher in the research and Dewey's main thrust into inquiring on the theory of inquiry. Constructionist inquiry of inquiry posits a more integrated concern of the researcher as the observer (for example, see Steier). Here, reflexivity focuses on the significance of the observing process. Steier (1991) associates this research methodology activity with terms including circularity, self-referential, (second order) cybernetic and paradoxical. A common thread in my dissertation is a similar paradoxical nature of three dynamic pairs, namely:

- (1) The how and what dynamic, and
- (2) The process and product dynamic (Type III explanation), and
- (3) The participant and observer dynamic (in participant observation).

The implication that the Process/Product paradigm operates in most basic linguistic domains of inquiry, specifically the how and the what, provides a philosophical basis. I suggest the philosophical concept of the model is easy to understand on the surface but difficult to comprehend fully especially when it is applied outside complex engineering activities due to the paradoxical nature of the competing, complementing, and compromising aspects of process (how) versus product (what). The competing, complementing and compromising aspects are the breeding ground for conflict, as well as, the identification, explanation, and management for the negative outcomes of these two basic forces.

The model clearly identifies the danger of inappropriate preoccupation in either the process or product domain by its general Type I and Type II explanations. Inappropriate implies too many process checks or product checks are perceived or realized, resulting in negative conflict. The expectation of individuals in groups vary. Participants are more likely to tolerate process checks early in a development and a manageable number of product checks at the end of the project, but this tendency is not universally applicable. As observed, misdirected projects appropriately need constructive conflict related to process redirection late in projects. Conversely, early product checks can uncover a poorly planned activity, establishing a more effective way of proceeding with the development.

Consider a classical marital problem where a husband is working long hours, causing his wife to perceive a breakdown of the attention she expects from the marriage, which

causes a marked decrease in the admiration she contributes to the relationship, ultimately causing the husband to spend more time at work, neglecting the bonding required for the marriage. Can the P/P model be applied to this non-engineering small group of two? I suggest this marital destructive conflict can be viewed as a Type III explanation of the opposing dynamic of:

- a. Not agreeing on what the marriage should be in terms of time and degree devoted to work, attention, sharing and admiration, and,
- b. Not knowing how to proceed with such a plan that accomplishes what the marriage should be, (given that it was agreed upon), as well as,
- c. Not having the means to establish a framework which identifies the essence of the marriage (the what), the behavior of the marriage (the how) and the dynamic balance between both.

If this example and analysis is accepted, the P/P model has application outside of the technical domain. The model provides a potential philosophical paradoxical tool which is established on the basis of its own positive feedback relationships to unlock double bound paradoxes.

To imply that the P/P model may have some universal properties to be applied outside of the technical collaboration writing setting is not stated without realizing the risk of such a suggestion. I have not presented any field evidence or substantiation beyond conjecture that would reasonably lead to the extended application of the model. The research to do so would also be overwhelming. The quest for a simple two-variable (process/product) theory of conflict explanation has inherent difficulty when the intent is to simultaneously prove its generality and accuracy. Weick (1969), in his writings on the social psychology of organizing, addresses tradeoffs in inquiry by discussing Thorngate's

postulate of commensurate complexity in social behavior theory. The postulate acknowledges that social theory cannot be general, accurate, and simple simultaneously (Weich, pp. 35-37). Theory can possess any two of these three characteristics but at the sacrifice of the third. Weich illustrates this with a research clock diagram (p. 36), demonstrating that simple-accurate research is associated with case studies, which by the postulate lacks generality. My research was accomplished with case studies and the application of a fundamental model implying a simple-accurate type of inquiry which excludes a general nature due to being situational. When I suggest that the research findings and the model may extend outside of the research settings investigated, such as in similar technical writing settings, engineering activities beyond technical writing and other social settings, I am merely implying that my research may be later found to be pertinent to Thorngate's general-simple domain. The resulting suspected lack of accuracy would need to be tested by future research and researchers. This, however, presents the dilemma of sacrificing simplicity for the conduct and quest of worthwhile, meaningful and practical research which is in the general-accurate domain. Any additional substantiation to the claim of the extended significance of the Process/Product framework could only be made after the conduct of extensive research resulting in cooperative finding over broad areas of social and technical activities. Furthermore, if it were ever proven, the Type IV explanation of destructive conflict would still be nondescript. I also realize that additional study of the framework within technical collaborative writing is needed to forward this orienting theory which was based on a limited amount of settings.

8.5 Analogies in Engineering Developmental Cycles

System Development Cycles rely on a series of preliminary, intermediate and final reviews, audits, configuration design freezes, simulation verifications, an extensive series of design documentation, physical, mathematical and functional models, prototypes, the production of first articles, alpha, beta and field testing, and product baselines toward the ultimate Production and Development of complex hardware, software and system products. It is not uncommon to implement such a detailed series of steps before a full scale production of a product. However, these detailed process-oriented plans are robust with abundant partial products. The review, audits, design documentation, models and initial releases of incomplete or complete, but not yet finalized, end items are product checks to maintain a balance between how the formal activities are planned and what it produces. Despite the varying effectiveness of the detailed planned development cycles in practice, they are, for the most part, inaccurately labeled. What appears to be a detailed plan of processes, in fact, focuses on multiple series of partial products. Furthermore, the varying success and failure of such enterprises are extremely situational. Granted, some result in cost overruns, schedule slips and technically deficient products, the methodology, which has been refined extensively, is a tool to manage complex engineering activities involving uniqueness and uncertainty. The P/P model is a projection of the complex attention to process and products throughout the development cycle. Although the P/P model was derived from this detailed development concept, it can significantly contribute to development activity by heightening the awareness of the conflict it creates, avoids and resolves as well as its potential in the management of negative outcomes from a new perspective of balancing the process and product issues.

8.6 Implications of the Research

Two distinct and significant research implications associated with effective engineering management of collaborative technical writing emerged as the results of the findings. The first addresses the potential of the language, attention and utility of process/product oriented perspective. The second is associated with my dual role as participant and observer of proposal development and how it relates to effective coordination of technical writing. These two implications will be discussed separately.

With regard to the process/product model, its notions, and its association in explaining destructive conflict, a research finding implication substantiates the utility of a process/product perspective for practicing managers. Despite that the research involved a limited amount of samples of destructive conflict, the findings provide a basis for effective management of collaborative technical writing. The awareness of process concerns, product concerns, and their dynamic provides an additional engineering management tool and skill available to all members of the writing team. The availability to language in process/product terms increases the potential of more effective communication on notions directly applicable to unnecessary delays, rework and project disruption. Appreciating the value of constructive or positive conflict and distinguishing it from destructive conflict using process/product model terminology also increases the potential for enhanced productivity of the group. Acknowledging the necessity of the complimentary and competing dynamic between the process and product activities, provides a forum for the proposal coordinator and group members to resolve otherwise compromising decision making.

The application of the P/P model did not dispute the research findings of others such as Loring, Hackman and Oldham and Wilemon, discussed in Chapters 3 and 6. Their findings articulated parameters associated with conflict in a group setting. These parameters were significantly specific but somewhat static, that is, they described initial or emerging conditions which are associated with lower group productivity. Their parametric conditions are environmental and binary, that is, they either exist or do not exist within the group environment. The notions of the P/P model are dynamic, that is, over time the proposal writing will confront issues of how to proceed and what to produce with varying repetitions of and transitions between these two issues. The P/P model compliments these environmental parameters with a dynamic, more situational focus on process and product compromises associated with the writing exercise. The focus on process and product oriented notions are admittedly general and therefore provide meaning only when they are applied to a particular situation. However, the model provides a fresh perspective toward explaining and understanding potential conflict. The beneficial implication can be extended if this understanding is used to avoid and resolve typical collaborative writing situations associated with destructive conflict.

With regard to my dual role responsibilities, a second research finding implication is associated with the compromises facing the proposal manager/coordinator in technical collaborative writing. As Chapter 7 describes, there are competing and complimentary responsibilities in conducting participant observation which is analogous to the coordination responsibility of proposal development. At all three sites, a Proposal Manager (PM) was assigned to the team as a special member of the group since the

managers participation usually involved more of a review function than contributing new material. The PMs, on occasion, wrote inserts and small subsections, but a majority of their contribution consisted of identifying source material and providing general review comments. These PMs qualified, however, as both participants and observers, albeit in their limited contributory role. With respect to the remainder of the group, a coordinator was assigned or emerged who provided limited leadership in the proposal development. This individual was assigned or assumed the responsibility of recording and reacting to the various action items generated which identified problem areas. These coordinators also qualified as both participants and observers. The remaining members of the group also engaged in cooperative and collaborative activities relying on the input of others to advance their own writing assignments. In this sense they too had limited roles in participating and observing, (the status and progress of their direct collaborators). Accordingly, in collaborative technical proposal writing, where cooperation and collaboration is both beneficial and essential, PMs, coordinators and virtually all group members may have experience with compromises associated with blending their own participation with the evaluating observations of others. The implication of the research percolates the delicate balance and compromises of such a dual responsibility. The effective proposal manager, coordinator, and in some cases group members, should be aware of the complimentary and competing skills required to successfully accomplish both.

In proposal technical writing, cooperation, information sharing and collaboration is essential. The management or coordination of proposal development activities involves

simultaneous participation and observation skills. The awareness that the subtle conduct of one reacts and competes with the other is significant towards effective coordination. The availability to language in terms of an observer versus a participant clarifies the perspective used when a member contributes to the group. Appreciating the dilemma associated with the distinctions between both roles and the balance required, provides significant insight in the challenges of participatory management. Accepting the difficulties of both roles at cross-purposes and realizing the transitions between contributor and evaluator enhances a coordinator's skill set. Acknowledging the paradoxical nature of the two dynamic roles and appreciating the analogies which exist outside of technical writing, (as presented in Chapter 7), contributes to understanding and hopefully minimizes the distractions associated with the dual roles. Furthermore, the research subject matter introduces the reflexive activity of observing oneself. Here a compound dilemma enters a second order, more complex environment. As one manages, coordinates or merely contributes to a collaborative activity, advantage is gained by observing one's own activities, (of contributing and observing others). The ability to self-observe allows one to question, modify or validate one's own contribution in terms of effectiveness. Despite the added difficulties explained in Chapter 7 of reflecting on one's own conduct, my single example of such an exercise uncovered the limitations and utility of this practice. The limitations are associated with the added distractions from normal participation and conduct of coordination activities. However, this is compensated by introducing a control mechanism in self-management. Self-examination is a means of control and formalization espoused by Punch (1986), acknowledges the significance of the observer described by Steier (1991) and Bridgman, including others, such as Whyte, (previously cited and

discussed in paragraphs 7.1, 7.2 and 7.4). By reflecting on one's own activities through self-observation, a coordinator can question, modify or validate their awareness of dilemmas associated with dual roles, the separation and balance of both activities, and the difficulties associated with accurately recording and reporting coordination activities. The awareness of the potential value of such self-examination, despite accepting the fact that it distracts from the first order activities, provides a mechanism of sustained self-learning and self-improvement of the coordination/management responsibility.

8.7 Potential Utility of the Research

The potential value of this research will be foremost a function of others evaluating the results and advancing its orienting theoretical position. This research, like others, was situational despite the proposed claim that the P/P model possesses some universal application outside of proposal development. The utility of the research is potentially robust because it is applicable to other settings involving collaborative small technical groups including phases occurring in hardware, software, and systems development especially in light of minimum critical specifications and the compressed schedules associated with these contemporary engineering management projects. The research is applicable to other small autonomous work group settings where the P/P model could be used as a tool by practicing managers to focus on the distinctions and synergy of individual and group expectations and on decision making processes. Albeit that the research involved one specific series of cases involving technical writing, the model contributes to the understanding of conflicts in collaborative small technical groups, and provides a basis for avoiding conflict and increasing productivity.

If the model is embraced and used in future research, an opportunity exists to observe phenomena from a unique framework, and possibly detect unexpected solutions to difficult organizational challenges or discover new Sociotechnical concepts beyond the collaborative writing or work assigned to groups. Perhaps the model will provide an important breakthrough in productivity worthwhile of further analysis or researchers will want to investigate similar collaborative technical writing phenomena suggested by this research, such as the ceiling/floor effect or the concept described as the addicts ignorance. Since technical proposal development normally involves innovative technical complexity, early cooperation, consistent compatibility, stress, long hours and challenging deadlines, and, moreover has the potential to drain or eliminate the productive abilities of its contributors, the research can provide relief for participants and contribute to increased individual and group productivity.

The findings are also useful for additional follow-on research, which is my strong recommendation given a combined potential significance of the model and its utility to avoid selected conflict situations in semi-autonomous work group settings. Other disciplines such as communications, decision making and certain small group research which may be too entrenched in process-oriented analysis could benefit from widening their framework through considerations from a product-oriented and process/product dynamic perspective.

One significant potential of this research is associated with collaborative writing and similar activities in the Computer-Based Work System (CBWS) environment. The

proliferation of networked personal computers, Local and Wide Area Networks, GroupWare, bulletin board conferences and telecommunications in the workplace has prompted serious and worthwhile research in the area of CBWS. Yet more can be studied in the area of understanding product, as well as process associated conflict in collaborative writing outside of the computer based environment. By examining the negative conflict issues devoid of the added complexity of the electronic media, a baseline understanding can be established which can be migrated into the computer-based environment. Other researchers could compare and contrast their work to the proposed model and research findings. Aligning or combining their perspectives with the P/P perspective could provide a clearer focus on semi-autonomous work group activity and productivity.

Since meaningful explanations of conflict have emerged, other researchers may be able to enhance their theoretical management frameworks. For example, other researchers involved in language, organizational culture, variance control, socio-technical and organizational learning research, as well as, CBWS, may find the concepts of the P/P model linked to their investigations. Organizational Learning research could probe into the aspects associated with if or how the model is explicitly learned or if the model affects the organization's learning process. Value may be obtained by establishing new understanding and a more effective vocabulary within the increasingly prevalent work group community and to other researchers studying the competitive proposal preparation environment or similar settings.

From an industry perspective, the research could provide cost saving methods and revenue enhancing possibilities for corporations conducting proposal development. Practicing managers would be better prepared to handle the strengths and weakness of collaborative work groups engaged in technical writing through the new perspective in this and other applicable engineering management activity setting. Managers may gain a new sense of conflict control and avoidance by considering the delicate balance of process versus product issues associated with the model. Coordinators, managers and small group contributors in technical collaborative writing can gain new insights on the limitations and advantages associated with their awareness of their dual roles as participant and observers, as well as the utility of observing their own conduct as a reflexive control mechanism toward self-learning and sustained self-improvement. The potential success of this research could benefit the corporate communities engaged in this activity which is expected to be prevalent in a free, open and competitive society. As a result of the conducted research, the Process/Product model provides meaningful insight for researchers and practicing managers of the process and product notions in collaborative technical writing which are associated with destructive conflict. Using these results, occurrences of conflict can be explained, with the awareness of the competing and contributing process and product oriented influences.

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CHAPTER 10. BIOGRAPHY

Mr. Greco has over 28 years in System Engineering, Federal Procurement, New Business Development and Proposal Preparation for Industry and Government. He was employed by General Electric Company as an Electrical Engineer for over six years. He was also employed by a nationwide software firm for over six years as a Software Engineer and, before starting his own company, held a position with a national consulting firm as an East coast manager for over six years. In 1986, Mr. Greco founded and lead a Government contractor consulting firm specializing in the preparation of Federal proposals and technical Research and Development reports and documentation.

For the last eight years as President and Chief Executive Officer of Greco Research Engineering (GRE) Company, Inc., he has coordinated and participated in over 100 Federal Agency proposals and \$4 billion of procurement for over 75 different companies including some of the largest federal contractors such as Bendix, EDS, Fairchild Defense, B.F. Goodrich, ITT, Lockheed, Northrop, NYNEX, and Unisys, among others. He serves and has served on the Board of Directors for several small businesses in the United States.

Mr. Greco is a former graduate instructor for Golden Gate University and undergraduate instructor at Old Dominion University. His education includes a BSEE from the Brooklyn

Polytechnic Institute of New York, and a Masters of Science degree in Computer Science from Rensselaer Polytechnic Institute and a Master of Science in Information Systems Administration from George Washington University. Mr. Greco is a former speaker and lecturer at numerous societies, including Association of Proposal Management Professionals, Society of Logistics Engineers, National Contract Management Association, Tidewater Association of Service Contractors, Society of Electronic Warfare and other professional seminars. He is a member of the honor society Phi Kappa Phi. Mr. Greco is married with two children, the oldest currently attending Old Dominion University.

Appendix A
Field Notes
and
Interview Guide Forms

A-1

FIELD NOTES

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTCPT	OBSERVATION DETAILS	APPARENT CONFLICT	BKOND NOTES
<p>• SAMPLE FORM •</p> <p>Form Used for Collecting Data</p> <p>During the Development</p>						

BACKGROUND NOTES:

Elaboration of Observations

POST DEVELOPMENT INTERVIEW GUIDE

SITE _____

PARTICIPANT _____

PAGE _____

RELEVANT OBSERVATION NUMBERS _____

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/NOTES
<p>• SAMPLE FORM •</p>		
<p>Form Used for Collecting Data AFTER the Development</p>		
<p>Candidated Topics:</p> <ul style="list-style-type: none"> - Positive Experiences - Negative Experiences - Sufficient Time - Technical Input and Quality - Amount of Resources - Conflict 1 possibly observed - Conflict 2 possibly observed - Conflict 3 possibly observed - Conflict n possibly observed 		

BACKGROUND NOTES: Elaboration of Observations

Appendix B

Field Notes

Collected During the Proposal Development

B-1

FIELD NOTES

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTCPT	OBSERVATION DETAILS	APPARENT CONFLICT	BKOND NOTES
S1	O1	√		Participant 1 received his assignment and feels no time constraint: "I don't think there will be any problem", he said. I felt this was sincere.	None	—
S1	O2		√	Participant X (self): If properly managed, time may not be an issue. We have enough staff. Only unknown is reviewer's impressions and redirection, if any.	None	—
S1	O3	√		Participant 2 & Participant 3 argue on the meaning of "a quality management plan". Participant 2 in favor of quality techniques. Participant 3 feels it is a reference to a TQM program.	C1: Interpretation of the specification and failure to decide and agree. Potentially destructive.	N1

FIELD NOTES

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTICPT	OBSERVATION DETAILS	APPARENT CONFLICT	BKGD NOTES
S1	O4	✓	✓	<p>ParticipantS 1, 2, 3, 4, 5 and X have meeting on draft outline. Constructive discussion on: How strong themes will be blended into outline and completeness with respect to RFP instructions.</p> <p>Argument on corporate TQM experience. Participant 3 says "They will be evaluating us on this". Participant 4 wants a page bogey. Participant 5 and Participant X feel it's too early to allocate pages. Participant 5 says "Let's agree on ranges". Participant 3 wants more pages on TQM theory and TQM experience. Participant 2 disagrees. Participant 5 tasked to develop schedule. Commitment is vague, ie. Participant 2 "Do you want to know when I can have the 10 page write-up or the 15 page write-up?"</p>	C2: Negotiation on page allocation is compromised in terms of vague page ranges, distracting from defining reasonable schedule.	N2
S1	O5	✓		Two Participants mention time will not be a problem. "I'll have enough time to complete my section".	None	—
S1	O6	✓		Participant 4 complains he has no source data or "boiler plate" on company previous contracts.	C3: Attempting to write on subject matter is known to exist but currently unavailable causing delay and potential disruption.	N3
S1	O7	✓	✓	Participant 3 feels progress is going well despite he has lots of work to accomplish. I feel its too early to tell since not enough product is available for review.	None. Positive status check.	—

FIELD NOTES

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTICPT	OBSERVATION DETAILS	APPARENT CONFLICT	BKGD NOTES
S1	O8		✓	Participants are friendly but I am concerned that there is little interaction between the group (Day 7).	C4: Concern with respect to minimal collaboration.	N4
S1	O9	✓		Proposal sections may not fit together when each Participant prepares their portion. My Exec Summary is too high level - no details - need to find out what is really being written.	C5: Lack of detailed knowledge of participants' content.	N4
S1	O10	✓		Participant 4 states his "boiler plate is BS", "can't use it", needs more. Other participant (PM) agrees and says it exits and will help again.	C6: Poor technical input.	N3
S1	O11	✓	✓	Participant (PM) and self agree Participant 3's write-up "is weak", "not hard hitting".	C7: Poor technical output, rework necessary.	N5
S1	O12	✓		Participant (PM) has not made subcontractor choice, "still deciding". Participant 1 needs data to proceed and may help out on resumes until he receives company data.	C8: Lack of technical selection causing delays.	N6
S1	O13		✓	Participant X complains of having only part time typist. Revisions accomplished by writers - "ineffective". Participants can write and edit (not type) new material.	C9: Lack of resources.	N7

FIELD NOTES

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTCPT	OBSERVATION DETAILS	APPARENT CONFLICT	BKGND NOTES
S1	O14	√		Participants 2, 4 & 5 argue over lack of figures (graphics) and specific suggestions for figures. May be constructive yet Participant 4 argues his text description is better. We need more graphics. Participants 2, 6 & 4 have none which is unacceptable.	C10: Poor technical quality graphics should be developed. Text will be converted to figure.	N3
S1	O15	√		Participant 4's work reviewed. "Too little and late", says participant 2. Needs update complete in next few days. I could use it also for Exec. Participant 4 has not been on the job full time.	C11: Performance not meeting apparent quality/quantity standards.	N3
S1	O16	√		Day 12. Participant 1 and Participant 2 not sure enough time to "get everything done". Participant 2 defines most of his responsibilities are dependant on other writers' work.	C12: Possible scheduling problem.	N8
S1	O17	√		Day 19: Big status meeting. Lots of cooperation and strong collaboration. Participants 2 & 4 with Participant 5 working close. Participant 4 now working full time. Accomplished plenty over weekend. Worked closely with others, including participant X. All but Participant 6 say time will be challenging but strong confidence exists.	None - Time as a resource issue.	—

FIELD NOTES

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTICPT	OBSERVATION DETAILS	APPARENT CONFLICT	BKGND NOTES
S1	O18	√	√	Day 23: Prep for Red Team. Writers scanning, reading others' work. I'm reading all for Executive Summary. Find many places where write-ups are not persuasive. Several missing subsections. Resumes incomplete.	C13: Lack of technical quality and quantity.	N3
S1	O19	√	√	Morning Day 24: Typing a problem. Have little typing scheduled for weekend. Red Team scheduled for Monday. Arguments: Participant X, Participant (PM) Participant 5 over RFP requirements. May need more on a quality plan, need introductions elsewhere. Write-up possibly "is too choppy". Participant 5 agrees.	C14: Lack of resources. C15: Lack of agreement over specification.	N8 N1
S1	O20	√		Red Team has valid criticism of RT draft. Major areas include noncurrent facts (statistics). Needs more persuasive, hard hitting presentation. Missed who, when & what on quality.	C16: Technical quality of the draft.	N3
S1	O21	√	√	Meeting: Clean-up of RT draft. Manageable, the group agrees. Participant 2 asks for little help in getting current facts missing. PM assigns new Participant Z (off-site). Participant 2 says, "he is a jerk", "it will be late". All other members, including PM, are very cooperative, friendly, collaborating and sharing write-up, source data and graphics.	C17: Possible personality conflict.	N9

FIELD NOTES

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTCPT	OBSERVATION DETAILS	APPARENT CONFLICT	BKGND NOTES
S1	O22	√		Executive Review: Review Team liked organization and graphics but wants more on some resumes, but data was not (and may not) be available. Re-Review, redo resumes.	C18: Rework due to data not included - or not available.	N3
S1	O23	√	√	Time running short. Participant 4 needs typing overnight. Want two copiers or access to higher speed copier. May copy out of house. Security issue. Discussion by Participant 3, 4, X and PM. Will use in-house high speed copier normally used by other department. Participant Z never provided complete set of statistics and last minute write needed to fix sections with holes.	C19: Lack and reallocation of unexpected resources.	N8

BACKGROUND NOTES:

- N1: Granted the specification is vague, the small group fails to positively decide on strategic issues.
- N2: Similar to N1, no decision made on schedule or page count. Participants want to "feel it out".
- N3: This may be a case that Participant 4 wants someone else to search out the boiler plate.
- N4: I sense that participants want more time to develop strategy and produce content before sharing knowledge and write-ups.
- N5: The issue here is concise, persuasive proposal writing. Participant 3 not meeting the expectations of the PM. May not be destructive despite rework since rework is a normal occurrence with respect to polished collaborative writing.

FIELD NOTES

- N6: Selection of a subcontractor at Day 10 is somewhat critical. The team needs their resumes, corporate experience, management abilities and quality control practices. PM did not give a date when group will know. This may be a problem.
- N7: Several participants typing up their own work - and accomplishing revisions also. My opinion is that team members need not to have to revise their own work, especially if it is reviewed by another. Although we planned for more typing, authorization is slow. I sense that proposals here have less than the highest priority - especially with respect to production. Participant 4 agrees with me. We need some production typing person to put all of the different soft copy file write-ups into format. My opinion is if we wait until later, surprises may occur.
- N8: Interesting that now, as we come upon definite deadlines, those who thought "I'll get it done" now are unsure of completing their commitments. "Other things popped up" and "I had to get my real work done" were excuses, but probably could have been planned for before the commitment was made. The issue here can probably be classified as a matter of selection of priorities.
- N9: I feel this is a personality conflict; an issue of mistrust or political move. Participants have confronted each other before. This is a lack of cooperation, trust and collaboration.

GENERAL NOTE:

See Chapter 6 for Additional Comments.

FIELD NOTES

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTCP	OBSERVATION DETAILS	APPARENT CONFLICT	BKGND NOTES
S2	O24	√	√	Kick-off meeting: Two females in leadership writing roles, Participant 1 and 2. This is not very unusual, since mixed gender groups usually found on proposal teams. However, females are often associated with the production pool. Here, the typing and repro staff is coincidentally are all male. All seem very competent. Good credentials and solid proposal experience. Company is the incumbent. The contract is a follow-on. Participant PM is very confident of a win.	None	—
S2	O25	√		The outline and schedule is published indicating weekends. Participant 2 and 3 suggest this may not be necessary. I doubt this. This may be a case of the "addict's ignorance" analogy, that is, not appreciating time as a persistently decreasing resource.	C20: Possible time as a less than plentiful resource problem.	N9
S2	O26		√	We have meetings every Monday, Wednesday and Friday morning. No one worked the weekend. Source material appears to be adequate: collaboration is cooperative. On this Day 6 no problems reported by anyone in the group . . . all are on schedule.	None	—

FIELD NOTES

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTCP	OBSERVATION DETAILS	APPARENT CONFLICT	BKGND NOTES
S2	O27		✓	Participant X (self) responsible for Executive Summary and Management Plan. Writers sharing drafts and source material, which is very helpful. I discussed this with PM.	None	—
S2	O28	✓		Day 10 - The only exceptional aspect of this job is that nothing is exceptionally negative. There is a real positive and probably productive attitude about this job. No one will be working this weekend at the company site. Participant 2 and Participant 4 say they will "probably work some" (over the weekend) and "I might get some more completed before Monday." Neither were positive statements of commitment.	C21: Possible time as a less than plentiful resource problem.	N9
S2	O29	✓	✓	Day 14 - Draft resumes published. Participant PM and Participant X reviewed them. A few problems. Capabilities on two Engineers' resumes do not meet specification. This is unusual since the Engineers are currently doing the work.	C22: Technical quality or interpretation of the specification problem.	N10

FIELD NOTES

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTCP	OBSERVATION DETAILS	APPARENT CONFLICT	BKGND NOTES
S2	O30	√		Participant 5, responsible for the resumes, talked to the Engineers. Neither have the credentials asked for. There are new (revised) requirements. We may have to replace these Engineers. Meeting: Discussed asking government for clarification and why current Engineers would not be eligible versus saying (writing) nothing about deficiency. An alternative is making an exception (a waiver) of the requirements (challenging the governments) which may be unreasonable (thereby jeopardizing the effort due to our lack of compliance). No decision made. Can be political . . . jobs are at stake.	C23: Applicable personnel or decision making delay.	N11
S2	O31	√	√	Participant 6, the editor starting to combine all files into red team version. Complains on font styles, headers, footers and format. Wants standardization. Participant 2 and Participant X purposely introduces some unique features and nonstandardization.	C24: Technical format problem.	N12
S2	O32	√		Participant 6 standardizing the text. Some (Participant 2, Participant 3) disagree. A more serious issue is the modification of words, jargon and technical terms, especially with resumes. Editor's (Participant 6) changes are changing meaning. Participant 5 says resumes should not be changed.	C25: Technical quality problem.	N13

FIELD NOTES

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTCP	OBSERVATION DETAILS	APPARENT CONFLICT	BKGD NOTES
S2	O33	√		Resumes and most of the text changed back to nonstandardized text and proper technical terms. Participant 5 uses old files and only accepts some of the editor's changes.	C26: Rework.	N14
S2	O34	√		Resumes have been reworked but original resumes must be signed by candidate. Engineers work all over the country, including Hawaii. Fax signatures not acceptable. Some subjects saying they need more time beyond the resume signature issue just to review and "look over everything".	C27: Logistic problem.	N15
S2	O35	√		Proposal being reproduced. Participant 2, 3, 4 and PM say this "job went smoothly", "no stress", "best they ever worked". Virtually no one worked weekends (at the company offices) or very late hours. Participant 3, 4 and PM, as well as self (Participant X), are confident.	None.	—

BACKGROUND NOTES:

- N9: Although it may be because of the effort appears to be well defined, there is an extreme confidence that sufficient time exists to complete this effort by the small group, especially Participant 2 and 3. I will reserve judgement at this point.
- N10: The assumption that government will accept the employees who are currently performing the work is in question. The specification clearly states expanded credials beyond the background of two Engineers. This may be a real problem later.

FIELD NOTES

Client may ask for clarification.

- N11: This is a problem of indecision. We are also deciding whether to inform the Engineers that their jobs may be on the line. The Engineers have been interviewed and it is confirmed; they do not have all of the personnel qualifications. The issue here is does the firm or the group recommend and replace these two employees.
- N12: Problem originates from not deciding on format constraints. Editor (Participant 6), says there is a difficulty in assembling all different authors' word processor files and converting them into standard text boxes, theme boxes, tables, headers, footer and paragraph titles. Some participants do not care, while some, including self, appreciate a nonstandardized form to distinguish subsections of write-up. We compromise, but the late decision caused disruption and rework.
- N13: The lack of technical expertise of the Editor caused rework since he modified technical terms, titles and system descriptions to suit grammatical rules as opposed to valid technical jargon.
- N14: Participant 5 forced to use old files and incorporate selected editorial changes mentioned in N13.
- N15: Government answers clients questions. They are received three days before due date and insist that fax signatures would not be accepted. Client wanted to confirm that Engineers currently working on the job could qualify. Government did not answer that question. Company fortunately sent resumes originals (with some editorial/technical minor errors) counter-to-counter to get California, Florida and Hawaii Engineers to sign the critical resumes. Signed resumes received just in time.

GENERAL NOTE:

Refer to Chapter 6 for Additional Comments.

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTCP	OBSERVATION DETAILS	APPARENT CONFLICT	BKGD NOTES
S3	O36	✓		Kickoff Meeting: Discuss possible assignments, plans, winning themes and resources available. The group needs access to other proposals not available at this facility. Participant 1 and 0 argue on strategies of why firm should win. Participant 3 tends to take over meeting. PM takes leadership away from Participant 3 several times.	None.	—
S3	O37		✓	I'm assigned the Past Performance Section 1 and minor TQM write-up in Section 3 yet how to address the technical Statement of Work unknown. We will publish an outline and reconvene.	C28: Allocation of the technical write-up unknown. C29: Organization of the proposal content not defined.	N16
S3	O38	✓		Page limited proposal outline discussed and rejected. The group cannot decide. Participant 1 and participant 3 have opposite views on the organization.	C30: No decision on outline and high level plan.	N16
S3	O39		✓	Meeting with PM: Group discussed various outline strategies. We tentatively agree to split technical issues based upon time, that is, if company had experience of the specific technical tasks which were accomplished in the past or not. PM wants page estimates.	C31: Organization of Proposal Issue	N16
S3	O40	✓		Participant 4 wants 4 pages per resume as a maximum. This may use too many pages. Difficult to tell at this point since draft resumes not available.	C32: Page Allocation Dispute	N17

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTCP	OBSERVATION DETAILS	APPARENT CONFLICT	BKGD NOTES
S3	O41	√		Participant 4 needs to know who will be assigned to the contract so he can pull together the resumes of these individuals. Says he is losing valuable time. PM to select a contractor who may provide several resumes. PM wants incomplete drafts to assess progress. This was previously unannounced. Participants 1, 2, 3, 4 and X not ready. We discuss workaround but PM will not reconsider or reschedule.	C33: Assignment of Contract Personnel Unknown C34: Unannounced Status Review	N18
S3	O42	√		Participant 4's resumes are too long. PM says hold to 2 pages. Participant 4 says he needs the room.	C35: Page Allocation Problem	N17
S3	O43		√	PM says write-ups are not concise, not persuasive and inaccurate. Hands out several old proposals to research. Has not identified subcontractor. Participants 1, 2, 4 and X need data on subcontractor past experience, personnel and capabilities.	C36: Technical Quality Issue	N20
S3	O44		√	PM and Participant 5 decide the organization of the incomplete draft review is wrong. Direction is to address all technical Statement of Work issues in Section 3 at the end. Participant X must strip all SOW subjects out of Section 1 and write a new Section 3. Participant 2 assisting with Section 1. Will complete that Section. Participants 2, 3 and X disagree on new organization.	C37: Reassignments and Reorganization	N21
S3	O45	√		Significant lack of solid direction. Losing autonomy, cooperation and collaboration. This is mostly observed at our frequent meetings, especially the last two this week. PM concerned but too little time has passed to research and reorganize the text.	C38: Failure to Strategically Plan Changes in Loosely Defined Strategic Plan	N22

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTCP	OBSERVATION DETAILS	APPARENT CONFLICT	BKGD NOTES
S3	O46	√	√	An amendment was received, changing the number of resumes required. The maximum page count was increased also but not to accommodate a new Resumes Section. Participant 4 announces a significant problem in meeting the new page count. Participants 1, 2 and X cannot give up pages and meet requirements, especially under new organization.	C39: Page Allocation Problem	N17
S3	O47		√	Preparation for a Red Team Review. Participants 1, 2 and 4 are not ready. Participant X's Executive Summary is also incomplete. No delays granted. The reorganization has caused serious delays and the quality of the Red Team Draft is below usually acceptable standards. Subcontractor input is not available also.	C40: Technical Quality C41: Subcontractor Source Data Unavailable	N20
S3	O48	√		Outsiders on the Red Team give current draft poor marks not because of incomplete data but because of inaccuracy, disjointed write-ups, not persuasive (hard hitting) and poor referencing. They insist that the technical statements (SOW) should come first. This requires much rework.	C42: Technical Quality Issue C43: Reorganization Issue	N23
S3	O49		√	Meeting to resolve Red Team Review comments. Participants 1, 2, 3,4 and X repeat that specification is unclear in addressing technical SOW in any section. Final decision is to reorganize completely. Resumes also should address more technical issues despite page count problem. Participants 1, 3, 4 and X outside meeting discuss frustration.	C44: Rework Due to Reorganization	N24

SITE #	OBSV #	RSCHR AS OBSVR	RSCHR AS PARTCP	OBSERVATION DETAILS	APPARENT CONFLICT	BKGD NOTES
S3	O50	✓	✓	Participants 1, 3, 4 and X hold a separate meeting. Time is short and we formalize plans to solve all outstanding issues. PM wants another review soon but we decide not to release another draft until the document is under control. All agree that time is not too precious to waste "on another knee-jerk" (a review which causes major changes). We are concerned with typing and production resources.	C45: Realization of Time as A Resource C46: Concern Over Completing the Effort Given Resources Including Production Resources	N25
S3	O51	✓		Cooperation and collaboration increasing. Unlike before, the core group of Participants 1, 3, 4 and X work late hours, assist each other and positively contribute. Minor decisions on page count, format, production priority are quickly discussed and decided.	None	—
S3	O52	✓		Effort is coming together. The final draft is improving considerably, group members are showing satisfaction (as opposed to previous frustration). Participants 1 and 3 are happy with their section. Comments are "needs a little fine tuning" and "just have to polish up the configuration section". Participant 4 working around challenging resume page count issue but will exceed his allocation. Other sections are concise ("real tight") and extra pages for resumes are now available.	C47: Technical Quality Issue	N26

BACKGROUND NOTES:

N16: The group is failing to make important decisions. Valid suggestions are argued and yet not resolved. A "wait and see" attitude appears to be prevalent. Several participants (especially Participant 2) wants to analyze and design a complex structure despite lack of agreement of strategic organization issues.

- N17: Given the data required in the resumes, participant 4 makes a case that he needs more pages. Several group members, especially the PM adds new requirements and subtracts (!) pages. Participant 4 appears to be frustrated. Outside of the group meeting he says, "that's the way things go around here". He appears to tolerate the new direction despite its difficulty. He mentions that he will just "do what he can" and "will see how it all falls out".
- N18: More problems with Participant 4's assignment. He is not getting resumes from subcontractor. He refuses to give or commit to a page count since he doesn't have sufficient source data or a list of the candidates that will be included in the proposal.
- N19: Group members (Participants 1, 2, 4 and X) discuss the issues of too many meetings without positive discussions or decisions and the call for an unanswered draft as unreasonable. We discuss our own status and workarounds to satisfy this request. Unplanned typing and cross referencing is causing much of the problem.
- N20: Lack of strategic planning earlier is causing technical quality problems. Group is concerned that the Red Team draft is incomplete. Many participants discredit their own work.
- N21: The reorganization is major rework for most group members. This reflects the lack of formal agreement earlier when organization of the proposal was apparently decided.
- N22: The effort to introduce new source data and reorganize is impacting the group's cohesiveness and enthusiasm. Participants 1, 2 and 4 complain. Comments include "we are getting jerked around" and "I'm disgusted with the whole proposal".
- N23: Mostly due to rework, some group members agree that their "boilerplate" (source material write-up) were too generic, not persuasive, incorrect, etc. Rework and filling in holes is a real challenge to Participants 1, 3 and X. Resumes get a separate review and receive similar criticism.

- N24: New reorganization is completely a surprise. Group members accept this new approach without arguing due to lack of time and possible frustration that it does not matter. Comments observed included "I don't care which way we go . . . just let's go" and "I'll do it that way only if it doesn't change anymore . . . we have only seven more days . . . if we jerk around anymore, it won't get done".
- N25: There was little concern early in the development about missing the deadline or having too little time. Now, all group members are concerned about the time left to rewrite, write, type and produce the document.
- N26: I sensed a significant change in attitude in most group members, especially Participants 1 and 3. Decisions now are quickly made. Arguments have virtually stopped with significant cooperation. Participant 1 said "I'm glad this is over next week". Participant 3 said "Let's just get this done and be done with it". The closure aspect of the job seems to be a positive substitute for the previous indecisiveness of important strategic issues.

GENERAL NOTE:

See Chapter 6 for Additional Comments.

Appendix C

Interview Data

Collected After the Proposal Development

C-1

POST DEVELOPMENT INTERVIEW GUIDE

SITE #1

PARTICIPANT 1

PAGE 1

RELEVANT OBSERVATION NUMBERS 01, 05, 08, 09

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	"Like working with these guys... most of them."..."Some I've worked with before." "I think I did good work."..."They helped me."	—
Negative Experiences (Activities that went poorly and results which were unsuccessful)	"Everything - only kidding." "We never agree on graphics and themes"..."this is normal." "Not that bad...like an average proposal around here."	CRN#1
Sufficient Time	"It's hard to tell" (if you need more time). "Direction kept changing at the end."..."I had to redo my write-up because at first it was bad."	CRN#2
Technical Quality (of the proposal)	"They always think you can use the old proposal." "Some sections lacked organization."	CRN#3
Amount of Resources	"Typing is a problem." "Another thing, we all have other jobs to do"..."my phone rings off the hook for example."	CRN#4
Specification Interpretation (with respect to a Quality Management Plan discussion or any other interpretation)	"I didn't have any problem with RFP."	—

POST DEVELOPMENT INTERVIEW GUIDE

SITE #1

PARTICIPANT 1

PAGE 2

RELEVANT OBSERVATION NUMBERS 01, 05, 08, 09

Page Allocation	"Not a problem" - "I can always add or cut a few pages out of everything."	—
Source Material Availability	"You just have to know what's around." "It's who you know"... "Who has what" - "Sometimes that stuff is no good."	—
Possible Minimal Collaboration	"No - we do what we have to."	—
Rework	"Sure I had some", "about average." "Can't be done any other way."	—
Assignment of the Subcontractor (his personnel and other subcontractor background, such as source data)	"Didn't have an impact on me."	—
Red Team's Comments	"They treated us fair - no big deal. We never get an okay as is."	CRN#5
Personality Conflict	"None - I know most of these guys." "Participant Z can be an asshole sometimes, he's the one that made me stay late last night . . . I knew it."	CRN#6
Other Comments	"Give me a copy if you write this up." "Sometimes we can use some lesson learned exercises around here."	—

BACKGROUND NOTES

CRN#1: Minor destructive conflict is suspect due to lack of early identification and resolution of some technical content strategic decisions. When combined with previous observations and comments, it appears to be an area to improve. Interestingly, this situation is tolerated; Participant 1 feels it's a normal occurrence.

POST DEVELOPMENT INTERVIEW GUIDE

SITE <u> #1 </u>	PARTICIPANT <u> 1 </u>
	PAGE <u> 3 </u>
RELEVANT OBSERVATION NUMBERS <u> 01, 05, 08, 09 </u>	

- CRN#2: I sense a minor problem with time management, possibly procrastination. Rework was necessary and actually expected under most situations.
- CRN#3: Participant 1 is slightly negative to the support management ("they"), which he feels is outside of the group. He may feel "they" underestimate the effort since similar, but not equivalent, situations occurred in the past. He disagreed with a criticism about his work that his writing style was poor at that point.
- CRN#4: Many agreed with Participant 1 that there was a lack of typing resources. An additional issue is that he, like others, left "too much was left for the last few days" of the development and simultaneously could not relinquish other responsibilities completely. This is a negative conflict situation but one that might be tolerated by other members of the group. See, for example, Participant 3's response to Positive Experiences.
- CRN#5: Participant discusses the know deficiencies as average, "a common occurrence". On the basis of other observations, I see an acceptance of providing a less than best draft possible for the Red Team. This may be caused by what I have referred to in my past as the 'ceiling-floor effect' of a review team, that is, the review team hardly provides an evaluation below or above a corporate norm. In other words, they never completely reject or overwhelmingly accept the draft being reviewed as if it were their job to constructively advance the draft without totally endorsing it since their Red Team charter is to accept what is given while simultaneously providing sufficient red ink improvement.
- CRN#6: This is a social issue related to ultimately destructive conflict due to last minute rework. Participant 1 is preventing collaboration and his "low opinion" referred to issues outside of technical ability. He discussed the past when the referenced participant failed to be honest and "made political moves".

GENERAL CONFLICT REFERENCE NOTE:

Refer to Chapter 6 for Additional Details.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #1

PARTICIPANT 3
PAGE 1

RELEVANT OBSERVATION NUMBERS 03, 04, 05, 07, 08

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	"None...This proposal work is B.S. ...I have my own work to do."	CRN#4
Negative Experiences (Activities that went poorly and results which were unsuccessful)	"I think they expect me to work 10 hour days...and weekends" (especially at the end of the project).	CRN#7
Sufficient Time	"Never"... "the time we have we use"... "we just stop."	CRN#8
Technical Quality (of the proposal)	"Same old shit, time after time"... "no big difference from any other one."	—
Amount of Resources	"Let's get more people like you...just take over all of the production and the rest of it."	CRN#9
Specification Interpretation (with respect to a Quality Mangement Plan or any other interpretation)	"No problem...just about the same as others." "These people don't know what's going on."	CRN#9
Page Allocation	"I think my way is right" (reference to TQM write-up). "You have to answer the mail"... "nobody here understands TQM!"	CRN# 10
Source Material Availability	"Everything's here but the latest statistics they wanted"... "why don't they just get them...they can fill in those blanks..you can do it." "I guess I could have done a better job at that."	CRN# 11

POST DEVELOPMENT INTERVIEW GUIDE

SITE #1

PARTICIPANT 3

PAGE 2

RELEVANT OBSERVATION NUMBERS 03, 04, 05, 07, 08

Possible Minimal Collaboration	"For the most part...we work well together, up until the point we need to."	—
Rework	"You always get jerked around here a little bit...not that bad." "My first draft did not present the fact they want in the right order."	—
Assignment of the Subcontractor (his personnel and other subcontractor background, such as source data)	"It's hard to write-up a TQM (quality) section on a company you don't know." "Sure it caused a problem...sitting on my hands."	CRN#12
Red Team's Comments	"Same as usual"... "It's what I expected." "Maybe they helped."	—
Personality Conflict	"Not really . . . I have personality problems when it comes to work, sure, nothing serious I think."	—
Other Comments	"None"... "thanks for the talk...you understand...I got things off my chest. I'm glad it's over."	—

BACKGROUND NOTES:

CRN#7: From previous observations, it appears typical and expected that group participants work weekends and extra hours, especially at the end of the proposal development, to handle unknown, unplanned activities and to "polish" the final drafts.

CRN#8: The notion here is that there is no definite end to this proposal development, except for "running out of time".

POST DEVELOPMENT INTERVIEW GUIDE

SITE <u> #1 </u>	PARTICIPANT	<u> 3 </u>
	PAGE	<u> 3 </u>
RELEVANT OBSERVATION NUMBERS	<u> 03, 04, 05, 07, 08 </u>	

- CRN#9: This is a request for more coordination and manpower to handle a project that can "always use another set of eyes" due to the uncertainty of the project and lack of complete collaboration.
- CRN#10: Similar to CRN#9, this goes beyond the uncertainty found in the RFP specification, namely, the personal interpretation of each participant. Here, a strategic issue was never decided upon.
- CRN#11: The issue here is "who" should get the specific details needed to complete the document, an issue of allocation of work.
- CRN#12: Participant verifies that poor initial planning caused delays and disruption.

GENERAL CONFLICT REFERENCE NOTE:

Refer to Chapter 6 for Additional Details.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #1

PARTICIPANT 4

PAGE 1

RELEVANT OBSERVATION NUMBERS 04, 06, 010, 014, 015, 017, 023

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/NOTES
Positive Experiences (Activities that went well and results which were successful)	"There are no positive experiences in proposal writing . . . not at this place."	—
Negative Experiences (Activities that went poorly and results which were unsuccessful)	"They expect us to make something from nothing."	CRN# 13
Sufficient Time	"Never . . . it doesn't work." "Those who say (do it) don't know how to do it (what it takes)."	—
Technical Quality (of the proposal)	"My sections weren't that good . . . but I don't think it was my fault." "I needed to prove my claims one themes."	CRN# 14
Amount of Resources	"Nobody to get the stuff (data) I need." "Yes, typing is always a problem. It caused me problems."	CRN# 15
Page Allocation	"No problem."	—
Source Material Availability	"That's what I said . . . it's just not planned."	CRN# 16
Possible Minimal Collaboration	"If it's easy, they cooperate . . . else nothing." "I don't think you need that much."	CRN# 17
Rework	"We always have rework . . . that's the norm around here."	CRN# 18

POST DEVELOPMENT INTERVIEW GUIDE

SITE #1

PARTICIPANT 4

PAGE 2

RELEVANT OBSERVATION NUMBERS 04, 06, 010, 014, 015, 017, 023

Assignment of the Subcontractor (his personnel and other subcontractor background, such as source data)	"No effect."	—
Red Team's Comments	"I expected that . . . I think it all went rather well, at least as I expected it."	CRN#19
Personality Conflict	"No."	—
Other Comments	"None, but I think overall it went okay, with no surprises."	—

BACKGROUND NOTES:

CRN#13: Participant is discussing the lack of free time from his work to get the effort completed, as well as the lack of source material, ideas and direction to "get the proposal done so they like it".

CRN#14: Participant wouldn't unequivocally state whose fault it really was for writing a section which was admittedly inferior.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #1 **PARTICIPANT** 4
PAGE 3
RELEVANT OBSERVATION NUMBERS 04, 06, 010, 014, 015, 017, 023

- CRN#15: Participant complained about the lack of source material.
- CRN#16: Participant feels that he did not need to research through many proposals and manuals if the "powers to be knew exactly what they wanted", that is, knew of its existence and location of the data.
- CRN#17: Participant is demonstrating his negative attitude, as well as his solution to it.
- CRN#18: Participant feels that it would be impossible to develop the proposal without numerous drafts and under changing conditions and directions.
- CRN#19: Participant acknowledges and frankly admits the less than acceptable quality of the proposal before it was submitted to the Red Team. His impression that his lack of quality was tolerated, expected and virtually unavoidable since directions and expectations kept changing.

GENERAL CONFLICT REFERENCE NOTE:

Refer to Chapter 6 for Additional Details.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #1

PARTICIPANT

 PM

PAGE

 1

RELEVANT OBSERVATION NUMBERS 04, 010, 011, 012, 018, 019, 020, 021,

022, 023

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	"I feel it went as well as expected . . . many of the things that went on is what I expected." "Average . . . nothing extraordinary."	—
Negative Experiences (Activities that went poorly and results which were unsuccessful)	"Average (difficulties) . . . and that's not unusual or really negative."	CRN# 20
Sufficient Time	"There was plenty of time . . . some people always wait to the end . . . if it's not hot . . . it doesn't get done."	CRN# 21
Technical Quality (of the proposal)	"I was very concerned before the Red Team . . . and the resumes." "We pulled it together." "We will know if we win."	—
Page Allocation	"That's a writer's problem, we need to write more concise."	—
Source Material Availability	"Even then they use the wrong proposal." "Most of the data is available."	CRN# 22
Possible Minimal Collaboration	"You are the best judge of that."	—
Rework	"The old proposal needs rework . . . need to be more concise . . . tighten up."	—
Assignment of the Subcontractor (his personnel and other subcontractor background, such as source data)	"We got them onboard as fast as we could."	CRN# 23

POST DEVELOPMENT INTERVIEW GUIDE

SITE #1

PARTICIPANT PM

PAGE 2

RELEVANT OBSERVATION NUMBERS 04, 010, 011, 012, 018, 019, 020, 021,

022, 023

Red Team's Comments	"I thought it would be worse! It went well. I am overall very pleased . . . the experience was normal."	CRN#20
Personality Conflict	Not discussed with this subject.	—
Other Comments	"I think overall we all did a fairly good job. We will know if we win."	—

BACKGROUND NOTES:

CRN#20: As heard by other participants, a common theme from the PM and others is that the effort went as expected, about average, as usual and the like. This refers to progress as well as tolerance for difficulties occurring during the development.

CRN#21: The PM appears to agree that time management is faulty in the beginning of the project and that activities are compressed into the time just preceding the deadline. This is what I have labeled as the "addict's ignorance", that is, having little concern for an absolutely relentlessly decreasing resource, time. Little concern is given when it is plentifully available and overwhelmingly concern is experienced when it becomes too preciously scarce.

CRN#22: The problem here is that the PM feels the writers should devote more time to research, that is, read old proposals and find applicable source material. The PM feels writers merely scan (the thousands of pages) of old proposals and select the first one they find - not the most applicable.

CRN#23: The PM justifies the subcontractor selection time by saying that it was accomplished "as fast as (it) could" be accomplished, that is, without concern for how it impacted the writers, write-ups and overall proposal.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #1

PARTICIPANT
PAGE

X (Self)
 1

RELEVANT OBSERVATION NUMBERS All

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	I am happy with the final product, and how the group merged together near the end. Initially, I thought there was an initial lack of collaboration.	—
Negative Experiences (Activities that went poorly and results which were unsuccessful)	Managing the typing near the end of the project was tight.	CRN# 24
Sufficient Time	I felt there was enough time, normal for this usual situation. Possibly wasted or misused in the beginning, yet productive near the end of the project. I might call this the "addict's ignorance" syndrome.	—
Technical Quality (of the proposal)	Slightly above average. Some participants were fine, some participants were a little below the norm.	—
Amount of Resources	More typing at the end of the project was definitely needed.	CRN# 24
Page Allocation	Page allocation was not a real problem after the first or second "real" draft, that is, a complete or mostly completed draft!	—
Source Material Availability	We might have had too much data. Selecting the right data was more of the issue.	CRN# 25

POST DEVELOPMENT INTERVIEW GUIDE

SITE #1

PARTICIPANT
PAGE

 X (Self)
 2

RELEVANT OBSERVATION NUMBERS All

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Possible Minimal Collaboration	I sensed this early in the project, not only between the participants and myself, but also among themselves. I was told and knew they had worked together on proposals before and although this may be a normal start-up dynamic of the small group, initially it was a personal concern. However, this issue disappeared shortly after a few meetings. It might have been caused because I (a new member) was in the group or I merely misinterpreted the activities and incorrectly perceived a false lack of collaboration.	—
Rework	Rework occurs in most cases. The rework we did was as expected for a job of this type.	—
Assignment of the Subcontractor (his personnel and other subcontractor background, such as source data)	Could have and should have been decided upon sooner. We could have used resumes, corporate experience and the quality management write-up sooner in the development.	CRN#26
Red Team's Comments	It was what I expected. They did provide some strong positive comments and suggestions and a few things we missed. Positive conflict.	—

POST DEVELOPMENT INTERVIEW GUIDE

SITE #1

PARTICIPANT
PAGE

 X (Self)
 3

RELEVANT OBSERVATION NUMBERS All

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Personality Conflict	Two participants did argue, had personality differences and caused disruption and delays.	CRN#27
Other Comments	I hope the other sites go as well this well from a professional standpoint, and on the other hand, more destructive conflict might be beneficial for the research: a real dilemma, a paradox of sorts.	—

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SITE <u>#1</u>	PARTICIPANT	<u>X (Self)</u>
RELEVANT OBSERVATION NUMBERS <u>All</u>	PAGE	<u>4</u>

BACKGROUND NOTES:

- CRN#24: As confirmed by observations and participants remarks including those who were tasked to type the final sections, write-ups, edit and graphics, there was too little attention and resources allocated to the project. This was identified as a potential problem early by some and resulted in destructive conflict. In my opinion, the discussions on whether or not to have, late hour typing, weekend typing and extra typists would have been better spent if those who argued, typed. The difficulty was not corrected until it was identified virtually too late by those who opposed more typing resources.
- CRN#25: The PM and others provided us an old proposal library with nearly ten applicable proposals. This consisted of over 2,000 pages. Some of the information contained in these proposals were related but not strictly applicable. Furthermore, the old proposal write-ups had outdated, incorrect descriptions and statistics.
- CRN#26: Participants outside of the writers, especially the PM, did not appreciate the impact of making significant additions, changes or modifications to the proposal.
- CRN#27: Minor personality differences can be tolerated. However, when two or more people have a major personality conflict, the job suffers. Others, who realize the personality conflict, were observed to tolerate it and not confront it. They feel it would cause more problems. When I tried to intervene, one participant denied it and the other only reinforced his low position of the other. One of the individuals normally worked off-site on a more prestigious project and some envy or class status influences could have complicated this issue.

GENERAL CONFLICT REFERENCE NOTE:

Refer to Chapter 6 for Additional Details.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #2

PARTICIPANT 2

PAGE 1

RELEVANT OBSERVATION NUMBERS O24, O25, O26, O28, O31, O32, O35

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	"It was all positive . . . it never was this easy. I enjoyed working with you and this group."	—
Negative Experiences (Activities that went poorly and results which were unsuccessful)	"Nothing negative . . . nothing really negative."	—
Time as a Resource	"I couldn't believe it. Most of the time we would have to work late hours, weekends, you know."	CRN# 28
Technical Quality (of the proposal)	"One of the best we have done. We were lucky we had the old proposal and not too many changes . . ."	—
Interpretation of the Specification (with respect to the engineer's qualifications or any other interpretation)	"I wasn't involved in that resume problem. They (PM and Management) should have made up their mind earlier."	CRN# 29
Proposal Format	"He (Participant 6) can be very stubborn sometimes. He dots all the 'i's and 'j's around here." "I agree that the final way we went was the best."	CRN# 30
Rework	"I had very little rework. I would have helped with the resumes but they (Participant 5, PM and 3) had it under control."	—
Logistics of Resume Signatures	"No additional comments."	—

POST DEVELOPMENT INTERVIEW GUIDE

SITE #2

PARTICIPANT 2

PAGE 2

RELEVANT OBSERVATION NUMBERS 024, 025, 026, 028, 031, 032, 035

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Other Comments	"This was one of the best proposals I ever worked on."	—

BACKGROUND NOTES:

CRN#28: This participant was one of several who felt that the effort proceeded with significant efficiency. She was used to long hours and weekend assignments on past proposals which were "about the same difficulty as this one".

CRN#29: The impression this participant may be relaying is that there was a clear division of responsibility and reliance of different team members to accomplish various different assignments. She talked about "we all know what we had to do" and relied on "each other to do it". She also expressed a high degree of cooperation, sharing of data and status, and strong team membership. She, like most of the other team members, had mostly a high regard for the capabilities and progress of the other participants. "We trust one another" was a comment she made. Deciding on the candidates in this situation was an exception to most of the other decisions and actions of the group.

CRN#30: This issue demonstrated the group tolerance to minor conflicts, delegation of responsibilities and acceptance of final decisions of the group.

GENERAL CONFLICT REFERENCE NOTE:

Refer to Chapter 6 for Additional Details.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #2

PARTICIPANT 3

PAGE 1

RELEVANT OBSERVATION NUMBERS 025, 032, 033, 035

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	"Piece of cake. This whole proposal went smooth. We had some pretty good people on the job."	—
Negative Experiences (Activities that went poorly and results which were unsuccessful)	"None. Yes, the old format was boring . . . I liked the new style you and (Participant 2) recommended. The prop looks professional."	CRN# 31
Time as a Resource	"I really never thought we were pressed for time. It went pretty much as I expected. Sure, at the end the resume fixes were a bitch."	CRN# 32
Technical Quality (of the proposal)	"It is strong . . . a real good prop. I'm real confident we will win this one."	—
Interpretation of the Specification (with respect to the engineer's qualifications or any other interpretation)	"I understand. We should have just bit the bullet and submitted our guys. What could the government say?"	CRN# 33
Proposal Format	"I told you about that."	CRN# 31
Rework	"Look, (Participant 6) doesn't know shit. He may know English and grammar and things like that, but he's no engineer." "We didn't need to change the resumes. The customer knows our people."	CRN# 34

POST DEVELOPMENT INTERVIEW GUIDE

SITE #2

PARTICIPANT 3

PAGE 2

RELEVANT OBSERVATION NUMBERS O25, O32, O33, O35

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/NOTES
Logistics of Resume Signatures	"I'm glad I wasn't involved with that one."	—
Other Comments	"What do you think?" [I answered that I felt confident.] "So do I. It went pretty good." " I think it went well because we always told each other what was going on . . . and we shared much of our write-ups. It helped alot."	—

BACKGROUND NOTES:

CRN#31: This demonstrates a sense of acceptance of change and resolved decisions observed several times during the development. The issue did cause destructive conflict since reworking the original format into the traditional format and modifying the traditional format into the new format was unnecessary.

CRN#32: Common observations here include effective time planning and utilization and the last minute perception that time is becoming a too precious commodity.

CRN#33: This relates to the candidate selection of the original engineers and the participant's desire to make quick and timely decisions on critical issues.

CRN#34: This issue is associated with the destructive conflict of changing the technical jargon found in the resumes to a more grammatically acceptable form despite the fact that the reworded resumes reflect technically incorrect information.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #2

PARTICIPANT 5

PAGE 1

RELEVANT OBSERVATION NUMBERS O30, O32, O33, O34

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	"This one was easy. We were the incumbent. We're locked for this one."	—
Negative Experiences (Activities that went poorly and results which were unsuccessful)	"No, none."	—
Time as a Resource	"When we started I knew it would be easy." "We could have virtually submitted the old proposal. Yes, I did have some problems at the end."	CRN# 35
Technical Quality (of the proposal)	"Nothing wrong."	—
Interpretation of the Specification (with respect to the engineer's qualifications or any other interpretation)	"I told them (PM, management, everybody) we needed those signatures. We shouldn't have changed the resumes, they were good."	CRN# 36
Proposal Format	"At the end I didn't care which way it went as long as we got it there on time."	CRN# 37
Rework	"I spend more time correcting the BS that (Participant 6) put in there than it took to do the damn things." "Sure he picked up some errors but he screwed up . . . didn't understand."	CRN# 36

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SITE #2

PARTICIPANT 5

PAGE 2

RELEVANT OBSERVATION NUMBERS 030, 032, 033, 034

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Logistics of Resume Signatures	"I must have cost us an extra 200, no, 400 bucks to fed-ex them out. It didn't have to happen. I really didn't know whose resumes we would use until the very end."	CRN# 37
Other Comments	"Despite all that, it really went well. My wife didn't believe I was on a proposal . . . late hours and weekends . . . you know."	CRN#38

BACKGROUND NOTES:

CRN#35: As previously observed sight regard to other participants, the utilization of time as a resource is somewhat wasted initially or falsely perceived to be initially adequate.

CRN#36: Participant is referring to the problem caused by changing the technical jargon within the resumes.

CRN#37: Participant is demonstrating a sense and urgency of early decision making on the critical issue of selecting the engineering candidates.

CRN#38: Participant here agrees with others on the timely planning and implementation perceived by other participants.

GENERAL CONFLICT REFERENCE NOTES:

Refer to Chapter 6 for Additional Details.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #2

PARTICIPANT
PAGE

 PM
 1

RELEVANT OBSERVATION NUMBERS 024, 026, 027, 029, 035

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	"What we sent in was good, real good . . . the Red Team liked what we had. I'm pretty happy with the results."	—
Negative Experiences (Activities that went poorly and results which were unsuccessful)	"Nothing, really".	—
Time as a Resource	"You helped . . . planned it well. We had good people on this job. Lucky they were available".	—
Technical Quality (of the proposal)	"Pretty strong! What I expected".	—
Interpretation of the Specification (with respect to the engineer's qualifications or any other interpretation)	"I think the government didn't know what they said".	CRN# 39
Proposal Format	"I leave those details up to you and the group".	CRN# 40
Rework	"Sometimes this is going to be necessary. I see an improvement process evolving . . . that's the way it is." "I don't think we spent too much time in rework, actually things went better than I expected".	CRN# 41
Logistics of Resume Signatures	"It was political. I couldn't let out that we may have to let anyone go. I was afraid they would have went (to the competitor)".	CRN# 42

POST DEVELOPMENT INTERVIEW GUIDE

SITE #2

**PARTICIPANT
PAGE**

**PM
2**

RELEVANT OBSERVATION NUMBERS 024, 026, 027, 029, 035

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Other Comments	"You did a good job, a real pro. We have a great bunch of guys . . . and girls too".	—

BACKGROUND NOTES:

CRN#39: The PM position had always been that the two engineers onsite were qualified for the job despite the new, more challenging personnel requirements stated in the Solicitation. He was willing to risk submitting a non-compliant response with the existing engineers initially. The writers put pressures on him to reconsider and he did. The government did not provide clarification and the PM's lack of decision caused some disruption.

CRN#40: The PM discussed how details of this nature are the group's responsibility, and not an issue he should be involved with. This demonstrates a sense of trust in the group, acceptances of a division of responsibility, and a common theme that the strong cooperation and collaboration of seasoned professionals could work out this detail at the writers' level.

CRN#41: PM stated that a series of drafts, reviews, rewrites and rework were a necessary and beneficial exercise in projects as typical as these.

CRN#42: The PM admitted that he was slow in the decision making using the political excuse that he had previously told all of the former employees that they would retain their jobs even if they didn't win the competition. The two engineers in question had told the PM they wanted to continue to work in their same assignments. The PM stated, "Replacing them would have been a problem".

GENERAL CONFLICT REFERENCE NOTE:

Refer to Chapter 6 for Additional Details.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #2

PARTICIPANT
PAGE

X(Self)
 1

RELEVANT OBSERVATION NUMBERS All

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	I am very pleased with the complete project. The group had relevant experience, excellent source material and access to engineering details. Collaboration among the group was strong.	—
Negative Experiences (Activities that went poorly and results which were unsuccessful)	None significant to mention. The resume wording and format problems were minor despite they were destructive. The resume signature issue disappointed me.	—
Time as a Resource	I didn't feel that time was a problem until we had to rely on an overnight express company (at the last minute) to ensure compliant signed resumes.	—
Technical Quality (of the proposal)	Overall, very strong and this was expected since they were incumbent, had a good previous proposal and had access to the engineers and managers who were performing the job.	—
Interpretation of the Specification (with respect to the placement of the technical Statement of Work discussion or any other interpretation)	A problem did exist. The qualifications of the two engineers were not satisfied.	CRN# 43

POST DEVELOPMENT INTERVIEW GUIDE

SITE #2

PARTICIPANT
PAGE

X(Self)
 2

RELEVANT OBSERVATION NUMBERS All

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Proposal Format	This is an issue of personal preference, convenience and tradition. More of a mechanical problem than a technical or presentation issue. We failed to address the issue until it surfaced physically before us.	CRN# 44
Rework	Compared to other jobs, rework was not a major portion of the job. However, some of the late rework was unnecessary since it resulted from a lack of more prudent planning.	—
Logistics of Resume Signatures	A real error in planning; it should have been avoided. The wording problem with the resumes compounded this problem.	—
Other Comments	The project produced only a few destructive conflict situations. Fortunately these were pronounced.	—

BACKGROUND NOTES:

CRN#43: The issue here is less an interpretation of the specification as much as it is not accepting the fact that technically, the required qualifications exceeded the engineer's experience and no one wanted to accept the fact that engineers working on the job currently may not be qualified on a follow-on contract. This would not be true if the working situation changed or government wanted more experienced personnel in the future. Since there was no evidence of either case, the company attempted to ignore the strict interpretation of the higher qualifications.

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SITE #2 **PARTICIPANT** X(Self)
PAGE 3
RELEVANT OBSERVATION NUMBERS All

CRN#44: The issue here was, although virtually every member of the group share their work, to verify collaboration of content, little attention was given to the style or format of the drafts. The writers collectively left that detail until too late in the production process.

GENERAL CONFLICT REFERENCE NOTE:

See Chapter 6 for Additional Details.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #3

PARTICIPANT 1

PAGE 1

RELEVANT OBSERVATION NUMBERS 036, 038, 039, 041, 043, 045, 046, 047, 048, 049, 050, 051, 052

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	"The only positive thing I can say about this is that it's finished."	—
Negative Experiences (Activities that went poorly and results which were unsuccessful)	"I don't know about you, but this job was really screwed up. We didn't know what's going on . . . too many changes (to the outline)."	CRN# 45
Time as a Resource	"If it went as planned, no problem. The changes screwed it up . . . messed it (us) up . . . we almost ran out of time at the end".	CRN# 46
Technical Quality (of the proposal)	"Except for the final draft it was always pretty bad. That's the way it goes around here (when we have so many changes)".	—
Interpretation of the Specification (with respect to the placement of the technical Statement of Work discussion or any other interpretation)	"We could have put the SOW write-up anywhere . . . it was our own problem . . . not deciding and sticking to it".	CRN# 47
Page Allocation	"First they didn't give us enough pages for what we wanted to do . . . but it all worked out".	—
Re-organization of the Proposal	"Like I said, it was our own fault for changing the outline".	CRN# 47
Strategic Planning of the Proposal Development	"What effected me the most was not sticking to the original plan or any plan, really".	CRN# 47

POST DEVELOPMENT INTERVIEW GUIDE

SITE #3

PARTICIPANT 1

PAGE 2

RELEVANT OBSERVATION NUMBERS 036, 038, 039, 041, 043, 045, 046, 047, 048, 049, 050, 051, 052

Status Review Meetings and Product Reviews	"Too many meetings that changed things . . . not only the outline, but pages, resumes, you know".	CRN#48
Assignment of the Subcontractor (his personnel and other subcontractor background, such as source data)	"Sometimes too little, sometimes too late. We had plenty of old proposals but they weren't very good either".	CRN#49
No Subcontractor Source Data	"Like I said".	CRN#49
Rework	"This was the mother of all rework. I'm glad I saved all my files . . . I reused what I (originally wrote)".	CRN#47
Other Comments	"We will never learn . . . we do the same thing (mistakes) again".	CRN#49

BACKGROUND NOTES:

CRN#45: Participant complained of changes in general, including reorganization of outline components and page allocation.

CRN#46: Participant was unconcerned with having too little time in the beginning of project because he was unaware of changes in direction. He said "I didn't know what we (they) were going to do".

CRN#47: Participant accepts the fact that the group could have overridden the changing directions of the PM and outsiders to maintain the technical write-up as originally planned instead of reorganizing it several times.

CRN#48: Participant suggested too many meetings because they "were unproductive" and "did help us . . . actually hurt us".

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SITE #3 **PARTICIPANT** 1
PAGE 3

RELEVANT OBSERVATION NUMBERS O36, O38, O39, O41, O43, O45, O46, O47, O48, O49, O50, O51, O52

CRN#49: Participant suggests the timing of the particular source material was the issue, one which was tolerated.

GENERAL CONFLICT REFERENCE NOTE:

See Chapter 6 for Additional Details.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #3

PARTICIPANT 2

PAGE 1

RELEVANT OBSERVATION NUMBERS 036, 039, 041, 043, 044, 045, 046, 047, 048, 049

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	"What can I tell you? These (proposals) are always a lot of work and no glory".	—
Negative Experiences (Activities that went poorly and results which were unsuccessful)	"The first thing is, nobody agreed on how we should go . . . you know, what should go where . . . and how many pages . . . but we got it done despite all (that)".	CRN# 50
Time as a Resource	"To be frank, I thought we had plenty of time and we would have (given it didn't change and change)".	CRN# 51
Technical Quality (of the proposal)	"My section, the one we're delivering is good". "No, in the beginning it was pretty rough".	—
Interpretation of the Specification (with respect to the placement of the technical Statement of Work discussion or any other interpretation)	"He (PM) was the problem. We keep listening to (the outsiders, Red Team reviewers). No, I blame him. I did care where it (SOW) went".	CRN# 52
Page Allocation	"See what happened . . . we made it . . . we just had to worry about too much".	CRN# 51
Re-organization of the Proposal	See above. "Nothing more, we just had to please him (PM)".	CRN# 52
Strategic Planning of the Proposal Development	"What planning? . . . there wasn't any. That's our problem".	CRN# 53

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SITE #3

PARTICIPANT 2

PAGE 2

RELEVANT OBSERVATION NUMBERS 036, 039, 041, 043, 044, 045, 046, 047, 048, 049

Status Review Meetings and Product Reviews	"We meet and meet . . . but only to change things . . . we'd be better off leaving it alone. The Red Team (their comments) were okay . . . fine . . . fair. It's always that way . . . as if it's their job . . . but some (of the comments) help us also. It goes both ways".	CRN#54
Assignment of the Subcontractor (his personnel and other subcontractor background, such as source data)	"If we have it we used it . . . no big deal".	—
No Subcontractor Source Data	"The same . . . we have to answer the mail (the requirements of this Solicitation) and nothing more".	CRN#52
Rework	"I did a lot of rework and sure it was unnecessary." "I'll be surprised if it went any other way".	CRN#51
Other Comments	"Thanks for your help. I know you tried to keep us on track. Nobody could do it around here".	—

BACKGROUND NOTES:

CRN#50: Participant suggested indecision as the underlying critical issue, as well as lack of sufficient autonomy and responsibility, which in the long run was overcome.

CRN#51: Participant feels the final draft is below average and, if given more autonomy which would have avoided significant rework, we (all) could have produced a superior document.

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SITE #3 PARTICIPANT 2
PAGE 3
RELEVANT OBSERVATION NUMBERS 036, 039, 041, 043, 044, 045, 046, 047, 048, 049

- CRN#52: Participant now shifts blame to the PM and how he was influenced. When requestioned, he maintained that the PM over-exercised his position. Furthermore, the participant maintains the placement of the SOW technical material was not significant, "as long as it was included".
- CRN#53: Participant now shifts the blame for improper planning back on the group. He says, "It was all our faults" when asked to defend the nature of this comment and who really was responsible for the problem (poor planning). Participant feels we should have overridden the unnecessary changes in direction.
- CRN#54: Participant agrees with others that group experienced too many and unproductive status check meetings. He also suggests a 'ceiling-floor' effect with respect to the Red Team when he said, "it goes both ways". He is implying that some comments are constructive, some are out of necessity to criticize, but always in a set boundary of criticism.

GENERAL CONFLICT REFERENCE NOTE:

See Chapter 6 for Additional Details.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #3

PARTICIPANT 3

PAGE 1

RELEVANT OBSERVATION NUMBERS 036, 038, 039, 041, 044, 045, 048, 049, 050, 051, 052

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	"None . . . I can't even make some up for you".	—
Negative Experiences (Activities that went poorly and results which were unsuccessful)	"I can talk all day. We had to redo the cross reference matrix every time it changed . . . that was like every other day".	CRN#5 5
Time as a Resource	"In the beginning, it seemed pretty straight forward, but I knew pretty early we were in trouble." "We still got to where we want to be (and finished on time) . . . if you call two hours early on time".	CRN#5 6
Technical Quality (of the proposal)	"Which one? I'm happy with the final product".	—
Interpretation of the Specification (with respect to the placement of the technical Statement of Work discussion or any other interpretation)	"The spec didn't say; it was up to us to say".	—
Page Allocation	"I didn't have a problem".	—
Re-organization of the Proposal	"It caused me grief like you and the others." "If we didn't decide, we would have never got it done".	CRN#5 7
Strategic Planning of the Proposal Development	"I would've been okay if we didn't keep jumping around".	CRN#5 6

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SITE #3

PARTICIPANT 3

PAGE 2

RELEVANT OBSERVATION NUMBERS 036, 038, 039, 041, 044, 045, 048, 049, 050, 051, 052

Status Review Meetings and Product Reviews	"Too many meetings and too many reviewers also . . . except the last one".	CRN#57
Assignment of the Subcontractor (his personnel and other subcontractor background, such as source data)	"I go with the flow . . . I know what's in there (old proposals) and how to use them".	—
No Subcontractor Source Data	"I didn't care . . . really didn't effect me too much".	—
Rework	"We (sometimes) don't know what are doing . . . we do it to ourselves".	CRN#58
Other Comments	"Next time you take charge . . . It sure would be better . . . than him (PM)".	—

BACKGROUND NOTES:

CRN#55: Participant was extremely annoyed with the unnecessary change of direction and felt others were at fault.

CRN#56: Participant suggested that the absence of change would have resulted in a project schedule with more than sufficient time.

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SITE #3 PARTICIPANT 3
PAGE 3
RELEVANT OBSERVATION NUMBERS 036, 038, 039, 041, 044, 045, 048, 049, 050, 051, 052

CRN#57: Participant suggests that a cycle existed between changes which caused meeting (and reviews) which caused changes, a very interesting concept; possibly a cyclic dilemma associated with a process/product dynamic.

CRN#58: Participant suggested that extensive and usually unnecessary rework during proposal is not only the "norm", but also, somewhat preventable because the group is aware that the unnecessary work was "self-inflicted".

GENERAL CONFLICT REFERENCE NOTE:

See Chapter 6 for Additional Details.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #3

PARTICIPANT 4

PAGE 1

RELEVANT OBSERVATION NUMBERS 039, 040, 041

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	"I still have my job".	—
Negative Experiences (Activities that went poorly and results which were unsuccessful)	"I was given an impossible task . . . I told them I needed more (pages)".	CRN#5 9
Time as a Resource	"All I did is waste time in the beginning . . . didn't have the people (candidates)".	—
Technical Quality (of the proposal)	"The resumes are weak . . . some don't qualify. If we lose it will be because of the resumes".	CRN#5 9
Interpretation of the Specification (with respect to the placement of the technical Statement of Work discussion or any other interpretation)	"I had my own problems". "I think they went about it all wrong".	—
Page Allocation	"You can't write a good two page resume . . . not (a good one) and meet the spec . . . but more technical details are necessary . . . I could have added that".	CRN#5 9
Re-organization of the Proposal	"None".	—
Strategic Planning of the Proposal Development	"Just like I said".	—

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SITE #3

PARTICIPANT 4

PAGE 2

RELEVANT OBSERVATION NUMBERS 039, 040, 041

Status Review Meetings and Product Reviews	"I wasted my time in those meetings. Nobody really reviewed their resumes . . . only I know how bad they are".	—
Assignment of the Subcontractor (his personnel and other subcontractor background, such as source data)	"I didn't get the subs (candidates) until it was too late . . . what they gave me I used . . . didn't have time to help them (resumes)".	CRN#60
No Subcontractor Source Data	"None".	—
Rework	"I wasted a lot of time going from four pages to two pages to three pages . . . some I left alone". "It didn't go well at all".	CRN#61
Other Comments	"Don't listen to the PM . . . he is always pessimistic just before he submits a proposal . . . he's done this before . . . never satisfied . . . it's just his way".	—

BACKGROUND NOTES:

CRN#59: Participant was referring to meeting the page count with respect to the "impossible task". He complained about the quality of resumes to be provided and the necessary detailed content required in each as well as the supplementary technical detail which he also felt was lacking. He felt the page limitation disqualified some candidates since the limited content was not compliant with the requirements.

CRN#60: Participant also had the problem that several candidates of the subcontractor were not provided to him until late in the development.

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SITE #3 **PARTICIPANT** 4
PAGE 3
RELEVANT OBSERVATION NUMBERS O39, O40, O41

CRN#61: The participant suggested that the changes in the direction and page allocation prevented him from meeting his own standards for his resume preparation.

GENERAL CONFLICT REFERENCE NOTE:

See Chapter 6 for Additional Details.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #3

PARTICIPANT **PM**

PAGE **1**

RELEVANT OBSERVATION NUMBERS 036, 039, 041, 043, 044, 045, 048

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	"Very disappointed. I don't think you helped me (as much as you could) control this job".	CRN#6 2
Negative Experiences (Activities that went poorly and results which were unsuccessful)	"I think we will lose and it was our own fault".	CRN#6 2
Time as a Resource	"Time was wasted. That is why we did so poorly".	CRN#6 2
Technical Quality (of the proposal)	"Maybe only Section 1, the rest is garbage and any (competitor) could have say the same thing (we said) . . . we didn't write about our strengths".	CRN#6 2
Interpretation of the Specification (with respect to the placement of the technical Statement of Work discussion or any other interpretation)	"It was up to you and I to decide. Yes, we both may be at fault there . . . but after that, we still did a poor job of pulling it together".	CRN#6 3
Page Allocation	"We were very lucky in that regard. We need more controls".	CRN#6 4
Re-organization of the Proposal	"See above (about what I said)".	—
Strategic Planning of the Proposal Development	"You could have helped me, here" . . . "I looked for you to do more of that . . . through the Executive Summary. You should have warned me we were in trouble. I read the first Executive Summary and it was weak . . . I expected more from the group".	CRN#6 5

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SITE #3

PARTICIPANT PM

PAGE 2

RELEVANT OBSERVATION NUMBERS 036, 039, 041, 043, 044, 045, 048

Status Review Meetings and Product Reviews	"I don't think they (the group) was prepared for most meetings. The reviews told us we were in trouble".	CRN#65
Assignment of the Subcontractor (his personnel and other subcontractor background, such as source data)	"It had to be . . . we had to work out the details . . . they couldn't meet any earlier".	CRN#66
No Subcontractor Source Data	None.	—
Rework	None.	—
Other Comments	"I think we are going to lose and we didn't have to do (so)".	—

BACKGROUND NOTES:

CRN#62: Participant (PM) assumed that the group should have solved its own problems, taken control and produced a better final document. He suggests that since I was the only outsider and had the most proposal experience that I should have lead this control effort. In defense of this, I was not given the leadership role and my contributions toward control and elimination of unnecessary rework (as I perceived it was unnecessary) was unsuccessful due to the strong personalities and alternate opinions of the group members including the PM.

CRN#63: After the above explanation, the PM starts to admit to some of the failure for focused control.

CRN#64: The PM, who constantly was concerned with page count, suggests more control on this issue despite the successful page allocation of the final document, which was actually 3 pages under the not to exceed 200 page maximum.

POST DEVELOPMENT INTERVIEW GUIDE

SITE #3

PARTICIPANT
PAGE

X(Self)
1

RELEVANT OBSERVATION NUMBERS All

TOPICS	PARTICIPANT RESPONSES	CONFLICT REFERENCE/ NOTES
Positive Experiences (Activities that went well and results which were successful)	From a research standpoint there were several examples of destructive conflict, rework and problems. Unlike some others, I feel the final product was strong.	—
Negative Experiences (Activities that went poorly and results which were unsuccessful)	I'm disappointed that the PM thought I should have assumed more control of the effort.	CRN#6 7
Time as a Resource	I sincerely believed that in the beginning we had plenty of time. I lost confidence near the middle of the project and was very concerned each time we reorganized the outline, especially in the later stages. No one was really concerned with the typing either. That almost caused us the biggest problem.	CRN#6 8
Technical Quality (of the proposal)	Every version except the last was very poor, incomplete, incorrect and not persuasive at all.	—
Interpretation of the Specification (with respect to the placement of the technical Statement of Work discussion or any other interpretation)	I feel it didn't matter where the technical write-up was physically, only that it was included in the proposal.	—
Page Allocation	I tried to get more pages for the resumes and was virtually unsuccessful, except until the end of the project.	—

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SITE #3

PARTICIPANT
PAGE

X(Self)
 2

RELEVANT OBSERVATION NUMBERS All

Re-organization of the Proposal	Some reorganizational ideas were beneficial, constructive conflict. The way we handled it was destructive overall.	CRN#69
Strategic Planning of the Proposal Development	Very poor. Sometimes the PM made strategic decisions, sometimes myself and at other times Participant 2, but the problem was changing strategic direction constantly and often not explicitly agreeing.	—
Status Review Meetings and Product Reviews	Too many meetings with too little positive results or firm decisions. Too many reviews with not enough detailed constructive criticism beyond the 'baby and bathwater' syndrome.	CRN#70
Assignment of the Subcontractor (his personnel and other subcontractor background, such as source data)	I know it hurt others and effected me also.	CRN#69
Non Subcontractor Source Data	Same as above.	CRN#69
Rework	I have plenty of unnecessary rework. I associate this with no strategic planning.	CRN#69
Other Comments	I felt that I was not assigned the leadership responsibility to this effort and acted accordingly. I was the only outsider (non-employee) but I could not assume more of coordinating role due to the strong personalities and mind set of others.	—

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PAGE 3
RELEVANT OBSERVATION NUMBERS All

BACKGROUND NOTES:

- CRN#67:** By control I suggest focused control, early compromise and maintaining a firm position on controversial decisions such as the placement of the technical SOW content. The late selection of a subcontractor was also a problem which actually could have been addressed earlier if the client was willing to compromise earlier, as they did just before the proposal deadline.
- CRN#68:** I did not anticipate the extent of the changes and felt, similar to the addict's ignorance, that time would not be a problem until later in the project.
- CRN#69:** Not all of the reorganization of the proposal was destructive. The majority of the changes were unnecessary and I admit that some unnecessary rework is beneficial toward breakthroughs and improvement. The destructive aspect here is based upon changing too often and reverting to previous tentative decisions with any basis for the change or toward improvement. Also as a result of unnecessary change, new and late research had to be conducted which was also disruptive.
- CRN#70:** The Baby and Bath Water analogy refers to discarding both the baby and the bathwater since the bathwater is dirty. Often we would discard previous work and progress to date without regard for the beneficial essence of our previous accomplishments despite its flaws or shortcomings.

GENERAL CONFLICT REFERENCE NOTE:

See Chapter 6 for Additional Details.