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A Computer-Based Strategy to Facilitate Organizational Learning Process

Charles B. Keating
Old Dominion University

A COMPUTER-BASED STRATEGY

TO FACILITATE ORGANIZATIONAL LEARNING PROCESS

by

Charles B. Keating
B.S. June 1979, United States Military Academy
M.A. 1984 Central Michigan University

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ABSTRACT

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Charles B. Keating
Old Dominion University
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This research investigated the development of Organizational Learning Process (OLP) through the application of a computer-based strategy in an organizational setting. OLP is developed from the organizational learning literature as an integration of similar concepts of organizational processes of inquiry essential to organizational learning. These concepts included: organizational dialectic (Argyris and Schön 1978), surfacing and testing mental models (Senge 1990a,1990b), and interpretation process (Daft and Weick 1984). A qualitative research methodology was developed within a participatory action research framework (Whyte 1989). A six phase research project, designed as a computer-based strategy to generate OLP, was applied in an organizational setting.

The research project was conducted in a major healthcare system in the southeastern United States and involved 17 senior executives. The participants represented diverse units, services, and geographic locations within the health system. The participants were separated into two groups and the project was completed over a 6 month period. For Phase I the context for the research project was established. In Phase II, individual interviews, based on Schein's (1985)

organizational culture concept of internal integration, were conducted. Interview results were used to construct an organizational profile and computer-based exercise for each group. For Phase III, participants anonymously assessed the organizational profile during the first of two computer-based exercises. During Phase IV, participants individually examined group assessments during the second computer-based exercise. In Phase V, participants engaged in a group discussion and joint examination of profile assessments. Finally, in Phase VI group interviews were conducted to assess the research project.

Data was collected through: (1) individual interviews, conducted in phases II-IV and VI, (2) organizational profile assessment results from the Phase III and IV computer exercises, and (3) the Phase VI group interviews. Qualitative data analyses were performed on interview data (Strauss and Corbin 1990; Patton 1980) at the individual, organizational, and strategy levels. Categories defining the results of the strategy deployment were subsequently developed.

The research findings demonstrated the strategy capability to: (1) generate OLP at the individual level, reducing exposure to organizational defenses, (2) generate OLP at the organizational level, and (3) generate participatory strategy redesign guidance. In addition, the research generated an exploratory framework for OLP generated by the strategy. Research implications are also developed for the local organization, the organizational learning phenomenon, and the management of organizations. Directions for further research are also outlined.

DEDICATION

This work is dedicated to my wife Jean, for support, encouragement, and confidence. Also, to my mother and father who have always respected, valued, and encouraged my educational aspirations.

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A note of thanks to my dissertation committee, for their support, guidance, and trust during an exciting and trying process. It was encouraging to experience academic freedom throughout the research process. In addition, special thanks to Barry Clemson who introduced me to organizational learning, as well as management cybernetics, and has greatly influenced my thinking. Also to Fred Steier and Tom Socha for thoughtful advice and guidance in navigating a difficult methodology. I would also like to thank Larry Richards and the faculty of the Department of Engineering Management for establishing a program designed to truly *'make a difference'* on many levels. Finally, although they remain anonymous, a sincere thanks and appreciation to the participants and organization for making the onsite research possible.

PREFACE

This study was motivated by a desire to develop and apply a computer-based strategy to better understand the process of inquiry supporting organizational learning at both the individual and organizational levels. I view understanding and development of the organizational learning process as the principle challenge to facilitate transition toward advanced organizational learning systems. To meet this challenge, a participatory research approach offered the potential for tremendous contributions to knowledge, while at the same time providing practical benefit to the participants and participating organization. Understanding of the organizational learning process was viewed as far too complex a task to manage without assistance from participants. Thus, the objectives of researcher, participants, and the organization were not viewed in opposition. On the contrary, the interdependence of these objectives was integral to the research effort and understanding of the organizational learning process.

The desire to engage in this research stemmed from three primary influences. First, Beer's (1979) concept of identity in the Viable System Model and the *Identity Exercise* he developed. Beer's work provided an indelible cybernetic impression for the research. In particular were the concepts of: (1) divergence in individual perspectives of an organization, and (2) the assertion of identity as a

continuous process of organizational self-reference. The second influence stems from Argyris and Schön's (1978) contributions in organizational learning, the theory of action perspective, and organizational dialectic. Specifically, recognition of the inherent contradictions between *espoused theory* and *theory-in-use* for organizations and individuals. Also, the nature of organizational dialectic as a process of inquiry to confront those contradictions. Finally, Schein's (1985) perspective of internal integration as a function of organizational culture. This provided a valuable context for constructing an explicit representation of an organization for the purposes of assessment. The work of these authors greatly influenced the design, application, and interpretation of the research.

The research was developed to provide a first step toward creating transitional strategies and processes essential to support accelerated movement to advanced organizational learning systems. This research was not undertaken to define, transition, enhance, produce, or modify *organizational learning* or an *organizational learning system.* On the contrary, the research was directed to articulate a clearer understanding of the individual and organizational processes fundamental to the development of, and transition toward, advanced organizational learning systems. This understanding was sought through development and refinement of the computer-based strategy from a theoretical context and the subsequent application of that strategy in an organizational setting. Thus, the design was circular, using theory to design and inform practice and, through that practice, further informing theory. Therefore, theory and practice become

inextricably linked, through application, forming a circular relation in a domain of mutual influence.

The dissertation report is presented in four phases. First, the research background and organizational learning foundations of the project are developed. The specific research questions are established within the organizational learning literature. This entailed developing the research perspective for organizational learning and positioning that perspective within the larger body of organizational learning literature. The concept of organizational learning processes of inquiry was developed as an integration of similar existing, although fragmented, concepts in the literature. In the second phase, the supporting methodology was developed and the strategy design constructed within that methodological framework. The third phase presents the results of data analysis at the individual, organizational, and strategy levels. Finally, the fourth phase discussed the implications from the data analysis and future directions for research.

It is important to establish a recognition and sensitivity to the biases of the researcher. While biases are generally considered a weakness in the traditional research arena, I accept the premise that their *"up front"* recognition, and accountability in design, served to strengthen the research. This research was marked by a cybernetic perspective in the formulation, design, execution, and interpretation of the research findings. Also, there was a predisposition for the utility of qualitative research methods in the study of organizations. Additionally, I supported the premise that qualitative methods are necessary to address the

complexities of the organizational learning phenomena investigated. I had, and retained throughout the effort, a bias and predisposition for participatory action research as a methodology of choice in organizational investigation. Fundamental to this bias was the assumption that the organization, as well as participants, had to play a vital and active role in research designed to produce local benefit while contributing to the larger body of organizational knowledge. This participatory role challenged participants and the organization to reach beyond simply being a source of data. Additionally, I assumed that, given the opportunity to engage in a spectrum of participatory research ranging in nature from limited to comprehensive, comprehensive efforts provided the opportunity for the greatest impact for both the organization and individual participants. However, given restricted resources, a limited effort also offered benefit and was a preferred alternative to *'doing nothing'*. This thinking drove the representation of the research application as a *'project'*, indicating an effort of limited duration, expectations, and expenditure of resources. Therefore, it was recognized that the research intervention was outside the established functions, processes, and structures of the organization and participants. Finally, the role of the researcher in the participatory effort was viewed as facilitative in nature, providing the administration and instruments for deployment of the computer-based strategy. Thus, the focus of the researcher was directed to the process generated by the strategy, not the specific organizational content generated through the application.

These biases were not developed as a complete listing. Instead, they offered an insight for understanding some of the underlying contexts for the research design, interpretation, and reporting.

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CHAPTER 1

INTRODUCTION AND ORGANIZATION

This research was undertaken to further understanding of the organizational learning phenomenon through a participatory action research project. Organizational learning has a significant, although diverse, accounting in the literature. The vast array of theories, models, and perspectives of organizational learning is well recognized in the literature (Argyris and Schön 1978; Fiol and Lyles 1985; Levitt and March 1988; Huber 1991; Dixon 1992). However, out of this array emerges one consistent recognition: *the significance and implications the organizational learning phenomenon holds for greater understanding and betterment of organizations*. But as Fiol and Lyles (1985) have pointed out, and continues to be the case, there is no accepted theory of organizational learning. Although this lack of accepted theory serves to stimulate research directed at development of additional models and theory advancement, it should not preclude deployment of potentially beneficial applications of organizational learning concepts in organizations. Therefore, this research was undertaken to investigate the development of processes contributing to the organizational learning phenomenon.

Purpose of the Study

The primary purpose of the study was to further understanding of the processes contributing to organizational learning through the development and application of a computer-based strategy. With this purpose in mind, three broad objectives provided additional definition and guided the effort. A short discussion of these objectives will serve to more completely establish the context for research.

The first objective of the research was to ***design an intervention strategy which was computer-based, participatory, and limited in duration.*** The term strategy is used to encompass the research application design, supporting instruments, procedures, and facilitation efforts. There are several important aspects to this research objective. First, the strategy was developed within the context of organizational learning. This becomes significant in understanding the strategy design in terms of the theoretical underpinnings and supporting perspectives emerging from the organizational learning domain. Second, the organization did not participate in the design of the research or strategy. Although this effort is framed as a participatory action research project, it was designed as a limited effort. The participants and organization were primarily enacting the pre-designed strategy. This is not intended to minimize the importance of participation to the research design. Instead, the recognition of the design accomplishment external to the participating organization is only intended to stress the limitations for the scope of participation. However, the organization did review the strategy for appropriateness and participated in making specific determinations concerning

deployment of the strategy within the organization. Additionally, an important aspect of participation was the strategy incorporation of mechanisms for participants to assess the strategy throughout the application. In essence, these assessment became the foundation for developing the descriptive framework defining the process of inquiry generated through application of the strategy.

The second objective of the research was to ***apply the strategy as a participatory action research project in an organizational setting***. Application involved initial entry and co-constructing, between the researcher and organization, the fit of the research application to the organization. Since the initial design of the application was conducted external to the organization, it was necessary to establish the appropriate fit between the researcher, organization, and the application. This objective required three principle activities to be conducted simultaneously. First, the researcher had to create an organizational context from which the project could be understood. This required the researcher to create a linkage between the organization and the research design from the researcher's perspective. Second, the organization had to create a context from which the research could be understood from an organizational perspective. In this case, the organization was represented by several individuals. These representatives, acting for the organization, made determinations with respect to tailoring the research design for application in the organization. These individuals created the appropriate research context for the organization, and participated in making a joint determination, with the researcher, concerning the specifics of strategy application

within the organization. In essence, accomplishment of this objective entailed moving from a researcher constructed design to a co-constructed *'organizationally appropriate'* application tailored to the specific organizational setting.

The final research objective was to ***enhance understanding of the process generated through the application.*** This required beginning to articulate the processes of organizational inquiry, or Organizational Learning Process (OLP), generated from the application. An important aspect of this objective was engaging the participants in reflecting on the strategy. This not only provided the research data for understanding OLP, but also served as the form of ongoing participation in the research effort. This was an integral component of the strategy design, allowing the process to not only produce inquiry processes at the individual and organizational levels, but also to provide the same level of inquiry to the strategy itself. The strategy, in this respect, was designed to be self-referential, generating reflective inquiry about itself. Therefore, the strategy became, simultaneously: (1) a mechanism to facilitate OLP at the individual and organizational levels, (2) an application to enhance understanding and implication of the organizational learning process, and (3) a process with the potential capability of generating further development of the strategy as a function of the same inquiry process it was designed to generate.

In essence, the research moved between the theory and practice domains through the designed application. This was accomplished by: (1) using theoretical concepts of organizational learning to inform the design of a strategy and

supporting mechanisms, and (2) application of that strategy in an organizational setting to better understand organizational learning process and theoretical implications. Thus, the research moved in circular fashion, from theory to practice, and back to theory, through the application of the strategy.

Assumptions of the Study

As with any research project involving the study of organizations, there are assumptions about the specific nature of organizations in relation to the research. An acknowledgement and elaboration of these assumptions will better serve to frame the research. Although all assumptions cannot possibly be detailed, or known, the major assumptions for which a research sensitivity has been incorporated will be acknowledged. There are four specific assumptions about organizations underlying the research effort. The first assumption, that individuals of an organization have differing perspectives for some of the most fundamental, taken for granted, attributes and characteristics of the organization. These differences remain organizationally tacit until some form of representation makes them explicit. Also, that these differences can be drawn out, or made explicit, through representation of organizational assessments based on Schein's (1985) organizational culture perspective of internal integration.

A second research assumption concerns emergence of inherent differences in assessments of the explicit representation. For research purposes, this assumption takes the form of implying that the participants are capable, through the application, of making distinctions between what Argyris and Schön (1978)

refer to as *theory-in-use* and *espoused theory*. The critical assumption for the research was that these distinctions are capable of being developed by the participants through the application. In essence, although Argyris and Schön (1978) contend that there is unawareness of theory-in-use, this research was based, in part, on the assumption that participants can come to some level of awareness of divergence between theory-in-use and espoused theory operating in the organization. This distinction between espoused theory and theory-in-use was necessary to provide a focus for inquiry.

The third research assumption was that the strategy could be executed within the domain of organizational defenses and barriers to organizational learning present in an organization. The strategy design was assumed to be capable of overcoming organizational defenses to the extent necessary to allow the process of inquiry to develop. If the strategy could not, to some degree, penetrate and get beyond these organizational defenses, generating the inquiry processes of organizational learning would be doubtful. This assumption was not that organizational defenses could be eliminated or even significantly reduced. Instead, the assumption was made that organizational defenses could be overcome to the extent necessary to permit the process of inquiry to develop.

The fourth research assumption was that the application of the strategy within a single organization could provide implications beyond the local organizational context. The local context, and generation of benefit in the local context, were certainly a major priority of the research. However, the research

was also designed for understanding and implications for organizations beyond the local context of application. The limitations associated with a single organization for study, and the corresponding challenges for extending the results beyond the narrow scope of the study were accepted. Although the research was focused on one organization, the assumption of the research was that local level impact could be accomplished while at the same time projecting implications for OLP to the larger domain of organizations. Therefore, although the study is recognized as being limited with respect to generalizability, this limitation is recognized to establish an appropriate context for the applicability of the research findings beyond the narrow scope of the single organization studied.

The organizational assumptions upon which the research rests, in part, form an important background for understanding the design and application of the research strategy. These assumptions also provide insight for the analyses of data and interpretation of research findings.

The Research Questions

The overarching question which guided the research was: ***Can development of organizational learning process be facilitated through a structured participatory action research project?*** There were three important elements to understanding this research question. First, the research studied application of a predesigned strategy. The specific step-by-step structure followed for the research application, computer-based applications, interviews, and procedures were developed by the researcher prior to application in the organizational setting. This strategy design

was based on application of organizational learning perspectives from the literature. Second, the participatory design permitted the participants to actively assess the strategy, content, and inquiry processes generated throughout the application. This participation was a central part of the research design. The participants were assigned responsibility, not as participants in an idle application, but to be continuously reflective of all aspects of the application. To further define the research, the central research question was approached by addressing three supporting research questions.

These questions included:

1) **Does the application of the strategy generate organizational learning process at the individual level?**

2) **Does the application of the strategy generate organizational learning process at the organizational level?**

3) **Does the participatory approach generate reframing of the strategy as a result of the application?**

The first research question was focused on the individual participants in the application. Specifically, the individual participants and their assessments of the impact and implications of the application at the individual level of analysis. For this question, an important distinction was made with respect to the individual in relation to organizational learning. This distinction is not between *'individual'* learning and *'organizational'* learning, as is frequently the case in the current literature (Argyris and Schön 1978; Fiol and Lyles 1985; Lundburg 1989). On the contrary, the distinction sought is organizational learning process at the *'individual level'* as opposed to organizational learning at the *'organizational level'*. Thus, the

the research suggests that the organizational learning process was examined at both the individual and organizational levels. The *individual level* distinction was simply the application allowing participants to engage in a process of organizational inquiry without exposure to formal group or organizational processes.

The second research question is focused on the generation of organizational learning processes of inquiry at the organizational level. In this case the organizational level was considered to be the individual groups as they focused on questions directed at the overall health system. This question moved beyond the individual level, seeking to understand the impact of the application on the organizational processes of inquiry as a result of exposure to group and organizational processes beyond the individual participants.

The final research question is focused on the strategy itself. This question involved the ability of the participatory approach to provide a means for the strategy to actively assess *'itself'* as an integral part of the design. In essence, the strategy was turned back upon itself through the continual assessment by the participants. The implications of the strategy for facilitating change to itself through the application was examined. Therefore, the strategy is viewed not just in terms of the ability to generate organizational learning process for individual participants and the organization. The strategy was further examined for the ability to generate modification to itself through the organizational learning process it was seeking to generate. In essence, the strategy incorporated the function of facilitating its own

learning through the process of inquiry it was designed to generate within the organizational context of application.

Scope and Limitations of the Study

This research was undertaken as a limited intervention strategy with respect to the organizational learning context. Argyris and Schön (1978) categorize interventions, with respect to organizational learning, as ***"comprehensive"*** and ***"limited"***. Comprehensive intervention involves transformation of individual theories-in-use enroute to the transformation of the organizational learning system. In the limited intervention, which is the thrust of the proposed research effort, the following perspective is provided by Argyris and Schön (1978): (1) the process of organizational inquiry is facilitated by the interventionist, (2) conditions of error are engaged by the organization, and (3) the interventionist seeks to allow a forum for the organization to break out of the restrictive perspective which may be limiting to the organization. This concept of 'limited' intervention serves as a starting point for discussing the scope of the research effort.

The research strategy closely paralleled the suggestion of the researcher (interventionist) as facilitator of the process of organizational inquiry. Clearly, the strategy placed the researcher as the facilitator for the effort. However, this role of facilitation included two important points with respect to the process of inquiry. First, the design for the structured process of inquiry was accomplished by the researcher. Although the organization participated in the determination of application parameters within the organization, the researcher designed both the

inquiry strategy, instruments, and procedures. This served to narrow the research to a set of specific activities to be conducted during the project. Therefore, the scope of the research was restricted to accomplishment of the activities predetermined by the research design. Since the format for inquiry was structured and predesigned by the researcher, the role of facilitator served to both define, and limit, the scope of the research effort. The second point of research as facilitation was the research focus on generation of *process* and not on the *content* generated during the application. The researcher focus was on understanding the process being generated through participatory reflection on that process. However, the organizational focus also included the potential benefits to be derived through understand the specific organizational *content* being generated through the application.

The research scope was limited with respect to comprehensiveness and depth of the application. The intent of the research was not a comprehensive endeavor to transform the organizational learning system of the participating organization. On the contrary, the depth of the research strategy was limited to investigation of the process generated by application of the strategy in the local organizational setting. Also, to understand the implications of that local application for the larger domain of organizational learning. The strategy provided the opportunity for differences in assessments of the organization to emerge and be confronted, through a process of directed inquiry, at both the individual and organizational levels. However, in the context of the organizational learning

system, the depth of this effort was limited to the narrow focus on the process generated by application of the strategy. The limited intent of the research was to investigate the local process and project the findings of the investigation beyond the local setting. Thus, implications for facilitation of processes contributing to advanced organizational learning were sought through the application.

The research application was designed as a limited intervention strategy. Design limitations on the scope of the research included: (1) development and application of the process outside routine organizational activities, structures, and processes, (2) implementation of the application as a *'research project'* without the implication of permanence or sustainability beyond the facilitated research efforts, and (3) facilitation of the effort by a single researcher through a participatory design. The comprehensive nature of the effort was also limited by a clear design of activities to be accomplished in a limited time period. These activities lacked the depth, sustainability, or duration to be considered comprehensive.

Clearly, this research effort falls into a classification of limited intervention strategy. The scope of the effort falls outside what might be considered a comprehensive intervention into the organizational learning system as classified by Argyris and Schön (1978). This distinction of limited scope for the research effort is essential to understanding the design, implementation, and implications for the application.

The Importance of the Research

The significance of the study lies in the attempt to simultaneously contribute to both theory and practice for organizations. The importance and contribution of the research must be understood on each of these two interconnected levels. The research moves from: (1) the theoretical underpinnings in the organizational learning literature, through (2) design of the strategy, including implementing artifacts, informed by theory, to (3) application of the strategy in an organizational setting, back to (4) reflections on the theoretical underpinnings, and finally to (5) suggestion for redesign of the strategy. Thus, the research became an inseparable circularity between theory and practice, bridged by application of the strategy.

The research offered an important advance in the theoretical domain of organizational learning. There are many similar processes identified in the organizational learning literature that point to the importance of generating organizational processes of inquiry. These processes are recognized as essential to development of advanced organizational learning systems. Several predominant descriptions of these processes include: organizational dialectic (Argyris and Schön 1978), surfacing and testing mental models (Senge 1990a, 1990b), and interpretation systems (Daft and Weick 1984). Further understanding, and integration of these processes, within the context of organizational learning, was an important undertaking of the research. In addition, the organizational learning literature is extended through local application. Finally, this research

suggests an important role for the participatory action research approach to investigation of process phenomena concerning organizational learning.

While the research was an important extension of the theoretical domain for organizational learning, it also offered wide ranging social implications. The promise organizational learning holds for organizations has received considerable attention. This research was designed as an application to further understanding of processes that enhance and contribute to organizational learning. Through a facilitated application, instruments, and the corresponding process generated, implications for the organizational learning phenomenon were investigated. The social implications included the potential for greater understanding of processes necessary for movement to more advanced organizational learning systems. A further understanding and implications for accelerating development of organizational learning skills and processes was a primary focus of the research. Therefore, the research stands as an initial step in development and transition of what Argyris and Schön (1978) characterize as limited organizational learning systems to more advanced forms of organizational learning systems.

The research was also directed as a step toward suggesting relations and implications for organizational learning *'process-in-practice'.* The participatory application did not suggest development of the theory and practice domains to the exclusion of one another. Instead, through application, each domain informed the other as application blurred traditional boundaries assumed to separate the domains. Thus, organizational learning theory became reflected back upon itself

through the application. The interrelated domains of theory, designed application, and practice were used to inform one another. The potential social impacts of the research included: (1) generation of a process, and supporting mechanisms, for facilitated inquiry into multiple perspectives of the organization, (2) providing an initial step in exploring necessary processes, and corresponding skills, necessary to move to more advanced organizational learning systems, and (3) providing an application strategy with the potential to result in greater individual and organizational understanding of multiple organizational perspectives. In essence, the research advanced localized organizational practice while contributing to the larger body of organizational knowledge.

A primary social contribution of the research was the design and application of an organizational strategy for facilitated inquiry. This strategy went beyond the theoretical domain of organizational learning, and emerged as a developed application of concepts generated from the theoretical domain. The research deployed the strategy, including the underlying mechanics that supported application of the strategy, in the organizational setting for research. Essentially, the research formed a relation between three domains. These domains included: (1) the theoretical foundations supporting the design, (2) the resulting strategy design itself, and (3) the supporting mechanics to implement the strategy design. Taken individually, each domain had implications for organizations. However, the potential for contribution was heightened by viewing each domain as informing, and being informed, by the other domains. Therefore, the social implication

became joint development of the theoretical, design, and implementation domains through application.

Beyond the wider ranging social implications of the research, the application attempted to generate, explore, and develop multiple perspectives of participants within the local organizational context. This local process had the potential to increase understanding of the organization at both the individual and organizational levels. The potential for increased understanding was created by making tacit individual perspectives of the organization explicit, and exposing the participants to a wider array of perspectives present in the organization. Therefore, beyond reflections on the process, the application provided a means to suggest further reflection and potential actions within the local context. At both the individual and organizational levels, these actions were potentially targeted to increase performance. Increased levels of performance, or effectiveness, was a prevailing assumption from the organizational learning literature (Fiol and Lyles 1985). Thus, the application had the potential, at both organizational and individual levels, to provide benefit to the participants and the organization. However, although the application was developed within the local context, the corresponding processes generated were analyzed for organizational implications beyond the local application.

Organization of the Dissertation

The dissertation is organized into four primary phases (Figure 1). These phases include: (1) development of the organizational learning context for

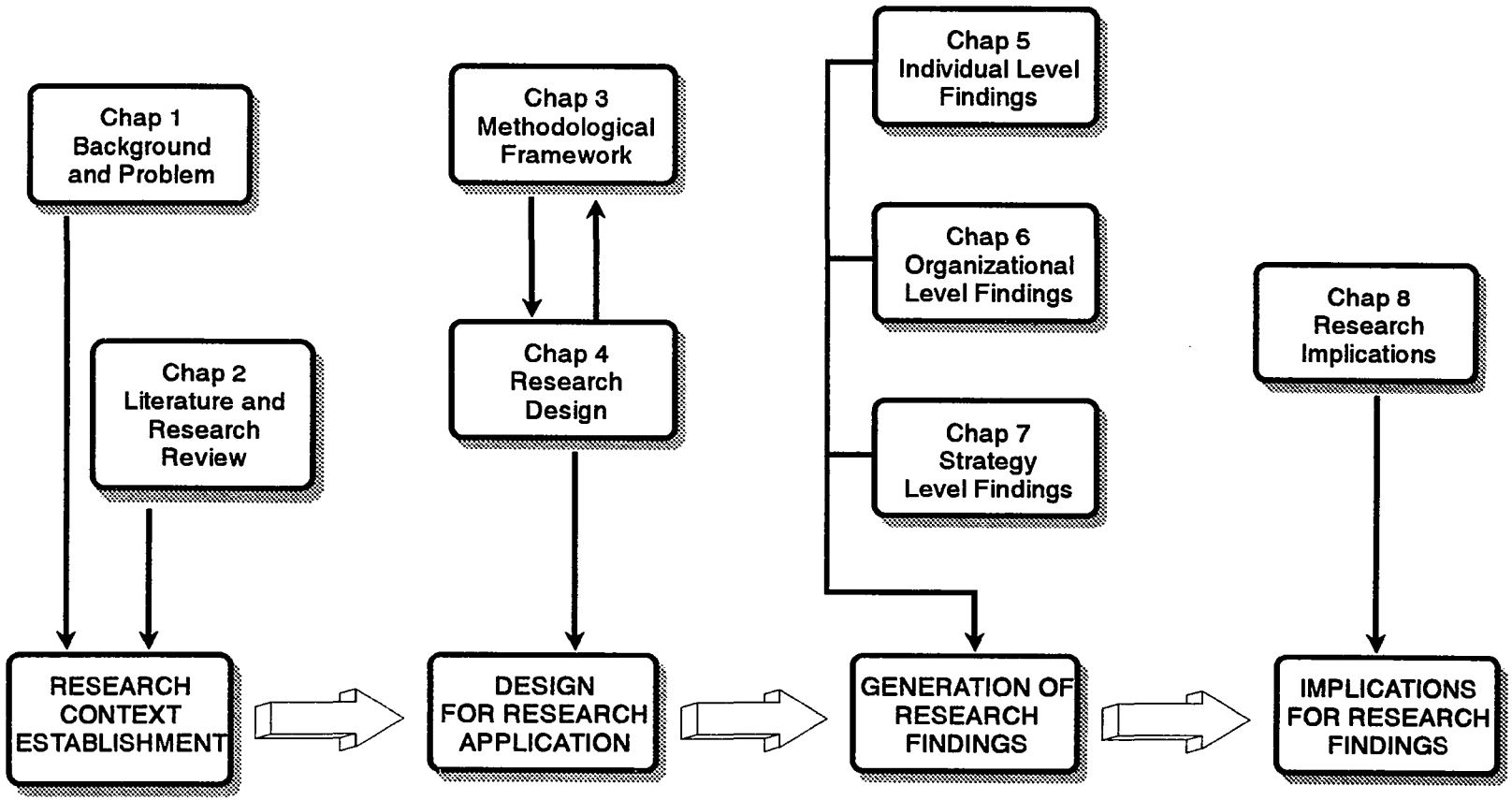

Figure 1. Organization of the dissertation report.

research, (2) design of the project, (3) research findings, and (4) implications based on research findings. In the first phase, the objective is to establish a context for the effort. Chapter 1 establishes the introductory background, including research objectives and questions. This serves to establish the initial context for the research. Chapter 2 reviews the supporting literature and research to ground the research in the organizational learning field. A broad overview of organizational learning is conducted. Additionally, the elements of the theory of action perspective of organizational learning (Argyris and Schön 1978) are examined in relation to the current research. Also, the research perspective for organizational learning is developed from the literature. Finally, the concept of Organizational Learning Process (OLP) is developed as an integration of several similar processes identified in the organizational learning literature. Although each of these processes are different, they are all rooted in the process of organizational inquiry and recognize this process as fundamental to organizational learning. The first phase concludes by discussing the implications of the research project with respect to the literature.

In the second phase, the supporting methodology and research design are developed. Chapter 3 develops the supporting methodology within the framework of participatory action research. Challenges to qualitative research design are addressed as the research methodology supporting the research is developed. Chapter 4 establishes the research design, including detailed discussion of each phase of the four phase strategy. In addition, the contextual setting for each

phase of the research is developed. This chapter also describes the data collection and analysis methods.

The third phase of the dissertation is dedicated to reporting of the results. The objective is to develop the analyses of data with respect to the research objectives and questions. Chapter 5 details research findings concerning OLP at the individual participant level. This chapter develops data for responding to the first research question concerning OLP at the individual level. Chapter 6 provides research findings with respect to OLP at the organizational level, addressing the second research question. Finally, Chapter 7 establishes the research findings with respect to strategy reframing, the final research question.

For the final phase of the dissertation, Chapter 8 develops: (1) the response, based on research findings, to each of the research questions, (2) implications for the local organization, (3) implications for the management of organizations, (4) implications for organizational learning theory, and (5) directions for future research.

CHAPTER 2

REVIEW OF LITERATURE AND RELATED RESEARCH

The literature for organizational learning is vast, with many representations, models, and perspectives of the phenomenon. The purpose of this literature review is to establish the context of the current research within the larger body of knowledge concerning the organizational learning phenomenon. Additionally, the review will narrow the focus of the research within the array of models, perspectives, and approaches to understanding the organizational learning phenomenon.

The literature review will provide a platform for the current research. The influences, significance, and research implications stemming from the literature are developed. This establishes the research within the larger context of the organizational learning literature and secures an appropriate point of departure for the research. While the literature is wide ranging, it is also recognized that: **no accepted theory of organizational learning exists** (Fiol and Lyles 1985; Lundburg 1989); there is a lack of synthesis or cumulative work in the research (Huber 1991); and the body of literature is focused predominantly on the theoretical, versus application, nature of organizational learning (Ventriss and Luke 1988; Shrivastava 1983; Huber 1991). The review of literature and research efforts with

respect to organizational learning serves to establish the background, direction, and necessity for the research effort.

Overview of the Literature Review

The focus of the literature review examines seven primary areas (Figure 2) in establishing a platform for research. First, an overview of organizational learning is developed by presenting multiple perspectives and descriptions of the phenomenon. This is not intended as a comprehensive assessment of the organizational learning literature. The scope of the organizational learning phenomenon is beyond what could adequately be addressed by this literature review. Instead, this review will serve to establish the diversity, and fragmentation, of the literature with respect to organizational learning. Also, the significant works and perspectives of organizational learning are acknowledged. Additionally, this review positions the primary research perspective within the larger context of the organizational learning literature. Second, areas of convergence in the organizational learning literature are examined and developed in relation to the research. Although the thinking and perspectives are diverse, there is recognized convergence in several important aspects of the organizational learning phenomenon. The first two components of the literature review establish the larger context for organizational learning.

The third area of literature review will elaborate on the Theory of Action perspective of organizational learning as developed by Argyris and Schön (1978). The principle components of the perspective will be examined in relation to the

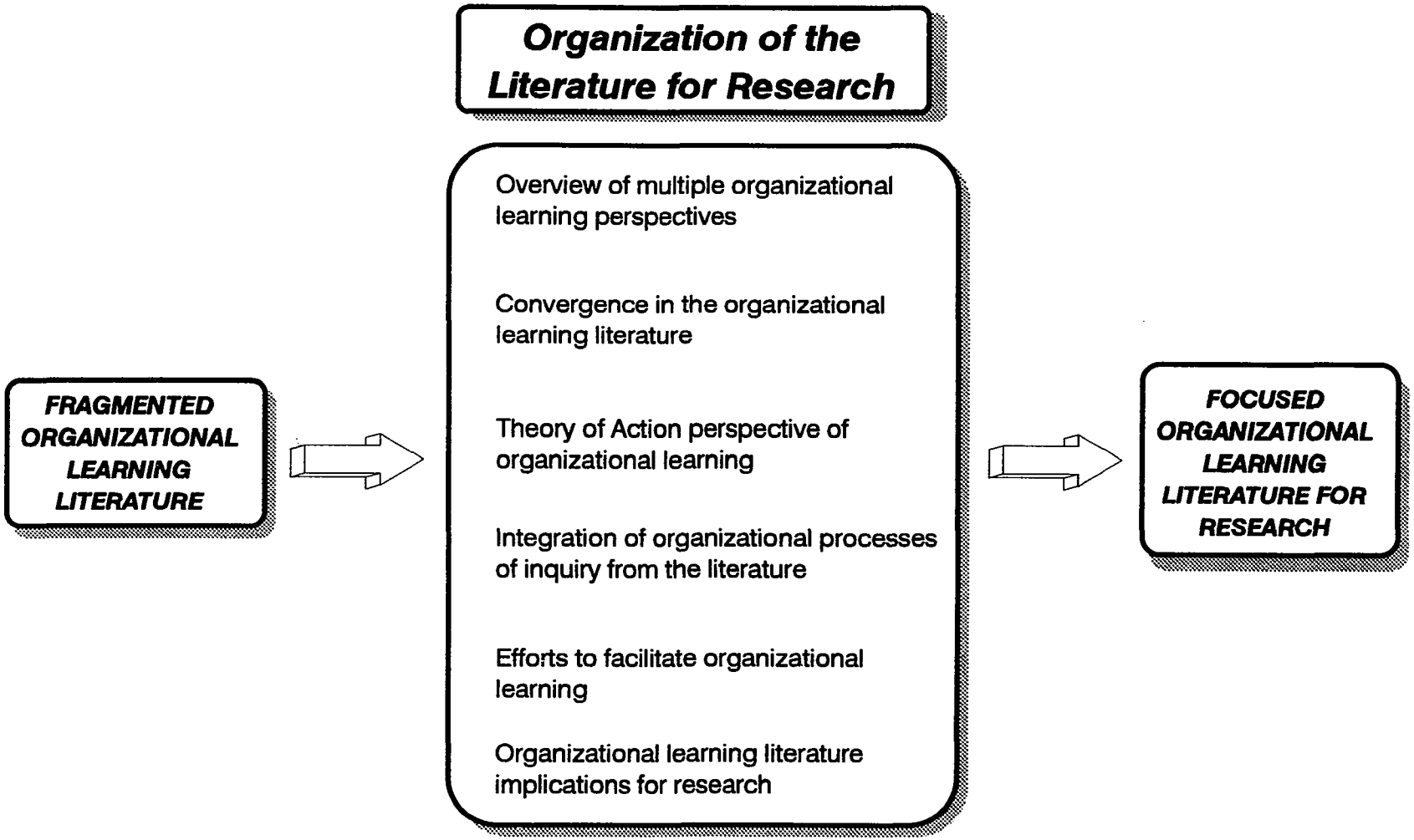

Figure 2. Organization of the fragmented organizational learning literature for research.

research. The objective is to articulate the major points of the theory of action perspective within the larger domain of organizational learning. Also, this review establishes the research within the context of the theory of action perspective.

The fourth component of the literature review integrates similar organizational learning concepts describing processes of inquiry. Although they are derived from multiple perspectives of organizational learning, these concepts are all similar and offer an appropriate point of literature convergence for the research. Each concept describes a process, rooted in organizational inquiry, and necessary for effective organizational learning. The objective of this phase of the literature review is to recognize, and integrate, these fragmented concepts into a specific perspective of the process of inquiry fundamental to organizational learning. Generation of this process, which I have referred to as Organizational Learning Process (OLP), is the subject for the research.

The fifth component of literature review addresses facilitation of organizational learning. This review examines intervention and research efforts designed to facilitate organizational learning. The objective is to recognize approaches and prior efforts which have attempted to facilitate organizational learning. The scope of the research project is established in relation to these facilitation efforts.

The sixth component of the literature review develops the implications of the literature for the research effort. This narrows the focus of organizational learning perspectives and establishes the specific research perspective for organizational

learning. The objective of this review is to: (1) develop the specific organizational learning perspective to be used for the research, and (2) to elaborate and distinguish that perspective within the larger context of organizational learning. This perspective is principally draw from the Argyris and Schön (1978) theory of action perspective of organizational learning. However, other relevant perspectives are discussed as they relate to the research, particular in areas of recognized convergence in the organizational learning literature. Additionally, the research is distinguished within the current organizational learning literature.

Multiple Perspectives of Organizational Learning

The relevance of an organizational learning perspective to future organizations and society is well recognized (Bederian 1986; Garratt 1987; Argyris and Schön 1978; Senge 1990a, 1990b; Ventriss and Luke 1988; Dixon 1992). However, beyond this recognition, a mature consensus for the organizational learning phenomenon is lacking. As Ventriss and Luke (1988) point out, the field of organizational learning is still in the embryonic stages of development. Huber adds that, "It is important to challenge narrow concepts of organizational learning, or of any phenomenon, early in the history of inquiry, as narrow conceptions decrease the chances of encountering useful findings or ideas" (Huber 1991, 89). In commenting on the difficulty of a literature review of the organizational learning phenomenon, Argyris and Schön (1978) recognize an important starting point:

> The essential difficulty of the review is that organizations are phenomena which may be, and have been, examined through the lenses of very different disciplines --social psychology, anthropology, sociology, and

> systems theory, to name a few. The notion of organizational learning has a meaning, and we think an important meaning, from all of these points of view. (Argyris and Schön 1978, 330-331)

The diversity of perspectives becomes evident through the many characterizations of organizational learning. Fiol and Lyles trace the confusion in the organizational learning term back to Simon's (1969) characterization of organizational learning as:

> . . . the growing insights and successful restructurings of organizational problems by individuals reflected in the structural elements and outcomes of the organization itself. (Fiol and Lyles 1985, 803)

Organizational learning has also been characterized in the following ways:

> Organizational learning is a process in which members of an organization detect error or anomaly and correct it by restructuring organizational theory of action, embedding the results of their inquiry in organizational maps and images. (Argyris and Schön 1978, 58)

> . . . the process within the organization by which knowledge about action-outcome relationships and the effect of the environment on these relationships is developed. (Duncan and Weiss 1979, 84)

> . . . a *process* in which growing insights and successful restructurings of organizational problems by the individuals dealing with them reflect themselves in the structural elements and outcomes of the organization itself. (Miles and Randolph 1980, 50)

> . . . the conscious and deliberate extension of a consensually shared knowledge base by members of dominant coalition. (Ratliff 1981)

> Organizational learning entails conversion of individual knowledge and insights into a systematic organizational knowledge base which informs decision-making. (Shrivastava, 1983, 18)

> . . . the process by which an organization obtains and uses new knowledge, tools, behaviors, and values. (Bennis and Nanus 1985, 7)

> . . . the process of improving actions through better knowledge and understanding. (Fiol and Lyles 1985, 803)

> . . . routine based, history dependent, and target oriented. Organizations learn by encoding inferences from history into routines that guide behavior. (Levitt and March 1988, 319)
>
> . . . the organization's (and its members') capacity to learn its own processes and the underlying causes (the praxis, not just the design) and about how to change those processes to produce different results. (Valenca Pereira 1990, iii)
>
> . . . *an organization learns if any of its units acquires knowledge that it recognizes as potentially useful to the organization.* (Huber 1991)
>
> . . . Learning occurs as organizational actions lead to environmental responses, which are interpreted by individuals who share their interpretations and form a collective organizational action-response map based on cause-effect relationships. (Courtney and O'keefe 1992, 23)

The intent of this listing of perspectives related to organizational learning is to demonstrate some of the diverse thinking, fragmentation, and complexity in characterizations of the organizational learning phenomenon. This is not to minimize the importance of the organizational learning phenomenon. On the contrary, this indicates the necessity to establish a specific perspective prior to engaging in research of the organizational learning phenomenon. As Daft and Huber (1987) point out:

> Not surprisingly, the authors of articles that review literature on organizational learning have attempted to cope first with the task of interpreting the concept 'organizational learning' and second with integrating the growing literature on the topic. (Daft and Huber 1987, 3)

There have been several important examinations attempting to integrate, and classify, organizational learning (Shrivastava 1981, 1983; Fiol and Lyles 1985; Daft and Huber 1987; Huber 1991; Dixon 1992). Each account recognizes the diversity of perspectives and attempts a categorization of the diverse perspectives. Figure

3 is a summary of these different classification schemes. As the figure points out, the 'classifications' of literature also exhibit a diversity in attempting to group the different perspectives, models, and theories that seek to describe the organizational learning phenomenon. Again, the significance of these different accounts of the organizational learning phenomenon are not intended as a complete accounting of the phenomenon. On the contrary, they demonstrate the necessity to precisely describe the phenomenon being referred to as 'organizational learning' for research purposes. Otherwise, research, just as the descriptions of the phenomenon, is subject to a diffused understanding.

Argyris and Schön (1978) identify six perspectives they subsequently used to examine the literature of organizational learning. These perspectives stem from the view of an organization as: group (social psychology), agent (instrumentalism, management theory), structure (sociology, theory of bureaucracy), system (cybernetics, information theory), culture (anthropology, ethnomethodology, phenomenology), and politics (political theory, theory of sociopolitical movements). Although they recognize the listing as incomplete, it represents an attempt to appreciate different perspectives of organizational learning based on the larger frameworks within which they have been constructed. Thus, the perspective of learning in organizations is dependent upon, and informed by, the particular perspective of organization use to guide thinking. In addition, the theory of action perspective of organizational learning (Argyris and Schön 1978) was advanced as a comprehensive theory of organizational learning drawing from, and incorporating

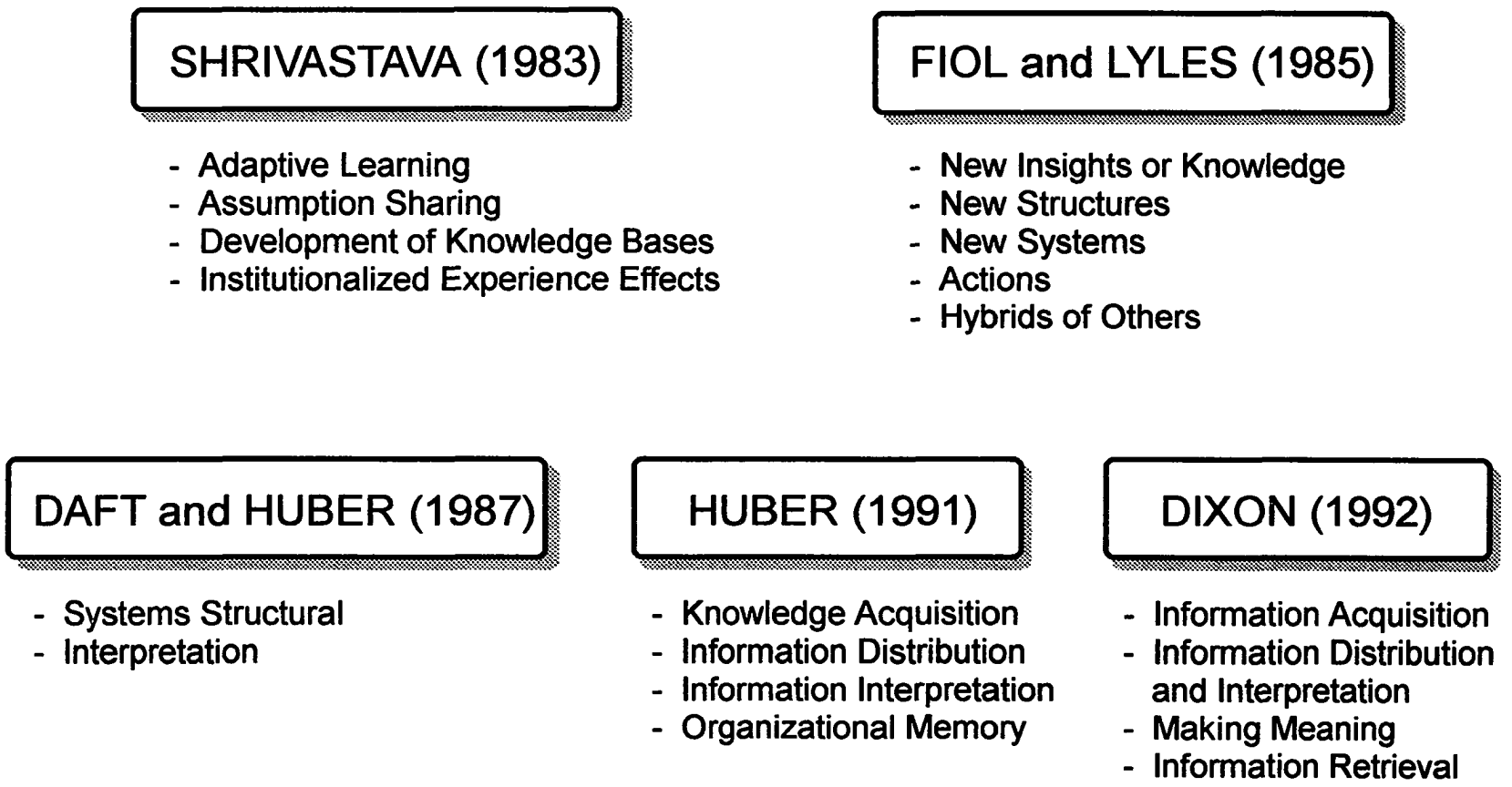

Figure 3. A diversity of perspective classifications for the organizational learning phenomenon.

essential characteristics, of many of the alternative perspectives of organizations. In an assessment of approaches to organizational learning Valenca Pereira (1990) recognized the comprehensive nature of the theory of action perspective. In essence, the theory of action perspective might be considered to present an overarching, or integrative, approach to understanding multiple perspectives of organizational learning.

Shrivastava (1983) suggested that the major perspectives on organizational learning, and the supporting authors, could be classified as: *adaptive learning* (Cyert and March 1963; Cangelosi and Dill 1965; March and Olsen 1976), *assumption sharing* (Argyris and Schön 1978; Mitroff and Emshoff 1979; Mason and Mitroff 1981), *development of knowledge bases* (Duncan and Weiss 1979; Dutton and Duncan 1981), and *institutionalized experience effects* (Boston Consulting Group 1968; Abernathy and Wayne 1974; Yelle 1979). Shrivastava (1983) further suggests a typology for 'learning systems' in organizations based on a range of two dimensions. First, the dimension of 'individual-organizational', ranging from learning systems dependent on individuals to those dependent on participative processes of knowledge sharing. The second dimension, 'evolutionary-design', ranging from those learning systems that develop without active design to ones that are purposefully designed.

Fiol and Lyles (1985) suggested that representations of organizational learning have been presented as: *new insights or knowledge* (Argyris and Schön 1978; Hedberg 1981), *new structures* (Chandler 1962), *new systems* (Jelinek 1979;

Miles 1982), *actions* (Cyert and March 1963; Miller and Friesen 1980), and various combinations of the preceding representations (Bartunek 1984; Shrivastava and Mitroff 1982). This classification of learning in organizations served as a demonstration of the diversity and fragmentation of thinking with respect to organizational learning phenomenon. In their classification of organizational learning, Fiol and Lyles (1985) continued to make two major distinctions. First, organizational learning, and the contributing perspectives, could be distinguished in terms of **content** and **level**. Content being either cognition development (adjustments in interpretations and shared schemes) or behavior development (actions taken based on interpretations). Level was distinguished as being either lower level or higher level:

> Lower level learning occurs within a given organizational structure, a given set of rules. It leads to the development of some rudimentary associations of behavior and outcomes, but these usually are of short duration and impact part of what an organization does. It is a result of repetition and routine and involves association building (Fiol and Lyles 1985, 807).
>
> Higher level learning . . . aims at adjusting overall rules and norms rather than specific activities or behaviors. The associations that result from higher-level learning have long term effects and impacts on the organization as a whole. This type of learning occurs through the use heuristics, skill development, and insights. It therefore is a more cognitive process than is lower-level learning, which often is the result of repetitive behavior (Fiol and Lyles 1985, 808).

The distinction in lower and higher levels of learning proposed by Fiol and Lyles (1985) is similar to Argyris and Schön's (1978) single-loop and double-loop learning distinction. Fiol and Lyles (1985) made a second recognition that there was a need to make a distinction between *adaptation* and *learning*. The failure to

adequately make this distinction was identified as a primary cause of confusion in the organizational learning literature. While Shrivastava (1981,1983) established adaptation as a classification of organizational learning, Fiol and Lyles (1985) moved beyond this to call for distinction between *learning* and *adaptation.* Learning was described as, "The development of insights, knowledge, and associations between past actions, the effectiveness of those actions, and future actions" (Fiol and Lyles 1985, 811). However, adaptation was characterized as, "The ability to make incremental adjustments as a result of environmental changes, goal structure changes, or other changes" (Fiol and Lyles 1985, 811). They continued to suggest an appropriate division of organizational learning literature along the lines of the adaptation or learning perspective.

Daft and Huber (1987) propose that organizational learning can be classified into two basic perspectives, *system-structural* and *interpretative*. The system-structural perspective is based on information acquisition and distribution. The interpretive perspective is concerned with shared interpretations by organizational members, whereby information is given meaning by the members of the organization. The concept of shared interpretation is similar to Shrivastava's (1983) classification of assumption sharing. Additionally, Daft and Huber's (1987) classification scheme placed greater emphasis on the role of information as the central focus to develop a classification scheme for organizational learning. While this is similar to Argyris and Schön's (1978) information accessibility, it places a greater emphasis on information. They continue to recognize the need to ". . .

develop explicit recommendations for designing effective interpretive systems, which are currently soft and ill-defined" (Daft and Huber 1987, 29).

In a recent assessment of the processes of organizational learning, Huber (1991), suggests that organizational learning can be viewed from four primary constructs, including: *knowledge acquisition, information distribution, information interpretation, and organizational memory*. He concludes that: (1) the complexity of organizational processes and subprocesses that may account for changes in organizational behaviors is much greater than organizational science literature suggests, (2) the organizational learning phenomenon lacks substantiated theory and would benefit from additional development and research, (3) there is a lack of integration and cumulative research concerning organizational learning, and (4) research of organizational learning has not produced guidelines that would be valuable to organizations for increasing effectiveness. The lack of accepted theory (Fiol and Lyles 1985) and limited development of useful applications of the organizational learning phenomenon (Ventriss and Luke 1988) is well recognized.

Although the preceding account of organizational learning includes some of the major work in the field, it is by no means exhaustive. There are numerous other interpretations and developments based on organizational learning. The literature, and perspectives, continue to grow as the field expands. Organizational learning has been characterized in multiple and confusing terms, including: *dissipative structures* (Gemmill and Smith 1985), *parenthetic learning* (Klein 1989), *discontinuous non-linear learning* (Meyers 1990), *Kolb's learning model* (Sims and

Sauser 1985; Carlsson, Keane, and Martin 1976), *learning in bureaucracies* (Zayed, 1989), *learning systems* (Shrivastava 1981,1983), *internal diversification* (Kazanjian and Drazin 1987), *systems-structural and interpretative* (Daft and Huber 1987), *insight from experience* (Shaw and Perkins 1991), *institutionalized innovation* (Jelinek 1979), *confrontational-learning* (Bowen and Fry 1992), *learning from experience* (Herriott, Levinthal, and March 1985; Levitt and March 1988), and *unlearning* (Hedberg 1981). While this listing is not exhaustive, it indicates, as Fiol and Lyles (1985), Lundburg (1989), and Huber (1991) have all pointed out: *understanding of the organizational learning phenomenon has been, and continues to be, fragmented.* This diversity of perspectives, and fragmentation, of the organizational learning phenomenon, accentuates the importance of developing the specific perspective of organizational learning used for the research.

This brief examination of the organizational learning perspectives in the literature demonstrates: (1) the magnitude of different perspectives, (2) the recognized importance of organizational learning as a phenomenon, and (3) the necessity to be specific in characterizing the organizational learning perspective taken for the research effort. This is not to imply that there are not points of recognized convergence in the organizational learning literature. On the contrary, there are several important points of convergence in the literature that impact the research perspective of organizational learning.

Convergence in the Organizational Learning Literature

Fiol and Lyles (1985), as well as Lundburg (1989), point out that there is no accepted theory of organizational learning and a need for a methodology capable of providing a more in-depth analysis of organizational learning systems. However, Fiol and Lyles (1985) also suggest general consensus of the organizational learning literature concerning: (1) the importance of alignment of the organization with the environment, constantly adjusting to changes in the environment, (2) the recognized necessity to distinguish between individual and organizational learning, and (3) organizational learning being influenced by contextual factors, including; corporate culture, strategy, structure, and environment. Lundburg (1989) acknowledges the convergence suggested by Fiol and Lyles (1985) and adds three additional points of convergence: (1) recognition that organizational beliefs and interpretations result from associations, held explicitly or implicitly, between actions and outcomes, (2) the necessity to make distinctions in the hierarchy of learning levels, primarily between lower level (first-order change, single-loop learning) and higher level (second-order change, double-loop learning), and (3) the process orientation of organizational learning. Although these points of apparent consensus offer some agreement, organizational learning remains a fragmented phenomenon.

Shrivastava (1983) offers the following themes emerging with respect to the literature of organizational learning:

(1) Organizational learning is an organizational process rather than an individual process. Although individuals are the

agents through whom the learning takes place, the process of learning is influenced by a much broader set of social, political, and structural variables. It involves sharing of knowledge, beliefs, or assumptions among individuals.

(2) Organizational learning is closely linked with experience that the organization possesses. Through previous experience in a decision area or activity, the organization learns to adapt its goals, selectively attend to its environment, and search for solutions to organizational problems.

(3) The outcome of organizational learning is organizationally shared, consensually validated, and integrated system of action-outcome heuristics which are used widely, though not uniformly or consistently, in decision-making.

(4) Learning involves fundamental changes in the theories-in-use or frames of reference within which decision-making proceeds. It involves a reorientation of worldviews of the important decision-makers, as well as structural and procedural changes, to incorporate the newly acquired knowledge. The process involves alignment of perspectives and occurs over a long period of time.

(5) Learning occurs at several levels in the organization e.g. individual, department, plant, corporation, industry, *etc.* The learning levels of importance to strategic decisions are the aggregate organization level and the industry level. The former informs the decision-makers perceptions of the environment.

(6) Organizational learning is institutionalized in the form of learning systems which include informal and formal mechanisms of management information sharing, planning, and control. (Shrivastava 1983, 16-17)

These limited points of convergence in the organizational learning literature provide an important starting point to move into a more specific representation of organizational learning supporting the research. The scope of literature and perspectives requires this narrowing and specificity to avoid further confusion and

to focus the research perspective for organizational learning. Since the primary supporting perspective is Argyris and Schön's (1978) theory of action perspective, a more complete development of this perspective is necessary to provide a theoretical base for the research.

The Theory of Action Perspective of Organizational Learning

The research perspective of organizational learning is principally drawn from Argyris and Schön (1978) and the theory of action perspective. Therefore, a short explanation of the significance of this perspective, with respect to the research, will be developed. The theory of action is related to, and has been developed within, the context of intervention (Argyris and Schön 1974,1978; Argyris 1976, 1982, 1990, 1992). This is an important aspect of the research, since the research design calls for a limited intervention. Although this perspective of organizational learning is discussed independently, it is recognized as being influenced by several broad perspectives (Argyris and Schön 1978; Valenca Pereira 1990). Therefore, I consider this perspective the most capable of providing an overarching framework and organizational learning context for the research. To narrow the focus of review of the Theory of Action, the essential elements which influenced the research are discussed. These elements include: (1) the basis for the theory of action, (2) distinctions in individual and organizational learning, (3) single-loop and double-loop learning, (4) organizational dialectic as a process of inquiry, (5) shared images and maps, and (6) Models O-I and O-II organizational learning systems. Although these areas do not give a complete representation of the theory of action

perspective of organizational learning, they provide the context for understanding the theory of action as it was applied to the research effort.

Basis for the Theory of Action Perspective

In establishing the theory of action perspective for organizations, Argyris and Schön (1978) contend that the norms, strategies, and assumptions are embedded in practice and constitute **component** theories of action. The total of these component theories of action constitute an **instrumental** theory of action for the organization.

> The company's instrumental theory of action is a complex system of norms, strategies, and assumptions. It includes in its scope the organization's patterns of communication and control, its ways of allocating resources to goals, and its provisions for self maintenance . . . .(Argyris and Schön 1978, 15)

Extending the theory of action from individuals to organizations, they explain:

> Perhaps organizations also have theories of action which inform their actions, espoused theories which they announce to the world and theories-in-use which may be inferred from their directly observable behavior. If so, then organizational learning might be understood as the testing and restructuring of organizational theories of action and, in the organizational context as in the individual one, we might examine the impact of models of action theories upon the capacity for kinds of learning. (Argyris and Schön 1978, 11)

As a key to the theory of action perspective of organizational learning, there is recognition of the implicit, and tacit nature of the theory of action.

> Like the rules for collective decision and action, organizational theories of action need not be explicit. Indeed, formal corporate documents such as organization charts, policy statements, and job descriptions often reflect a theory of action (the *espoused theory*) which conflict with the organization's *theory-in-use* (the theory of action constructed from

> observation of actual behavior)--and the theory in use is often tacit. (Argyris and Schön 1978, 15)

This establishes the potential for disparity and incongruity in the theory of action for an organization. This is evidenced as conflict between the espoused theory and theory-in-use:

> Organizational theory-in-use may remain tacit . . . because its incongruity with espoused theory is undiscussable. Or it may remain tacit because individual members of the organization know more than they can say -- because the theory-in-use is inaccessible to them. Whatever the reason for tacitness, the largely tacit theory-in-use accounts for organizational identity and continuity. (Argyris and Schön 1978, 15)

This suggests that to operate on the theory of action, it must be made explicit. However, a dilemma exist since individuals are unaware of these theories of action directing the organization as tacit assumptions.

There are three major research perspective influences to be summarized from the theory of action perspective. First, the distinction between espoused theory and theory-in-use operating in an organization. This established the context for a contradiction in the theory of action. A contradiction that must be made explicit, or represented, to be recognized and addressed. Thus, the second point, that the theory-in-use can be, and most likely is, tacit and to some degree in conflict with the espoused theory. Finally, the suggestion of organizational learning as a process. This process aspect of organizational learning is consistent with other representations of organizational learning in the literature (Simon 1963; Duncan and Weiss 1979; Miles and Randolf 1980; Fiol and Lyles 1985; Lundburg 1989).

Individual and Organizational Learning

As other organizational learning literature has recognized, Argyris and Schön (1978) also distinguish between individual and organizational learning processes. This suggestion is a recognized point of convergence in the organizational learning literature (Fiol and Lyles 1985; Lundburg 1989; Shrivastava 1983). The process of human learning can be understood in terms of ". . . the construction, testing, and restructuring of a certain kind of knowledge" (Argyris and Schön 1978, 10). Argyris and Schön (1978) make a fundamental distinction with respect to the requirements for individual learning as opposed to organizational learning. They suggest that, although individuals must learn as agents of the organization, ". . . individual learning is a necessary but insufficient condition for organizational learning" (Argyris and Schön 1978, 20). Thus, although individuals might learn in an organization, this does not necessitate that organizational learning will occur. On the contrary, they point out that, ". . . in order for *organizational* learning to occur, learning agents' discoveries, inventions, and evaluations must be embedded in organizational memory" (Argyris and Schön 1978, 19). This establishes organizational learning as a phenomenon which occurs through individuals, but operates at a level beyond the individual. They expand on the relation between individuals and learning in an organization:

> Organizational learning occurs when members of the organization act as learning agents for the organization, responding to changes in the internal and external environments of the organization by detecting and correcting errors in organizational theory-in-use, and embedding the results of their inquiry in private images and shared maps of organization. (Argyris and Schön 1978, 29)

In essence, while organizational learning is suggested as occurring through individuals, it is considered to, (1) exist beyond learning by individuals, and (2) be evidenced by changes beyond the individual level. They further explain that to test for the occurrence of organizational learning questions such as the following might be asked:

> . . . . Did individuals detect an outcome which matched or mismatched the expectations derived from their images and maps of organizational theory-in-use? Did they carry out an inquiry which yielded discoveries, inventions, and evaluations pertaining to organizational strategies and assumptions? Did these results become embodied in the images and maps so as to carry out new organizational practices? Were these changes in images, maps, and organizational practices regularized so that they were unaffected by some individual's departure? Do new members learn these new features of organizational theory of action as part of their socialization to the organization? (Argyris and Schön 1978, 20)

This clearly demonstrates the theory of action perspective as rooted in changes in practice, inquiry dependent, and the view of organizational learning as something existing beyond the individual level. In addition, the necessity of changes to shared images as a necessity to establish that organizational learning has occurred is similar to other perspectives that view change as a requirement for organizational learning (Courtney and O'keefe 1992; Miles and Randolph 1980; Fiol and Lyles 1985; Valenca Pereira 1990).

Single-loop and Double-loop Learning

The distinction between single-loop and double-loop learning is fundamental to the theory of action perspective of organizational learning. These concepts of learning characterize the process of error detection and correction. In addition,

both types of learning involve a learning cycle of: (1) discovery of differences, (2) invention of new espoused theory, (3) production of the invented espoused theory, and (4) evaluation and generalization of learning from the process (Argyris and Schön 1978). However, the result of the learning cycle distinguishes the type of learning, single-loop or double-loop, which has occurred:

> When the error detected and corrected permits the organization to carry on its present policies or achieve its present objectives, then that error-detection-and-correction process is *single-loop* learning....*Double-loop* learning occurs when error is detected and corrected in ways that involve the modification of an organization's underlying norms, policies, and objectives. (Argyris and Schön 1978, 2-3)

This distinction in types of learning becomes a pivotal point in the theory of action perspective. The changes occurring as a result of organizational inquiries are defined by the type of learning, single-loop or double-loop, they produce. Single-loop learning is produced from inquires in which:

> . . . members of the organization carry out a collaborative inquiry through which they discover sources of error, invent new strategies designed to correct error, produce these strategies and evaluate and generalize the results. (Argyris and Schön 1978, 22)

Single-loop is presented in contrast to double-loop learning. Double-loop learning is generated or occurs as a result of:

> . . . *sorts of organizational inquiry which resolve incompatible organizational norms by setting new priorities and weightings of norms, by restructuring the norms themselves together with associated strategies and assumptions.* (Argyris and Schön 1978, 24)

For the research, there are three major points with respect to single-loop and double-loop learning. First, this distinction identifies differences in the levels of

learning occurring in organizations. This is consistent with the distinction between lower and higher levels of organizational learning (Fiol and Lyles 1985; Lundburg 1989). Second, double-loop learning is presented as a more advanced form of organizational learning in resolving inconsistencies in the organizational theory-in-use. Finally, both types of learning emerge through the learning cycle. This cycle is based on the process of inquiry within an organization. The single-loop and double-loop learning concepts provide the basis for corresponding models of organizational learning systems, Model O-I and Model O-II, developed by Argyris and Schön (1978).

Organizational Dialectic as a Process of Inquiry

The process of inquiry is a focal point of the theory of action perspective of organizational learning. Organizational inquiry is the mechanism by which the conditions for error in the organizational theory of action are detected and corrected through single-loop or double-loop learning. Information about organizational error generates from ". . . a mismatch between actual and expected outcome of organizational action" (Argyris and Schön 1978, 55). Argyris and Schön (19785) present this mismatch as the result of:

> . . . mistaken assumptions, incongruities between espoused theory and theory-in-use, and incompatible norms as *inadequacies* in organizational theory of action. These are all conditions for error. So long as assumptions are false, expectations will be disappointed. So long as espoused theory and theory-in-use are incongruous there will be organizational actions in conformity with theory-in-use which violate expectations embedded in espoused theory. So long as norms for action are incompatible, actions which meet one set of expectations will violate another set. (Argyris and Schön 1978, 56)

However, recognition of these inadequacies, and the associated processes of inquiry, are dependent on information. Information must be accessible to identify inadequacies in the theory of action. The task of the process of organizational inquiry is:

> . . . to specify vague information, to clarify ambiguity, to prune excessive information, to enrich sparse information, to make untestable propositions testable, so that error or anomaly can be linked to inadequacies in organizational theory of action. The work of organizational inquiry at this stage is to convert uncertainty to correctable error. (Argyris and Schön 1978, 57)

Information which is accessible is essential to begin the process of organizational inquiry that can resolve the contradictions and begin to restructure the organizational theory of action. The role of organizational learning in reducing ambiguity and uncertainty has also been suggested by March and Olsen (1975, 1976). It is the process of organizational inquiry which leads to organizational learning. Good dialectic is the term Argyris and Schön (1978) use to describe effective processes of organizational inquiry. They propose:

> In good dialectic, new conditions for error typically emerge as a result of organizational learning, hence the quality of stability combined with continual change. This means that the good dialectic is not a steady state free from conditions for error, but an open-ended process in which cycles of organizational learning create new conditions for error to which members of the organization respond by transforming them so as to set in motion the next phase of inquiry. (Argyris and Schön 1978, 144)

The concept of organizational dialectic as an essential process of organizational learning is similar to surfacing and testing mental models (Senge 1990a, 1990b, 1992), and interpretation process (Daft and Weick 1984). Additionally,

organizational dialectic, or other processes of inquiry, might be considered what Lundburg (1989) calls subprocesses of the organizational learning process.

In distinguishing the dialectic perspective from other thinking on organizational change, Argyris and Schön offer:

> Good dialectic is not a matter of smoothness of operation or elimination of error. On the contrary, its goodness is inherent in the ways in which error is continually interpreted and corrected, incompatibility and incongruity are continually engaged, and conflict is continually confronted and resolved....intractable conflicts of norms are organizational dilemmas. Good dialectic entails their resolution through double-loop learning, that is through organizational inquiry which leads to the restructuring of central elements of organizational theory of action. (Argyris and Schön 1978)

Thus, organizational dialectic is a continual process of inquiry capable of generating double-loop learning. Also, organizational dialectic is the essential process of inquiry for effective organizational learning.

Shared Images and Maps

Development of shared images and maps of the organization are an essential aspect of the theory of action perspective. Argyris and Schön (1978) contend that individuals have private conceptions of the organizational theory-in-use. These conceptions are under constant inquiry and adjustment. Also, in large complex organizations, this requires that there be organizational maps as public representations of the theory-in-use. This suggests that, at the organizational level, there is explicit representation of the public maps. Also, that these public maps may exist in contradiction to privately held maps of the organization. In explaining the function of these maps, Argyris and Schön suggest:

> These are the shared descriptions of organization which individuals jointly construct and use to guide their own inquiry. They include, for example, diagrams of work flow, compensation charts, statements of procedure. . . .Whatever their form, maps have a dual function. They describe actual patterns of activity, and they are guides to future action. As musicians perform their scores, members of an organization perform their maps. . . . Organizational theory-in-use, continually constructed through individual inquiry, is encoded in private images and in public maps. These are the media of organizational learning. (Argyris and Schön 1978, 17)

Argyris and Schön (1978) also suggest that for organizational learning to occur, the organizational learning media must be modified:

> We can think of organizational learning as a process mediated by the collaborative inquiry of individual members. In their capacity as agents of organizational learning, individuals restructure the continually changing artifact called organizational theory-in-use. Their work as learning agents is unfinished until the results of their inquiry --- their discoveries, inventions, and evaluations --- are recorded in the medial of organizational memory, the images and maps which encode organizational theory-in-use. (Argyris and Schön 1978, 20)

This is also consistent with other perspectives recognizing change as a condition for organizational learning (Courtney and O'keefe 1992; Miles and Randolph 1980; Fiol and Lyles 1985; Valenca Pereira 1990).

Organizational Learning System Models

Argyris and Schön (1978) propose two models to describe organizational learning systems. In describing what comprises a learning system, they propose:

> The organization's theory of action is embedded in a behavioral world which shapes and constrains instrumental theory-in-use at the same time that it shapes and constrains organizational learning about theory-in-use. This is what we shall call the organization's *learning system.* (Argyris and Schön 1978, 41)

This has some similarities to the characterization of organizational learning system by Shrivastava (1983) with respect to the tacit nature of theory-in-use, action, and the supporting systems. Shrivastava (1983) describes organizational learning systems as:

> . . . systems which acquire, communicate and interpret organizationally relevant knowledge for use in decision-making. They attempt to objectify the subjective personal knowledge of individual members into an organizational knowledge base. . . . They are rooted in organizational practices. This means they reflect the actual 'theories-in-use' and not the 'espoused theories' or rhetoric in organizational activities. . . . Organizational members know about these systems, even though some of the systems may not have been explicitly verbalized or documented. (Shrivastava 1983, 17-18)

This learning system perspective is similar to Argyris and Schön's (1978) perspective. However, it is more narrowly focused in terms of knowledge and decision-making as the functions of the system. Additionally, the suggestion that members know about the systems is not suggested by Argyris and Schön (1978).

Model O-I and Model O-II are the learning system models proposed by Argyris and Schön (1978). They stem from earlier work concerning behavior governing individual theories-in-use, Model I and Model II (Argyris and Schön 1974; Argyris 1970, 1976). To establish the research perspective of Model O-I (limited organizational learning system), as opposed to Model O-II (advanced organizational learning system), a brief discussion of the models upon which they are based is necessary. The discussion of Model I and Model II theories-in-use will provide the background perspective for appreciation of the extended organizational models O-I and O-II.

Figure 4 is a comparison between Model I and Model II with respect to: (1) governing variables, (2) strategies for action, (3) implications for learning, and (4) implications for effectiveness. The corresponding organizational learning system models are not designed as opposites. Instead, Model O-I is based on single-loop learning, as opposed to Model O-II, which is based on double-loop learning.

Model I is described by Argyris and Schön (1974,1978) as governed by a rational approach to defining goals and attempting to achieve them. The focus is on maximizing winning and minimizing losing. In addition, negative feelings are not expressed. This establishes the context for behavioral strategies that are focused on unilateral control of the environment, tasks, and protection of self and others. The results of this theory-in-use are a lack of valid information, defensiveness, and low risk taking environments. This produces learning that is single-loop and processes which are self-sealing. Self-sealing describes processes which become self-promoting and support continued perpetuation of restrictive Model I behavior. The impact on learning and effectiveness is an exclusive focus on single-loop learning and a corresponding decrease in long term effectiveness.

While not the opposite of Model I, Model II theory-in-use (Argyris and Schön 1974,1978) is governed by generation of valid information supporting informed choice. Additionally, commitment is developed through the high degree of free and informed choice. Behavioral strategies involve joint inquiry and environments of increased risk taking where protection of self and others becomes a joint

	GOVERNING VARIABLES	ACTION STRATEGIES	BEHAVIORAL CONSEQUENCES	LEARNING CONSEQUENCES	EFFECTIVENESS
MODEL I	Define goals Maximize Winning; Minimize Losing Minimize Negative Feelings Be Rational	Design and manage the environment unilaterally Own and control tasks Unilateral protection of self and others	Individuals seen as defensive and inconsistent Defensive interpersonal and group relations Defensive norms Low freedom of choice, commitment, and risk taking	Self-sealing Single-loop learning Little public testing of theories Much private testing of theories	Decreased long term effectiveness
MODEL II	Valid Information Free and Informed Choice Internal Commitment and Monitoring of Implementation	Participation and high personal causation Task is controlled jointly Protection of self is a joint enterprise directed toward growth Bilateral protection of others	Minimal defensiveness experienced by individuals Minimal defensiveness in interpersonal and group dynamics High freedom of choice, commitment, and risk taking	Disconfirmable processes Double-loop learning Frequent testing of theories publicly	Increased effectiveness

Figure 4. Model I and Model II theories-in-use. Source, adapted from Argyris and Schon (1978, 62-63, 137).

enterprise. The learning resulting from Model II is double-loop learning for conditions which require modification to existing norms, policies, or assumptions to correct error. This occurs through effective processes of inquiry and theories that are publicly testable and can be disconfirmed through valid information. The impact on learning is increased long term effectiveness with respect to problem solving and decision making.

For organizations, Argyris and Schön (1978) develop Model O-I as the corresponding model to the Model I description for individuals. Individuals with Model I theories-in-use:

> . . . create conditions of undiscussability, self-fulfilling prophecies, self-sealing processes, and escalating error, and they remain unaware of their responsibility for these conditions. (Argyris, Putnam, and Smith 1985,93)

These conditions become evident at the organizational level as the Model O-I learning system. Model O-I is characterized by primary inhibiting loops that contribute to dysfunctional group dynamics and reinforce the conditions of error that initially establish these loops. Primary inhibitory loops act as barriers to effective organizational learning and form the basis for limited organizational learning systems. In the limited learning systems, error can be detected and corrected (single-loop learning) provided correction does not challenge the existing norms, objectives, or strategies of the organization. When errors are detected for which correction would require challenging the legitimacy of existing norms, objectives, or strategies, the source of error is not addressed and dysfunctions in the organization develop. This failure is address sources of error is reflective of

Model I theories-in-use. It is evidenced by emergence of organizational defensive routines (Argyris 1990, 1992), reinforcement of inhibitory loops, and dysfunctional group dynamics. The result of the Model O-I limited learning system is a decrease in the probability of double-loop learning and the corresponding human costs incurred by the dysfunctional group dynamics and defensive routines. These routines become necessary to maintain the inconsistent strategies which lie at the source of the error. Figure 5 is a simplified representation of Argyris and Schön's (1978) Model O-I for error detection and correction.

In contrast to Model O-I, Argyris and Schön (1978) present Model O-II as an advanced organizational learning system. This model is based on information generation in an environment characterized by Model II theories-in-use. Thus, issues are surfaced and subjected to public testing as disconfirmable propositions. This permits inquiry directed at engaging conditions of error that result from contradictions in espoused theory and theory-in-use. The correction of error may take the form of single-loop learning or double-loop learning, whichever is appropriate to the circumstances. The result is increased probability for double-loop learning, environments conducive to high risk taking, and a corresponding decrease in dysfunctional group dynamics. The primary difference between Model O-I and O-II is the elimination of inhibitory loops in Model O-II. This increases long term effectiveness. Figure 6 is a simplified representation of Argyris and Schön's (1978) Model O-II for error detection and correction.

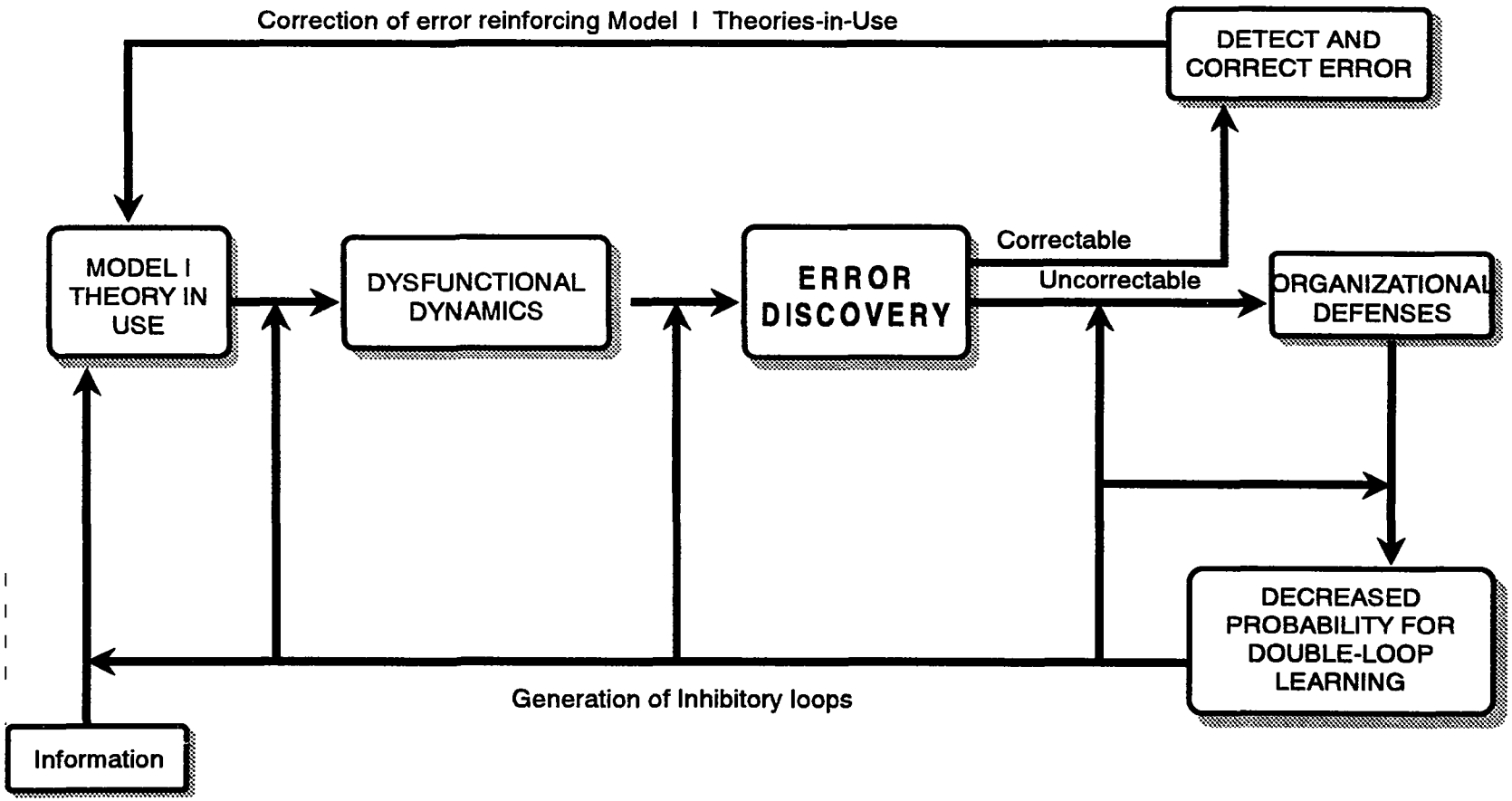

Figure 5. Model O-I limited learning system. Source, adapted from Argyris and Schon (1978, 112-113).

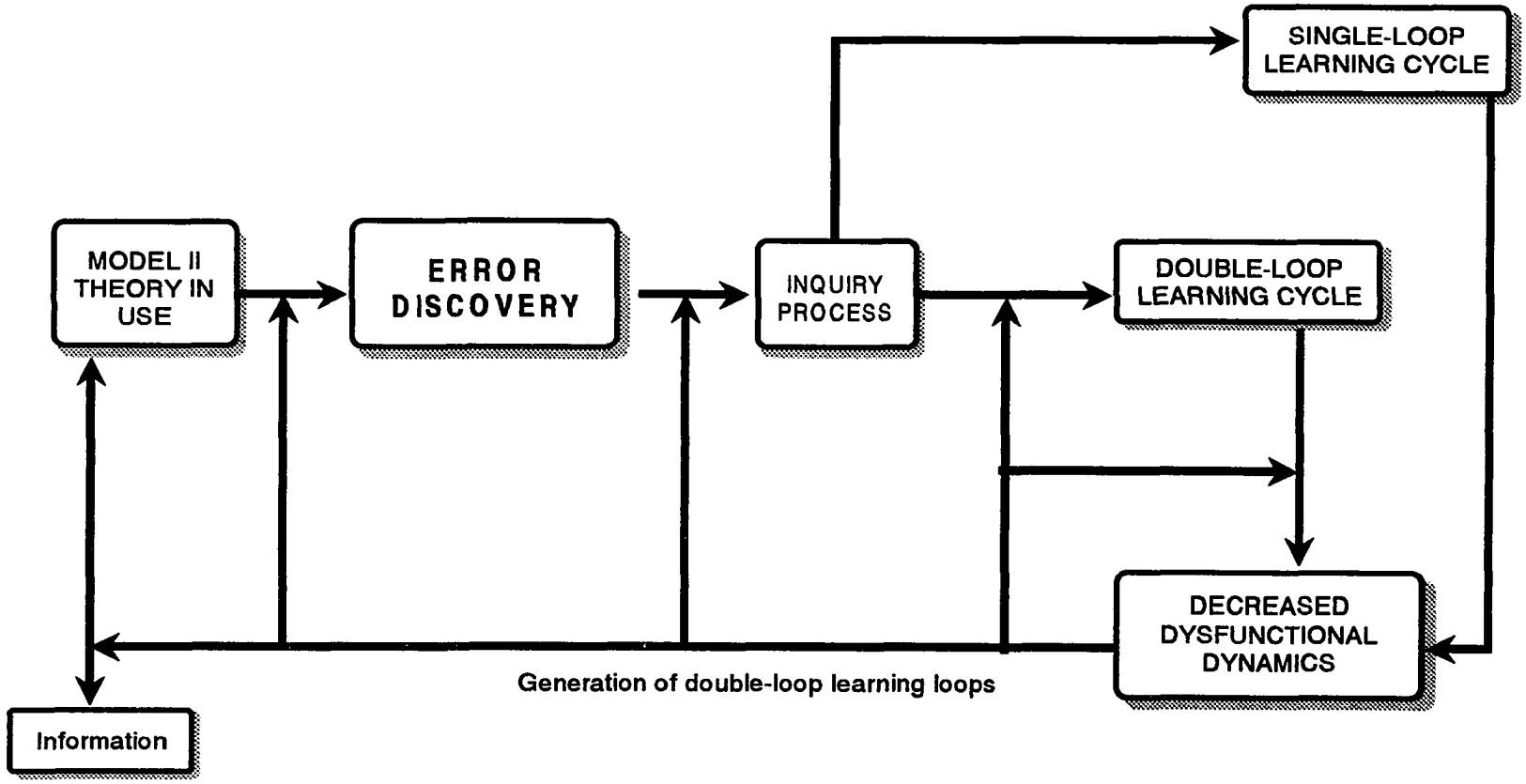

Figure 6. Model O-II learning system. Source, adapted from Argyris and Schon (1978, 142-143).

Research Perspective for Organizational Learning

With the magnitude of perspectives on organizational learning, it is necessary to develop and articulate the specific organizational learning perspective used to guide the research effort. The research perspective of organizational learning stems primarily from Argyris and Schön's (1978) theory of action perspective of organizational learning. However, there are several other influences which extend the theory of action perspective for research purposes. Additionally, the organizational learning context for research is developed in relation to several recognized areas of convergence in the organizational learning literature (Shrivastava 1983; Fiol and Lyles 1985; Lundburg 1989). The research perspective for organizational learning is comprised of the following nine points.

Point 1: Organizational learning is a process oriented phenomenon. The process orientation of organizational learning has been recognized as a point of convergence in the literature (Fiol and Lyles 1985; Lundburg 1989; Shrivastava 1983). However, for the research context, organizational learning is viewed as consisting of subprocesses. These subprocesses are necessary conditions for organizational learning to occur, but singularly are not sufficient conditions to produce organizational learning. This is similar to Daft and Weick's (1984) proposed interpretation process which occurs prior to organizational learning. The view of organizational learning from a process perspective permits: (1) directing research at the supporting processes of organizational learning and not necessarily the larger process of organizational learning, and (2) identification of the process

contributing to organizational learning, without having to focus on action and outcomes necessary to establish the development of organizational learning. In effect, the process perspective permits design of research to generate processes contributing to organizational learning.

Point 2: Organizational learning occurs, and is evidenced through action and change in existing organizational norms, practices, policies, strategies, or procedures. The relation of organizational learning to action and change is well established in the literature (Simon 1969; Miles and Randolph 1980; Argyris and Schön 1978; Fiol and Lyles 1985; Lundburg 1989; Lee, Courtney, and O'keefe 1992). However, for research of organizational learning subprocesses, action is not taken as the indicator of the existence of these subprocesses. Development of the subprocesses, in particular OLP, are the subject of research. These subprocesses may develop without the existence of organizational action generally recognized as necessary for organizational learning to have occurred. The possibility of developing OLP, without necessarily investigating generation of organizational learning, is an important perspective for the research. In essence, the organizational process of inquiry can be investigated as a phenomenon independent of organizational learning.

Point 3: Higher orders of learning are essential to effective organizational learning. Higher order learning (double-loop learning) is essential to achieve advanced organizational learning systems. However, supporting subprocesses to generate higher order learning are necessary to transition limited organizational

learning systems. Therefore, while the research perspective acknowledges the distinction between lower and higher order learning, an additional distinction is necessary. Instead of categorizations of learning as either lower or higher order, a spectrum of learning processes is necessary. By calling for a spectrum, or range, of learning processes, the concepts of transitional learning systems and processes becomes more appropriate. This is consistent with efforts to move toward Argyris and Schön's theorized Model O-II learning system.

Point 4: One of the primary functions of organizational learning, and the contributing processes, is the development of organizational alignment. Organizational alignment, in this respect, is indicative of consistency in the focus of the organization. In essence, the internal integration (Schein 1985) among organizational entities and individuals in the organization. This is similar to Argyris and Schön's (1978) discussion of effective organizational learning being necessary for increased effectiveness in an organization. Additionally, the concepts of shared images and maps (Argyris and Schön 1978), Senge's (1990a, 1990b) shared mental models, and Daft and Weick's (1984) interpretation systems also suggest the role of organizational learning in developing organizational alignment. However, alignment cannot be assumed and must be developed through a process of continual inquiry and adjustment in the organization.

Point 5: Organizational learning is dependent on contextual factors in an organization. This is a point of convergence in the organizational learning literature (Argyris and Schön 1978; Fiol and Lyles 1985; Shrivastava 1983;

Lundburg 1989; Dixon 1992). Contextual factors, including organizational culture, strategy, and structure are all recognized as having an impact on, and being impacted by, the organizational learning system of an organization. The implication for the research perspective of organizational learning is the recognition that organizational learning systems and processes must be developed and understood within the organizational context in which they are generated. Additionally, the development of OLP is simultaneously constrained and enabled by the implicit and explicit contextual factors of the organization.

Point 6: Organizational learning and organizational learning processes occur through individuals, acting as agents of the organization. This implies that individuals are the medium through which organizational learning occurs. The perspective of individuals as agents of organizational learning is consistent with the theory of action perspective of Argyris and Schön (1978). Also, although organizational learning occurs through individuals, it is projected beyond the individual level. This recognizes the need to establish a distinction between individual learning and organizational learning. This distinction is recognized as a point of convergence in the organizational learning literature (Argyris and Schön 1978; Fiol and Lyles 1985; Shrivastava 1983; Lundburg 1989; Dixon 1992). Additionally, the distinction between individual and organizational learning implies that individuals are the medium through which organizational learning must be accomplished.

Point 7: The development of experience within an organization is a vital source for generation of organizational learning. A relation between organizational learning and experience is well recognized in the literature (Shrivastava 1983; Levitt and March 1988; Huber 1991; Dixon 1992). In particular, experience and interpretation of experience within an organization become sources for organizational learning. This is similar to interpretative systems (Daft and Weick 1984) and the perspectives developed with respect to development of shared images, maps, and perspectives in organizations. Experience, and the interpretation of *'common'* experiences, provides a focal point, or source, for development of the organizational learning process.

Point 8: Organizational learning occurs at multiple levels and entities within the same organization. Just as there is a need to distinguish between individual and organizational learning, a distinction is necessary for the level at which organizational learning is discussed. This implies that organizational learning may range to any organizational level beyond that of the individual. Therefore, the focus of organizational learning efforts must also be specific in the organizational group, level, or entity which becomes the focus of the effort. The existence of multiple levels for learning is recognized by Shrivastava (1983) as an emerging theme in the organizational learning literature.

Point 9: Organizational learning is viewed as a complex system operating in the organization. The systems perspective of organizational learning is well established in the literature (Argyris and Schön 1978; Shrivastava 1983; Hedberg

1981). However, the form of the organizational learning systems present in an organization is subject to numerous representations and perspectives. This is not intended to minimize the view of organizations as having particular *'learning systems'* present. On the contrary, the acceptance of the presence of a unique system in the organization, which might be called the organizational learning system, suggest a particular orientation to the investigation, analysis, and interpretation of research directed at understanding the organizational learning phenomenon. This orientation assumes a systems perspective.

Integration of Organizational Learning Processes of Inquiry

The concept of **organizational learning process (OLP)** is central to the research. This process is the phenomenon under investigation and generation of this process is the primary focus of the research. Therefore, prior to proceeding, this concept will be fully developed to provide a context for the research.

Organizational learning process (OLP) has been selected purposefully to describe a primary process contributing to organizational learning. The concept of OLP does not have a prior accounting in the literature. This is not intended to unnecessarily add to an already crowded, fragmented, and diffused literature. On the contrary, this allows incorporation of similar, but fragmented, concepts already existing in the organizational learning literature. In addition, this also permits freedom to make necessary distinctions from those fragmented concepts, without further fracturing the interpretations of those concepts.

The focus on OLP permits investigation of processes in support of organizational learning without the necessity to investigate, or operate at the level of organizational learning or the organizational learning system. Thus, the focus of investigation is the generation of contributory processes viewed as essential to support organizational learning. The term OLP is selected because it can incorporate important descriptions of processes of inquiry recognized in the organizational learning literature. These processes include organizational dialectic (Argyris and Schön 1978), surfacing and testing mental models (Senge 1990a, 1990b, 1992), and interpretation process (Daft and Weick 1984). While each of these concepts may stand alone, there is much to be gained by a thoughtful integration. In development of a perspective for OLP, there are several points of integration, including: (1) the importance of a process focus, as opposed to a focus directed to specific outcomes, to the development of the organizational learning system, (2) the necessity to make individual and organizational interpretations and differences explicit through representation, (3) examination and assessment of differences in representations, and (4) development of individual and organizational implications in response to the examination. Developing a structured perspective of OLP permits recognition and integration of these similar, but fragmented, characterizations of processes of inquiry supporting organizational learning. Understanding of OLP is viewed as essential to support movement toward advanced organizational learning systems and the transitional strategies necessary to facilitate that movement. For the purposes of research, OLP is considered an

essential process of inquiry necessary to support development, transition, or maintenance of advanced organizational learning systems.

Argyris and Schön (1978) have characterized organizational dialectic as an essential process of inquiry for effective organizational learning. However, while the process they describe is rooted in inquiry, association of this inquiry process with the term **dialectic** brings unnecessary predispositions. This creates unnecessary ambiguity in the term organizational dialectic and corresponding process of inquiry. The source of ambiguity becomes apparent in a short examination of the term dialectic. In the organizational literature, dialectic is frequently referenced as a method of inquiry for strategic decision making (Schweiger, Sandberg, and Rechner 1989; Boyd 1990; Schwenk 1990; Priem and Price 1991). In addition, dialectic is most commonly characterized in terms of contradiction and opposites. Varoufakis (1991) characterizes dialectic in the following manner:

> ....dialectical thinking sees opposites as a necessary aspect of a larger process that renders them obsolete. The contradiction itself is the determinant of the outcome and of the process that fundamentally alters the constituent opposites of the contradiction. Thus the clash between the opposites is not the end of the road but, instead, a genuinely new beginning....The dialectical position...does not recognize the static view of the opposites but rather perceives the battle between them as possessing a creative edge. The opposites meet and spawn something new; a train of thought that is not amenable to the analysis offered by the original opposites; a reasoning which possesses a distinct ontology. The conflict between the equilibrium perception and the deviant rationalization of the non-equilibrium strategy results in a completely new perception. (Varoufakis 1991, 203-204)

Dialectic produces the image of opposites, contradiction, and different thought resulting from the confrontation of the opposites. Argyris and Schön characterize organizational dialectic as process in which

> ...organizational situations give rise to organizational inquiry---to problem setting and problem solving---which, in turn, create new organizational situations within which new inconsistencies and incongruities in organizational theory of action come into play. These are characteristically manifested in organizational conflict. The organization's way of responding to that conflict yields still further transformations of the organizational situation. (Argyris and Schön 1978, 42)

Clearly, the concept of organizational dialectic proposed by Argyris and Schön has close ties to the more general image of dialectic, including: conflict, contradiction (inconsistencies), and generation of new perceptions (transformations). However, for the research perspective, the concept of dialectic carries the unnecessary attributions of opposites, conflict, and creation of new thought. The image of opposites implies diametrically opposed viewpoints, or perspectives of the organizational situation. This fails to realize a range, or spectrum, of viewpoints held by individuals in the organization. The views held by individuals are not necessarily opposites. On the contrary, perspectives of the organization may offer varying degrees of similarity, not necessarily in complete opposition. Additionally, the image of conflict engenders a severe notion of confrontation of differing perspectives. Although this does not preclude amicable assessment of the differing perspectives, the image of conflict does little to suggest a range of potentially meaningful levels of confrontation short of direct conflict. Finally, creation of new thought, or situations, implies that the result of the confrontation,

or conflict, will produce the new perception or thought. This excludes the possibility that the confrontation of differences may result in an entire range of potential resolutions, not necessarily producing new thought. On the contrary, the confrontation may produce a perceived affirmation of the perspectives in conflict and result in no movement of either perspective. Therefore, the dialectic concept fails to recognize that the original perspectives, or situations, which are the focus of the.dialectical confrontation, may remain unchanged after the process.

Senge (1990a, 1900b, 1992) suggests surfacing and testing mental models as a process of inquiry essential to organizational learning. He proposes that:

> While effective learning processes are iterative and flexible, for purposes of exposition they can be divided into three stages:
> - Mapping mental models - explicating and structuring assumptions via systems models.
> - Challenging mental models - revealing inconsistencies in assumptions.
> - Improving mental models - continually extending and testing mental models.
>
> Mapping mental models involves the explication and sharing of the managers' assumptions. These maps are typically quite poor maps of the terrain. . . . Challenging mental models is testing for internal and external validity. Once team members have gone public with their mental models they can begin to discover internal inconsistencies and contradictions with data and others' knowledge. . . . Challenging mental models is delicate. Managers' beliefs are called into question. Inconsistencies are revealed. If trust and openness are not well established, individuals may be threatened and react defensively. . . . Improving mental models is the open-ended process of explicating, testing, and revising managerial assumptions. (Senge 1992, 140-141)

This process is based on a system dynamics approach and has several important aspects consistent with an integrated perspective for OLP. First, Senge recognizes the implicit and potentially incongruous nature of assumptions. Also,

the necessity to make those assumptions explicit if they are to be acted upon, or tested. This is similar to Argyris and Schön's (1978) reference to the contradictions in theory-in-use and espoused theory and the need for public testing and disconfirmable statements. The second important point Senge makes is the necessity for a representation of the assumptions (map of mental models). The necessity for mapping is also recognized by Argyris and Schön (1978) as a necessary process to encode the results of learning. Senge recognizes the role of examination and revision as a continuous process of testing assumptions. This is similar to Argyris and Schön's (1978) recognition of organizational dialectic being a continuous process of inquiry, ". . . an open-ended process in which cycles of organizational learning create new conditions for error to which members of the organization respond by transforming them so as to set in motion the next phase of inquiry" (Argyris and Schön 1978, 144). Third, both Senge (1990a, 1990b) and Argyris and Schön (1978) recognize that the process of inquiry, if it is to be effective, must overcome defensiveness in organizations. Both perspectives also acknowledge that for organizational learning to occur modifications must be made. In Senge's words, "Ideas for improvement must translated into specific changes in policy and structure" (Senge 1992, 141). This parallels Argyris and Schön's (1978) call for encoding of shared maps into organizational memory for organizational learning to occur.

Daft and Weick (1984) introduce the process of interpretation as occurring prior to organizational learning. They suggest:

> Organizational interpretation is formally defined as the process of translation events and developing shared understanding and conceptual schemes among members of upper management. Interpretation gives meaning to data, but it occurs before organizational learning and action. (Daft and Weick 1984, 286)

This draws an important point of convergence in the various descriptions of processes of inquiry necessary for organizational learning. Daft and Weick (1984) identified a process which might be considered a necessary condition for organizational learning to occur, but alone does not constitute a sufficient condition. This distinction is consistent with Argyris and Schön's (1978) recognition of the importance of organizational dialectic process to organizational learning, although organizational learning not occurring unless the encoding of organizationally shared maps into memory. Also, Senge's (1990a, 1990b, 1992) acknowledgement of surfacing and testing of mental models as essential, but these must be translated to changes in policy and structure if organizational learning is to occur. In all accounts, the necessity of process is established as a contributory element, but alone not capable of generating organizational learning.

OLP offers a point of synthesis of the similar process of inquiry necessary for organizational learning. In addition, grouping the different processes of inquiry under OLP allows important distinctions to be drawn and essential elements of each perspective to be incorporated for the research perspective. For research purposes, OLP includes the following perspectives from the organizational literature: (1) a process orientation based on multiple viewpoints, or perspectives, of an organization, (2) rooted in the participatory exchange of ideas and inquiry

in developing and addressing differing perspectives, (3) tacitly operating at the individual and collective levels of the organization and exposed through some form of representation, (4) perspectives and processes of inquiry made explicit through some form of representation and inquiry into that representation, (5) the representation being shared, to some degree, by organizational members, and (6) a necessary process for organizational learning to occur, but alone not sufficient to generate organizational learning.

For the research perspective of OLP, there are three distinctions necessary. First, each of the three perspectives of organizational processes of inquiry include some recognition of sharing: shared images and maps (Argyris and Schön 1978), shared vision and mental models (Senge 1990a, 1990b, 1992), and shared understanding and conceptual schemes (Daft 1984). For OLP, the focus is not on developing *'shared'*, or consensual representations of organizational perspectives. On the contrary, the inquiry process focus is directed to generation, assessment, and exploration of multiple perspectives of an organization. This does not suggest an objective of developing a shared, or correct, representation of the organization. On the contrary, the process of inquiry is generated around explorations in differences in perspectives, not finding consensus or shared understanding. The second distinction; the process of inquiry is primary, not the specific mechanism selected for representation of Senge's (1990,1992) mental models or Argyris and Schön's (1978) shared maps and images. Therefore, representation of perspectives or assumptions may enable, or facilitate, the inquiry process by

providing a focal point around which the inquiry may develop. However, the form of the representation is secondary and not the significant aspect of the process. The development of the inquiry process generated and directed at the representation is the significant aspect of OLP. Finally, both individual and organizational benefit may be generated short of structural change, modification of organizational maps, or organizational learning. This permits the focus of research to be directed at process generation as opposed to product generation resulting from the process of inquiry.

Facilitation of Organizational Learning

Although there is a large body of literature concerning organizational learning, the majority further theoretical development, as opposed to application and understanding of the phenomenon (Shrivastava 1983; Ventriss and Luke 1988; Huber 1991). The examination of literature for facilitation of organizational learning is focused on two primary points. First, a discussion about recognized barriers, or inhibitors, to organizational learning. Second, a brief accounting of research efforts with respect to methods and applications to develop organizational learning systems and processes.

The organizational learning literature recognizes a variety of impediments to the facilitation and development of organizational learning, organizational learning systems, and organizational learning processes (Argyris and Schön 1978; Argyris 1990, 1992; Watts 1990; Shaw and Perkins 1991). There is also the recognition that organizations develop defensive strategies that can inhibit organizational

learning (Argyris and Schön 1978; Argyris 1990,1992). Argyris (1982, 1990, 1992) has characterized these dysfunctions in the organizational learning system as *organizational defensive routines* which act to inhibit the effectiveness of the organizational learning system. He suggests that these routines are also characterized by incorrect assumptions/premises, resulting inferences drawn from those assumptions, and a lack of adequate public testing of assumptions. Additionally, these defensive routines are evidenced by primary and secondary inhibitory loops which impede organizational learning. These loops are characteristic of limited learning systems that demonstrate dysfunctional group dynamics, inadequate information, and behaviors directed at concealing errors. The thrust of these routines is a failure to engage in the double-loop learning that is necessary to address conditions of error that potentially call into question the underlying norms, policies, and objectives of the organization. Defensive routines become evident in the avoidance of embarrassing or threatening situations.

The organizational learning system exists within, impacts on, and is impacted by, the larger set of contextual factors in the organization. Argyris (1982) recognized the potential impact of organizational culture as an inhibitor of organizational learning. This is consistent with Fiol and Lyles' (1985) suggestion that organizational learning is complicated by multiple contextual factors, including: strategy, structure, and culture. Shaw and Perkins (1991) identify barriers to organizational learning as a lack of capacity in three areas. These areas include: (1) the capacity to reflect and interpret on outcomes of actions, (2) the capacity to

transfer and distribute learning throughout the organization, and (3) the capacity for action based on learning. Similarly, Watts (1990) suggests that organizational designs have built-in impediments to organizational learning. Among these impediments are cognitive, structural, and political barriers that exist as sources of deception. In essence, the literature recognizes not only the barriers to organizational learning, but also the inclusion of organizational learning within a larger organizational context. Therefore, organizational learning, processes of inquiry, and organizational defenses all exist within a larger organizational context.

While there is a significant organizational learning literature based on development of theoretical perspectives, the literature is sparse with empirical studies or facilitation efforts for organizational learning. This disproportionate relation between theory and application literature is well recognized (Ventriss and Luke 1988; Shrivastava 1983; Huber 1991). The studies focused on applications of organizational learning might be broadly defined as falling into categories of ***description*** or ***development***. Description is concerned with classifying organizational learning and organizational learning systems already existing in organizations. Development is concerned with: (1) cases, or applications, for facilitating improved organizational learning, (2) methods of facilitation for organizational learning, and (3) detailed studies of facilitation efforts.

Descriptive efforts for studies of organizational learning appear to dominate the organizational learning studies in the literature. Studies have been conducted describing organizational learning in terms of: *institutionalized innovation* (Jelinek

1979), *learning in bureaucracies* (Zayed 1989), *typology of organizational learning systems* (Shrivastava 1981), *strategies for knowledge creation and transfer* (Eisenstat 1985), and *learning organization* (Beck 1989; Senge 1990; Pedler, Boydell, and Burgoyne 1989; Pedler, 1989). The focus of each of these efforts was not to affect change in the organizations examined or discussed. On the contrary, the efforts were undertaken to describe concepts from organizational learning as they related to the existing organizations. Therefore, these efforts were passive, not attempting to change, modify, or develop organizational learning, learning systems, or processes.

There have been numerous attempts to discuss cases and create facilitative methods to develop organizational learning. Perhaps the most widely recognized is Argyris and Schön's (1978) development of organizational learning theory and demonstrative cases illustrating their conceptualization. In addition, they outline the intervention approach to facilitate development of organizational learning. Their efforts have dealt extensively with examination of learning systems and the examination of examples of cases. These cases demonstrate what they have cited to be conditions of limited learning systems. However, their approach has not gone unchallenged. Chemers and Fiedler (1978) suggest the framework lacks empirical support, citing that it has not been shown to enhance organizational performance or to be cost effective. This argument is weakened by assuming that the (measurable) objectives of organizational learning are *'performance'* or *'cost'* oriented, as traditional organizational effectiveness approaches might use for

determining utility. Valenca Pereira (1990) recognizes the utility of the organizational learning approach of Argyris and Schön as a comprehensive approach with the opportunity to produce lasting change in an organization.

There have been numerous efforts to utilize organizational learning concepts in organizational change efforts. Duffy (1984) describes an organizational learning effort designed to assess an organizational learning system. The focus included observations, interviews, and written efforts to develop a hypothetical map of *'undiscussables'* as a major step toward more effective supervision. Acebo and Watkins (1988) developed a framework to enhance organizational learning among faculty members. This effort was successful with respect to surfacing and testing tacit assumptions about the organization in question. In an effort to develop a process to reduce the conditions of error in organizations, Duffy (1983) proposed a diagnostic process. This process was effective in identification of issues beyond symptomatic surface difficulties. It probed at deeper fundamental conditions contributing to error. Probably one of the most extensive organizational learning efforts was conducted by Pedler, Boydell, and Burgoyne (1989a, 1989b). This endeavor involved the concept of the ***"Learning Company"***, an organization that continually facilitates learning of individuals as it strategically transforms itself to meet goals. He proposed guidelines as a result of applying the concept to eight companies of the United Kingdom. Schneider and Shrivastava (1988) demonstrated that revealing basic assumptions in the organization can be valuable. They suggested that different views held at individual, group, and

organizational levels provide different assumptions, stem from diverse perspectives of self, others, and the world, and emerge through the dynamics of the organization. Eliot (1980) used a process of gathering data for sharing and public testing in an attempt to change the way a college viewed itself. The results of the study pointed to the problems that uncertainty and ambiguity pose for organizational learning. These efforts, with respect to organizational learning, demonstrate that the phenomenon has been utilized in understanding and development of organizations. However, the theoretical development of passive models and perspectives of organizational learning far outweigh efforts to actively deploy and utilize the organizational learning concepts in development of organizations. In particular, rigorous research efforts are noticeably lacking in the literature.

Action learning also presents development concepts similar to the organizational learning perspectives. Action learning involves bridging theory, application, and implementation between the work environment and learning (Caie 1987). MacNamara (1985) and Skomp (1985) have established the essential elements of action learning to include the power of relating reality to experience and permitting managers to learn from one another. Thorpe (1988) suggests that action learning involves managers essentially taking the responsibility for direction of research while assigning the academician the role of designing, managing, and facilitating the research process. Grey, Bougon, and Donnellon (1985) point out that organizations have different interpretations which result in different action

taking. Thus, contradictions, with the potential to cause transformation, occur in the organization. The organization, through the action learning approach, can test assumptions (Revans 1983). The power of action learning is seen as a process for reframing problems through a collaborative effort between peers (Marsick 1987). Action learning might be considered a method to facilitate individual learning about organizations. However, the focus of the learning is the individual, which is more restrictive than the organizational learning approaches.

Numerous processes have been proposed for the purposes of developing organizational learning systems and organizational learning. Strategic planning was proposed as a process to stimulate organizational learning by Frey (1980). The computer has been recognized as an instrument to facilitate organizational learning. Graham and Senge (1990) have proposed the computer as a learning tool for computer based studies and decision making games. Lee, Courtney, and O'keefe (1992) established guidelines for a computer-based system to support organizational learning. Additionally, the use of computer environments to accelerate learning through computer simulation has been extensively developed by Senge (1990a, 1990b). Computer-Based Learning Environments (CBLE) are proposed by Issacs and Senge (1992) for intervention into a learning system. The CBLE offers challenges to theories-in-use at the individual, group, and organizational levels. In an effort to facilitate an environment for organizational learning, Senge (1992) has created a learning laboratory. These examples illustrate that a variety of methods have been developed to facilitate the

organizational learning process. However, again the literature thins considerably for the efforts directed at development of organizational learning and associated processes.

The literature revealed limited cases for facilitation of organizational learning. However, research studies of efforts to facilitate and develop organizational learning were sparse. Eliot (1980) did perform an extensive study in trying to develop the organizational learning of the College of the Atlantic in an intervention. However, there is a lack of detailed application and study of development of the organizational learning phenomenon. This lack of detailed application was more pronounced in an absence of study to facilitate processes contributing to organizational learning.

Implications of the Literature for Research

There are three primary research implications emerging from the literature. These implications are drawn from the multiple perspectives of organizational learning occurring in the literature (Figure 7). First, the necessity to be explicit in describing the organizational learning perspective guiding the research. The research perspective is drawn from Argyris and Schön's (1978) theory of action perspective of organizational learning and recognized points of convergence in the organizational learning literature. Second, to draw on the organizational learning literature to integrate similar perspectives describing processes of organizational inquiry essential to organizational learning. Third, to address the gaps in

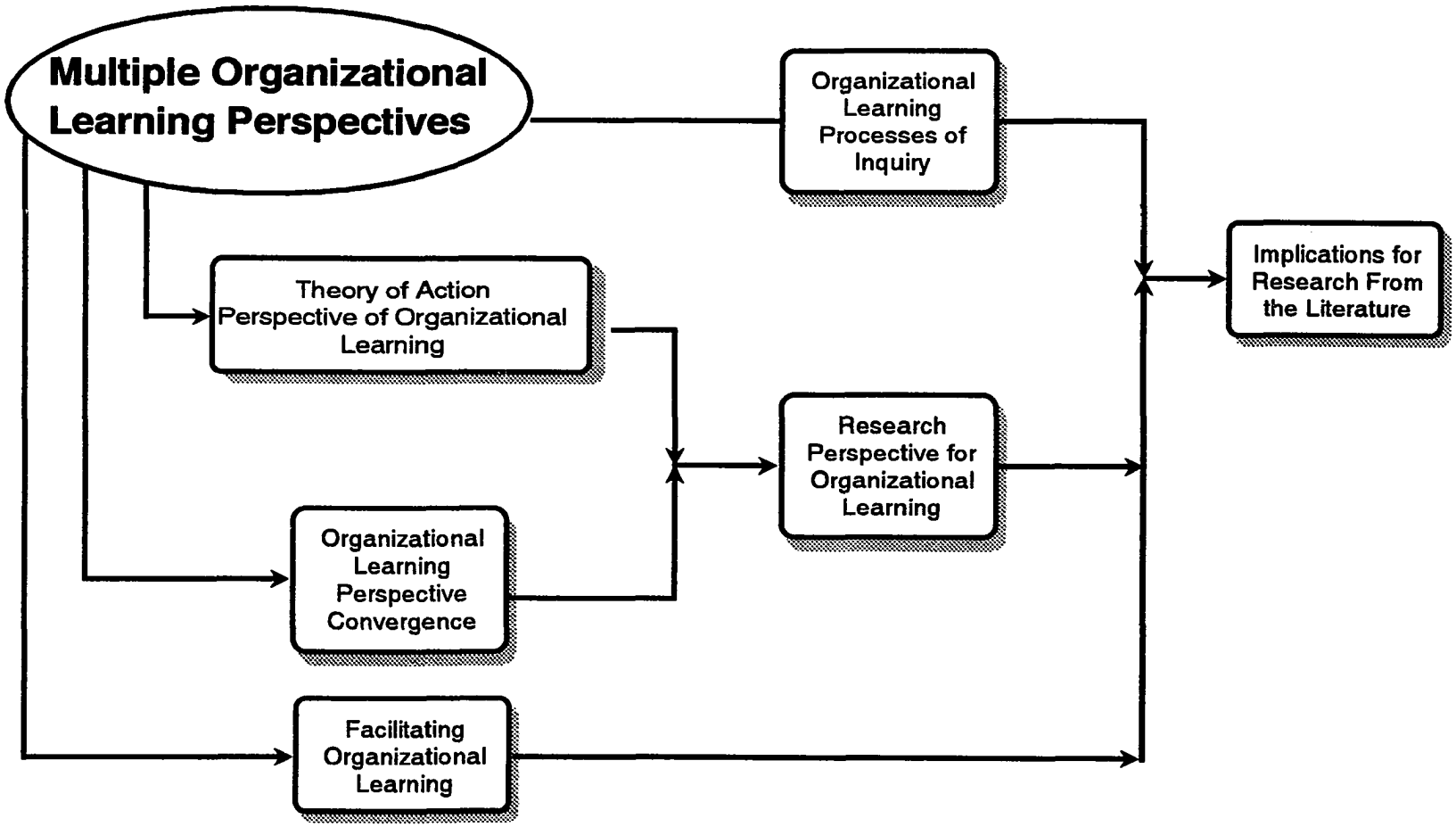

Figure 7. Development of implications for research from the fragmented organizational learning literature.

understanding facilitation and application of organizational learning concepts that are left largely unaddressed in the literature.

The survey of the literature revealed several challenges for research of the organizational learning phenomenon. First, it was apparent that development of a limited intervention strategy to facilitate OLP offered a significant addition to the literature. This would extend understanding of processes of inquiry with respect to organizational learning. Research of organizational learning developmental strategies, through application, appeared to be limited. This suggested that research directed at developing strategies which permits development of organizational processes of inquiry, without a protracted intervention, was an area in need of additional research. Second, further understanding of the role of the researcher, and supporting methodology to facilitate development of OLP, was an area in need of additional research. The role of participation in development of OLP was not well established in the literature. The proposed strategy shifted the focus of intervention to the organization, emerging process, and strategy application, as opposed to the researcher, for facilitation of OLP. Investigation to develop OLP, through a participatory approach, was recognized as an important gap left largely unaddressed in the literature. Third, the body of organizational knowledge would be extended from the addition of ***specific*** tools, procedures, and methods necessary for facilitating development of organizational learning processes of inquiry. These tools would go beyond design or suggestion, being applied in an organizational setting. Fourth, the literature still remains inadequate

in fulfilling the need to apply concepts of organizational learning in the organizational domain. Additionally, to evaluate different approaches and methods to facilitate organizational learning processes through structured research and empirical analysis. The research would offer a step in that direction. Finally, new methods to overcome organizational defenses were clearly lacking in depth and sophistication for understanding the role of the individual in development of organizational learning and OLP. The research would be an applied design to overcome organizational defenses.

CHAPTER 3

METHODOLOGICAL FRAMEWORK

The primary purpose of this chapter is to establish the methodological framework used to construct the research design and computer-based strategy application. The methodological framework for this research was principally drawn from participatory action research (Whyte 1989). However, there are important distinctions to be made with respect to participatory action research (PAR) as the methodology pertains to the design for research. To establish the methodological framework upon which the research is base there are three objectives. First, the specific research perspective for participatory action research will be established. This will focus on development of the primary characteristics of PAR and serve as the foundation for the methodological framework which guided the research. Establishing this focus is necessary due to the many perspectives on participatory forms of research in organizations. Second, from the PAR foundation, necessary distinctions, and elaborations, with respect to participation, action, and research design will be formulated as they pertain to the specific research context. This will distinguish the research approach in relation to other participatory approaches. The specific research methodology will be developed in relation to the broader PAR framework. Finally, the nature of qualitative methods for research are

examined and established with respect to the methodology for this particular research. The appropriateness of qualitative inquiry and implications for the research design are developed. Particular attention was given to addressing common criticisms of qualitative research approaches in general and drawing specific research design implications from these criticisms. Figure 8 represents the development of the methodological framework stemming from qualitative research methods and used to inform the research design. The methodological framework was used to inform the research design.

Participatory Action Research

The merits of an action orientation to research, stemming from Lewin (1946), are well documented in the literature (Susman 1978; Bennett and Oliver 1988; Whyte 1989, 1990). Since Lewin, there are a variety of *'participatory'* approaches which involve *'action'* or *'change'* as a basis for the research. Some of these include: participative research (Elden 1983), action science (Argyris 1980), and participatory action research (Whyte 1990). While these approaches, or descriptions, of action orientations to research have different variations, they are all rooted in action. The participatory approaches also recognize that traditional approaches to research are not adequate to address the complex environments found in organizations. Additionally, each approach recognizes the importance of a proactive orientation to research that produces benefit to organizations and individuals while advancing knowledge of organizations. While similarities exist with respect to fundamental orientations toward participation and action, each

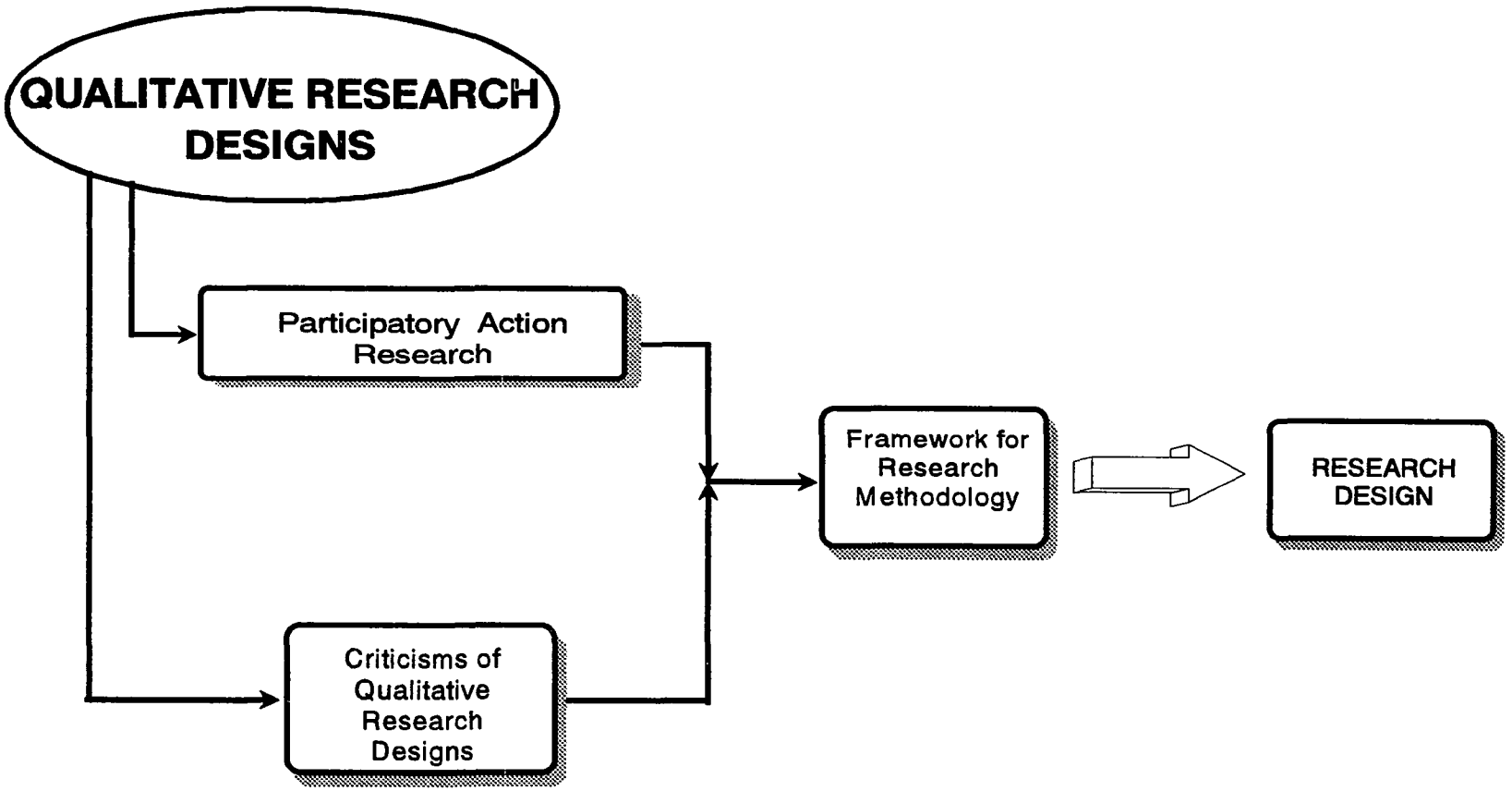

Figure 8. Development of the methodological framework to support the research design.

alternative offers a different perspective of the participatory form of research. There is not an a singularly accepted methodological approach defining participative research rooted in action. This point is amplified by McTaggart (1991):

> Because of the diversity of fields in which participatory action research has been developed as a way of improving and informing social, economic, and cultural practice, it is perhaps understandable that the ideal can mean quite different and sometimes contradictory things to different people. Despite some considerable emergent agreement about what participatory action research is, any literature search using the descriptors "participatory research," "action research," or "participatory action research" will still identify a confusing and meaningless diversity of approaches to research. It is impossible to find out from such a sample just what participatory action research is. This is because the term is often misused, not only because there is a lack of understanding, but also because there are attempts to represent research deliberately as inspired by communitarian values when it is not. (McTaggart 1991, 169-170)

The scope of different approaches to participation in research requires that the methodological framework for research be delineated. Otherwise, the research design developed from the methodological framework would be subject to a similar ambiguity found in the multi-context domain of participatory research approaches.

As an applied social research process, PAR encompasses several widely held principles of action oriented research. Among these are: (1) a collaborative effort, (2) used to address practical organizational issues or problems, (3) generation of substantive knowledge, and (4) advancement of theory. Whyte, Greenwood, and Lazes (1989) have argued the capabilities of PAR as a strategy for resolving organizational problems while advancing social theory. As Whyte points out, "Success in organizational change is not achieved simply by making

the right decision at a particular time but rather through developing a social process that facilitates organizational learning" (Whyte 1989, 368). While PAR represents a particular approach to 'action' oriented forms of research, as McTaggart (1991) suggested, it does not stand alone. However, to develop the methodological framework for research, PAR provided the basis for development of the research approach with respect to participation, action, and research.

The value of PAR has been demonstrated through a variety of successful applications. Most notable among these are the cases of the Norwegian Shipping Company, the Xerox Corporation, and the FAGOR Group (Whyte, 1989). Walton (1989) also demonstrated the utility of PAR through the case of the merchant shipping industry. In each instance, as a result of the PAR approach, knowledge was generated that would likely not have occurred with more conventional research methodologies (Whyte, 1989). However, the PAR approach has not gone unquestioned. Argyris and Schön (1989) point out that, from an action science perspective, the PAR approach can leave conceptual gaps and is subject to limitations. Specifically, PAR may fail to account for gaps between espoused theory and theory-in-use, brought to the research by both participants and researchers alike. However, as a research methodology PAR has been successfully applied in a variety of settings.

The PAR research methodology was selected as the methodological framework most appropriate to address the objectives of this research. Certainly the research was designed to include: (1) a collaborative project, (2) provide local

benefit to the participating organization, and (3) generating substantive advances in organizational knowledge. Although these general PAR concepts are valuable, they are not sufficiently detailed in scope or definition to completely develop the research methodology for the project. The research followed the broad principles of PAR. However, there are several distinctions, within the PAR framework, that were necessary to meet research objectives. A full accounting of these distinctions served to establish the methodological framework for the research.

Methodological Framework for Research

The research design, computer-based strategy design, and OLP were all developed based on application as a participatory action research project. However, there are several distinctions with respect to PAR (Whyte 1989) that were necessary to frame the research methodology. Development of these distinctions is necessary for understanding the research methodology as being informed by PAR, but also offering specific distinctions that were necessary to meet research objectives.

The areas for methodological framework development included: (1) design of the research strategy for intervention, (2) focus of the research project, (3) construction of context for the research, (4) expectations for the research effort, (5) level of participation in the research project, and (6) application of temporary organizational structure. These areas provide a starting point for development of the methodological framework which guided the design, application, and interpretation of the research project.

Design of the Research Strategy

The PAR approach generally holds that the organization participates in the design of the research effort (Whyte 1989; McTaggart 1991). As Whyte points out, "In PAR, some practitioners in the organization studied team up with professional researchers in designing projects, gathering and analyzing data, and utilizing the findings in action projects" (Whyte 1989, 368). This is similar to Elden's (1981) characterization of participatory research as involving those directly affected by the research in the problem, choice of methods, data analysis, and use of findings. Although these descriptions of the organizational role in participatory research are informative, they fail to adequately acknowledge the specific level of organizational participation in the research design process. This is important for three aspects of the research project. First, the initial research strategy formulation was accomplished by the researcher, without organizational input. The general research design was developed prior to organizational selection. Second, the research design emphasized a project that focused on non-problem specific inquiry. The thrust was development of the inquiry process and not resolution of a specific problem. Third, the project was initiated without known outcomes. In essence, the research did not have a prior understanding of what would constitute success, as a 'solved problem' might for traditional PAR designs. Therefore, unlike a traditional PAR approach, the research was directed at process development, without predetermined process outcome expectations. A closer examination of

each of these points will distinguish the nature of organizational participation in design of the research project.

The research strategy for the intervention was pre-designed by the researcher. This strategy included the computer program, interviews, and design for project accomplishment by phases. The organization did not participate in the initial design. However, tailoring of the application for the organization was conducted jointly with *'organizational representatives'*. These representatives were organizational members with responsibility and authority for making research determinations in behalf of the organization. These determinations included specific tailoring of the research to the organizational context. This was accomplished as the research application details were co-constructed between the organizational representatives and the researcher, each bringing constraints to the development of the application. The organizational members applied constraints from the organizational perspective, and the researcher from the research perspective. Tailoring consisted of several activities, including: (1) establishing the schedule and plan for the research application, (2) selection and assignment of participants, and (3) determining the relationship of the research to overall organizational priorities and ongoing programs. Therefore, although the organizational representatives participated in design for deployment of the research project within the organization, the specific strategy was based solely on the researcher's design. However, the appropriateness and applicability of the research design to the organization were determined by the organizational

representatives, without direct consultation with potential participants. Therefore, organizational participation was limited with respect to research design, focusing exclusive on application tailoring to the organization.

The appropriate *'fit'* of the research to the organization was co-constructed between researcher and organizational representatives. Thus, participation and participants were determined by the organizational representatives and not the researcher. The important point being that participation in tailoring of the design to the organization was accomplished external to the participants. A distinction is necessary between the design of the research and the design *'fit'* of the research to the organizational context. Although participants did not join in the initial determinations and tailoring of the research, participation was designed as an integral component of the strategy once the application was initiated. The design included a self-referential process, permitting a continual participant reflection on the process, instruments, and content generated. This allowed a *'built-in'* testing of assumptions in the initial design which were co-constructed by the researcher and the organizational representatives. Also, this allowed flexibility in the research through introduction of a design to identify potentially inappropriate assumptions. This also served to enhance the level of participation by participants.

Focus of the Research Project

Although the research was designed as a project, the focus of the project was not directed at resolution of a perceived organizational problem. Instead, the project was directed at participating in a strategy to develop a process of inquiry

within the organization. This is a departure from a *'problem'* focus generally serving as a subject of participatory research efforts (Whyte 1989; Elden 1981, 1983). Therefore, the orientation was not resolution of a predetermined problem, but rather on participation in development of the process emergent from application of the pre-designed strategy.

Participatory Action Research directed at a problem has an intended organizational outcome to be resolution of the problem, irrespective of other theoretical or practical implications emergent from the project. The research target for the PAR approach is clearly an organizationally acceptable (successful) resolution of an identified, or perceived, problem. On the contrary, this research, being process development oriented, did not have the same initial insight as to what might constitute a successful, or acceptable, project result in either organizational or research terms. Generation of action was not a presumed outcome of the research application. Therefore, the project was not constrained by a forced focus on a narrow organizational problem or development of a set of actions intended to address a perceived problem.

The project focus on *'process'* development as opposed to *'problem'* resolution also allowed for a dual focus on both individual and organizational implications to occur. The strict focus on *'organizational'* problems as a defining characteristic of PAR unnecessarily limits research direction to the resolution of the problem at the organizational level. However, the focus on process development, particularly within the context of inquiry of the research application strategy, was

not constrained solely to the organizational level focus. Therefore, benefit to participating individuals could be recognized independent from benefit to the organization. Additionally, the focus on process development allowed the strategy to generate an array of responses to the research effort, at both the individual and organizational levels. Thus, the responses were not narrowly defined within the scope of a problem of organizational interest. A problem which may or may not have yielded the greatest opportunity for organizational benefit across a spectrum of organizational issues.

Construction of Context for the Research

Construction of context for the research occurred at three levels; researcher, organization, and participant. These distinctions are necessary to establish an understanding of the methodology. Essentially, each level brought a prior context to the research; a context that was both limiting and enabling to the research context. Additionally, the context between researcher, organization, and participants was viewed as emerging through the co-construction of the research domain.

Whyte (1989) recognizes the limitations that researchers bring to organizational situations:

> If professional researchers pursue the PAR strategy, reaching out for technical knowledge and analytical skills among practitioners in fields of action different from our own disciplinary bases, we find mutually profitable ways of combining intellectual forces (Whyte 1989, 380).

These limitations also exist with the organizational practitioners and research participants. As Whyte (1989) recognized, the role of participation recognizes the inherent limitations of the researcher, as well as the practitioner, with respect to knowledge brought to the research situation. This points out two major distinctions necessary for the methodological framework. First, organization members were regarded as the *'knowledge experts'* with respect to the operation and contextual factors of the organization. The participants were the individuals who continuously generated the organization through action and decision. The researcher brought expertise in matters of research design, methods, and strategies. However, it was the organization, and participants who held the expertise in matters of understanding and interpretation of the appropriate contexts of the organization in relation to the research. Both researcher and organizational participants brought significant, but different, knowledge to the research project. The research design challenge was to draw on these knowledge bases to generate the research context appreciative of the total scope of knowledge. Second, the participatory effort had to be designed to acknowledge different domains and allow contextual construction of these domains through the design. The existence of different *'researcher'* and *'researched'* interpretations, and the need to address these differences, is recognized by suggested by Brown (1983). This is similar to Thorpe's (1988) suggestion for action learning which involves managers essentially taking the responsibility for direction of research while assigning the academician the role of designing, managing, and facilitation the research process.

Both researcher and organizational practitioners brought different knowledge, analytical skills, and deficiencies to the research domain. The researcher entered the organizational domain deficient in organizational expertise. This includes expertise in the industry of the organization, the specific products/services offered by the organizational, and most importantly contextual factors of the organization (culture, formal/informal structures, technologies, strategies, etc.). In essence, the researcher was uninformed of the organizational domain. On the other hand, the organization was uninformed of the proposed research application. Therefore, a co-construction of the researcher-organizational context was necessary to establish the interface between researcher, organization, and research project. This required establishing the researcher context, the organizational context, and the participant context as elements of the specific design for the participatory approach.

A fundamental aspect of the research methodology was the necessity for the researcher to become familiar with the industry, organization, suborganizations, and participants. In essence, this required recognition of the participatory framework to actively include this organizational context development as a central element of researcher participation. The design for development of this researcher context took the form of researcher familiarization. The design for this familiarization was co-constructed with the organizational representatives assigned administrative responsibility to assist in the effort. The key point for the methodology was recognition of the necessity for the researcher to co-construct

an organizational context for the research. This context was developed with, and extended beyond the participants. Additionally, this context development was viewed as a continual process, with co-construction continuing throughout the project by formal as well as informal mechanisms.

Just as the researcher had to establish a context of understanding for the organization, the organization also had to develop a context of understanding for the research. This required a co-construction of the research project between: (1) the researcher and organizational representatives, (2) the organizational representatives and participants, and (3) the researcher and participants. It is important to distinguish between the organization, or members assigned to make research decisions with respect to the organization, and organizational participants who actually took part in the application. This is a subtle point in the participatory framework, but one which is often overlooked in discussions which move directly from the researcher to participants, without recognizing the intermediate level of organizational representatives. All research with organizations must begin by securing an organizational decision to engage in the research effort. This was particularly important for this research, since the organizational representatives were representing the research to the (potential) participants. In essence, these individuals (organizational representatives) co-constructed the research application with the researcher and also with the potential participants.

The third context to be established in the participatory research effort was between the participants and the research. This was viewed as separate and

distinct from the formation of organizational context. Although the researcher may have had direct contact with the participants, the participants established an initial context for the research between themselves and the organizational representatives, independent of the researcher. In this respect, it was inappropriate to assume the organizational context was necessarily the same as the participant context. Additionally, there was the possibility for as many participants contexts as there were participants. This became important in design of participatory strategies which allowed for a continual testing and re-construction of the research context.

A final point about the construction of multiple contexts (researcher, organization, and participant) for participatory research: *The contexts, at all levels, were recognized to be in a dynamic state of reconstruction throughout the research project.* Therefore, the contexts were subject to interpretation, re-interpretation, and constant restructuring on implicit as well as explicit levels. The design of participatory research had to take into account this constant restructuring, allowing differences in interpretations to continually surface and be examined as part of the research design.

Level of Participation in Research

Participatory research methodology suggests there is a range, or spectrum, of participation in this form of research. At one end of the spectrum might be a research effort where the researcher and participants are not distinguishable. The researcher, organization, and participants jointly share in all research endeavors

from conception, design, accomplishment, and reporting. At the other end of the spectrum might be an almost non-existent participation, where all design, decision, execution, and conclusion is provided by the researcher. I believe that most participatory research efforts fall somewhere along this spectrum. The important point is that the **level** of participation, and hence expectations, are taken into consideration and acknowledged as an integral part of the research methodology. This is similar to Chisholm and Elden's (1993) concept of openness of the research process, ranging from designs that are closed, or totally predetermined, to those processes which are open, or accessible to modification as the research progresses.

The interpretation of what constitutes participation, or the metrics constructed to define participation, establishes the perception of participation. This perception exist in researcher, organization, and participant contexts. It serves to establish boundary conditions (expectations) for the participatory level of the research. Although the research design, researcher context, and organizational contexts might suggest a high level of participation, it is inappropriate to assume this participation will occur. On the contrary, a participant context resulting in a low level of participation and project commitment might result in limited participation, regardless of the research design. Hence, without adequate resolution of disparity in contexts of participation and what constitutes participation, participation is subject to fall short of expectations for the most meticulously crafted participatory designs.

Expectations for the Research Effort

The development of expectations was problematic for the methodological framework supporting the research. Without a problem as a source of focus, as most participatory research designs include, the research was less defined in establishing a predetermined resolution of a problem, or criterion of success, for the research project. Without this predetermination, by researcher, organization, and participants, the research design had to allow continuous development and construction of expectations throughout the process. Therefore, the logical conclusion to the effort could not be known in advance but had to be constructed by researcher, participants, and the organization throughout the application. Additionally, this implied that the expectations and local research directions could well be different from researcher, organizational, and participant contexts. Therefore, the research design had to provide a mechanism for these different context to emerge during the research project. This expands the concept of PAR beyond the narrow focus of problem resolution as the expectation of the research outcome *'shared'* by all participants. Instead, the expectations of researcher, organization, and participants had to be continually constructed throughout the project. This methodological dilemma, the determination of local research direction through the application, created it's own special concerns and implications for the participatory research design. These concerns and implications are addressed in Chapter 8, Research Implications and Directions.

Application of Temporary Organizational Structure

The nature of participatory research suggests that the methodology is problem directed, and has as a major research product a resolution to an organizational problem. Additionally, as a result of addressing that problem, generalizable knowledge beyond the narrow scope of the problem is generated. However, the methodology for this research effort extended this narrow view of the participatory research function. Instead of problem resolution as product, the research methodology was redirected to establishment of a temporary structure for process development. The focus on establishment of new process through the action orientation to research is similar to Herbst (1976) identification of the product of action research being new process. This focus extended the research methodology to reach beyond the narrow focus of a specific problem. First, the research design was established to install a temporary structure to facilitate study of the phenomenon in question. Additionally, this temporary structure permitted a range of participation, issue identification, surfacing of assumptions, and implications to develop at both the organizational and individual levels. This also enabled the potential for: (1) realization of organizational and individual benefit beyond a single problem, (2) advancement of knowledge beyond the context of what might be realized by the specific problem approach, and (3) acceleration of beneficial processes as a result of the temporary structure imposed. This perspective of the participatory methodology was viewed as potentially more enabling than a single problem focus. However, similar to traditional PAR

approaches that conclude when the problem is resolved, this process development approach was also dissolved when the temporary implementing structure was removed at the conclusion of the research effort.

The focus on development of process facilitated a variety of potential organizational and individual outcomes. In the absence of known determinations of *'successful'* outcomes, the process development approach to PAR was more conducive to the potential for: (1) transition of the temporary structure into permanent organizational structures and actions, and (2) facilitation of organizational sustainment of temporary processes, at both the individual and organizational levels, generated by the temporary structure. This introduced the capability for local level extension of the research beyond the specific application.

Limitations for the Research Methodology

The research design was developed in response to the objectives of the study and research questions. However, while the approach is sound, there were several methodological issues which were addressed in the research design. The issues are: (1) the appropriateness of qualitative methods of data analysis, (2) the generalizability of research findings, (3) influence of the researcher, (4) reproducibility and reliability of the research, and (5) validity of the research. These items highlight areas of concern which have been acknowledged, factored into the research design, and considered in interpretation of research results and findings. The following discussion will identify the specific issues and the research response to address the issues.

Appropriateness of Qualitative Methods

Qualitative research designs are recognized as an appropriate design to address complex phenomenon and processes investigated in organizations (Searight 1989; Peshkin 1988). Whitt (1991) points out that, "Qualitative methods are considered to be superior to other research methods for achieving in-depth understanding of complex organizations. . . and processes" (Whitt 1991, 409). Qualitative approaches are often compared to quantitative approaches, using the criteria established for the domain of quantitative inquiry (Sykes 1990,1991; Whitt 1991; Sandelowski 1986; Searight 1989; Patton 1991). This comparative approach favors quantitative design and may be inappropriate to evaluate qualitative methods:

> Applying the criteria of one research tradition to another is nothing more than self-justification, since these criteria inevitably favor the research tradition that generated them. (Sandelowski 1986, 28)

Similarly, several authors have suggested alternate understandings for rigor in qualitative research (Sandelowski 1986; Whitt 1991; Agar 1986; Guba and Lincoln 1981; Kirk and Miller 1986). Strauss and Corbin (1990) suggest that:

> . . . the usual canons of 'good science' should be retained, but **require redefinition in order to fit the realities of qualitative research, and the complexities of social phenomenon** that we seek to understand. The usual scientific canons include: significance, theory-observation compatibility, generalizability, consistency, reproducibility, precision, and verification. (Strauss and Corbin 1990, 250)

In light of Poplin's (1987) description of the basis for quantitative inquiry, a cogent argument for selection of the qualitative methods for the research can be made. Poplin (1987) suggests that quantitative analysis is grounded in: (1) logico-

mathematical reduction, or the idea that data must be submitted to mathematical analyses, requiring reduction of problems into variables which can be quantified, (2) separation between the researcher and the subject of research as well as a separation of the phenomenon investigated from the larger context from which it is generated, (3) value-free objectivity, or an unbiased position assumed by the researcher, (4) reliance on generation of hypotheses for testing and deductive analysis, and (5) demands that research be replicable to be considered valid.

Several points, based on Poplin's (1987) account of qualitative inquiry, served to establish the relevance of the qualitative approach used for the research effort. First, the purpose of the research was understanding of the phenomenon in question. The research was an attempt to conduct inductive analysis, in participation with the organization, within the context established by the organization and researcher. The objective was to build inductive understanding of processes generated, not to test predetermined hypotheses in an assumed context-free domain. Second, the researcher was not viewed as separated from the research, or the participants. Instead, the research attempted to span boundaries between researcher and participants. Both were viewed as bringing valuable insight to the research, neither being the subject of research. Third, the researcher, as well as the organization and participants, were understood to bring perspective, biases, and assumptions to the research arena. This was viewed as enabling to the research, not a limitation or weakness. Finally, the research was understood to be context-dependent and not reduced to predefined variables for

study. The research was designed as an inductive approach to understanding the phenomenon within the local organizational setting. These research objectives clearly suggested the appropriateness of a qualitative design. This is not to devalue or minimize the appropriateness of quantitative study in organizations. On the contrary, this suggests that the research approach developed was purposeful and guided by recognition of the methodology appropriate to accomplishment of the research objectives.

Influence of the Researcher

As with any research effort, the influence of the researcher was in question for this effort. This concern is generally directed at the potential inability of the researcher to eliminate personal biases from collection, analysis, and interpretation of data. Therefore, the research becomes value laden and subject to researcher influence. As Sandelowski (1986) pointed out any research must include some reflection of the researcher. Even quantitative methods suffer from this researcher influence in hypothesis formulation:

> The generation of explanatory or relational hypothesis is basic to quantitative inquiry. This statement of hypothesis contains all our biases; it represents a subjective guess ready to be verified. It requires the narrowing of data for analysis and thus denies or avoids implications of other contextual data. It is drawn from the experiences of the author(s). (Poplin 1987, 35)

Therefore, the challenge for both qualitative and quantitative approaches is to address the researcher as influencer of the research. Little is to be accomplished by minimizing, or even denying, the influence of the researcher. Instead,

acknowledgement and accountability for the researcher adds strength and credibility to the research design.

There were several mechanisms employed in the research design to address the researcher influence. First, the explicit acknowledgement of researcher biases and assumptions was conducted to frame the research and create sensitivity to the relation between researcher, research design, and participants. This is not projected as a precise accounting of all assumptions and biases of the researcher. On the contrary, it was an attempt to: (1) recognize biases exist and influence the research project, (2) offer some accountability and suggested direction for discipline in the research design to address the assumptions and biases, and (3) provide a more explicit context within which the research was designed, conducted, and interpreted. Second, the research was designed to generate reflection by participants, as well as the researcher, throughout the project. Thus, the research instituted a process of continual development and construction of perspective. This was an active component of the design instead of a potential byproduct of the effort. Additionally, by introducing multiple methods and sources for data collection, a triangulation was designed to evoke different points of reflection in the research process. Finally, the structured research design for application of the strategy, and subsequent data analysis, introduced, in terms of Borman, LeCompte, and Goetz (1986), *personal* and *analytic* discipline to limit the subjectivity of the research. The research attempted to address these issues of researcher influence by making the approach to the research process *'transparent'*,

so that the role of the researcher in the process of discovery is clearly understood in the research context.

Generalizability of Research Findings

The charge is often levied that qualitative research findings can only be applicable in the local context in which they have been generated. This stems, in part, from the suggestion that qualitative research has an inherent lack of external validity. Without external validity, the results are not generalizable beyond the narrow context of the specific application. Therefore, results are unique to the particular research setting that generated them and conclusions are not valid outside that context. However, this charge can be made for any research, whether quantitative or qualitative in nature. Sandelowski (1986) suggests that qualitative researchers argue:

> Generalizability is itself something of an illusion since every research situation is ultimately about a particular subject in a particular context. From the qualitative perspective, generalizability is based on the reification of context-free structure that does not exist and the assumption that the multiple realities in any given situation can be controlled to illuminate the effects of a few variables (Sandelowski 1986, 31).

Therefore, although research designs may establish a thorough accounting of contextual elements, all research must be first understood within the particular context from which it was originally generated. At the extreme, this argument suggests that exact replication is theoretically impossible. However, this does not preclude the development of substantive conclusions and implications based on the research findings: regardless as to whether or not they were generated from

a qualitative or quantitative design perspective. Borman, LeCompte, and Goetz (1986) suggest that it must be accepted there is not a total uniqueness of any study, and on some level the research can be projected beyond the narrow bounds of the specific research application. Thus, a rationale of generalizability to other similar organizations can be identified to project conclusions beyond the local research context. They further explain that **translatability** of methods, categories, and characteristics across groups and disciplines can be developed. Additionally, **comparability** can also be established to denote the clear boundaries of the study and the appropriate linkage to other similar organizational contexts. Patton (1986) suggest that qualitative research generalizability might be understood in terms of 'reasonable extrapolation', explaining:

> Unlike the usual meaning of the term 'generalization', an extrapolation clearly connotes that one has gone beyond the narrow confines of the data to think about other applications of the findings. Extrapolations are modest speculations on the likely applicability of findings to other situations under similar, but not identical conditions. Extrapolations are logical, thoughtful and problem-oriented rather than purely empirical, statistical and probabilistic (Patton 1986, 7).

External validity ". . . refers to the generalizability of findings and the representativeness of subjects, tests, and testing situations" (Sandelowski 1986, 31). Qualitative designs are more at ease with this concept of external validity since the settings established for qualitative study admittedly lack the control generally considered necessary for quantitative study. The quantitative drive for definition and control of external influence and specificity of precise contexts, necessarily work against the ability to project research findings beyond the specific

research context. In quantitative study, generalizability is enhanced through statistical sampling conventions to assure representativeness and the ability to make inference based on results. However, qualitative sampling is based on purposive, or non-probability samples, that are selected for their suspected ability to illuminate the phenomena of interest (Sykes 1991; Sandelowski 1986). Therefore, the qualitative research context is not so narrowly specified as to exclude generalization to other similar context, without the illusion of precise translation of the complete context. Following Guba and Lincoln (1981), Sandelowski (1986) suggests:

> . . . fittingness be the criterion against which the applicability of qualitative research be evaluated. A study meets the criterion of fitness when its findings can "fit" into contexts outside the study situation and when its audience views its findings as meaningful and applicable in terms of their own experiences. In addition, the findings of the study, whether in the form of description, explanation, or theory, "fit" the data from which they are derived. The findings are well grounded in the life experiences studied and reflect their typical and atypical elements. (Sandelowski 1986, 32)

Therefore, even with a limited and purposely selected organizational sample, the arguments for appropriate translation to other populations, or organizations, becomes possible. Detailed design structure and disciplined inquiry are applicable to both qualitative and quantitative designs, serving to develop substantive conclusions based on the research design.

To address the research objectives, qualitative design serves as a foundation, from an inductive approach, to generate new avenues for inquiry and provide new knowledge about the phenomenon in question. Discovery which

might not be possible through more rigid and inflexible quantitative research designs can be facilitated by the disciplined qualitative research design.

Reproducibility of Research

Both qualitative and quantitative research share difficulties with respect to reliability. The issue of reproducibility, or reliability of research findings, is a concern in both forms of inquiry. Sykes (1990) reduces the concern with reliability in qualitative research to two forms:

> . . . would the same study carried out by two researchers produce the same findings; and would a study repeated using the same researcher and respondents yield the same findings. . . .The main doubts about the reliability of qualitative research methods are that their inherent characteristics (their flexibility and the absence of rigid experimental control) are not conducive to replicability. (Sykes, 1990, 309)

The characteristic of repeatability, or the ability to produce results repeatability, is considered an essential element for rigor in scientific inquiry. However, this also forces a simplification, or a separation of phenomena from their complex context as a necessity for understanding quantitative relations between isolated variables. The very drive to decontextualize the investigation deprives the investigation of more complex phenomena and interrelations sought through quantitative designs. The focus on decontextualization is more prevalent in quantitative designs. The reduction of complex organizational contexts for research purposes, with the intention of generating reproducible research, risks the exclusion of relevant complex contextual factors to emerge. These complex relations may not be known, suspected, or initially designed in the research. This risk of exclusion is

not a newly recognized risk, and mechanisms of quantitative design can, to some degree, account for this risk. However, in the research of complex phenomena in contextually rich research settings (organizational settings) the restriction of context for study amplifies the potential for exclusion of relevant factors contributing to the phenomena in question.

Reproducibility is closely linked to the influence of the researcher in data collection, interpretation, and development of research findings. However, the researcher influence is also appropriate in both qualitative and quantitative domains of inquiry:

> The researcher examines the data, attaches meaning to them, and draws inferences and conclusions, all quantitative researchers start with marked differences in orientation, the researchers may be 'driven' to different interpretations, not only of the problem as a whole, but even of identical datasets. (Collins 1989, 3)

There is question as to whether the quantitative concept of reliability is appropriate for application to qualitative research designs. For instance, Robson (1989) suggests:

> Given the dynamic and inductive way (qualitative research) operates, it is true that replicability is impossible to prove theoretically. Indeed, I wouldn't want to, since regarding the researcher as a valuable bias in the whole process, I prefer to believe that while the base data may be replicable from one study to another, the interpretation (and consequent action) may differ. (Robson 1989, 8)

Several authors have developed alternate ways of thinking about the reliability of qualitative approaches to research:

> If another researcher was to be presented with the same set of data, he or she should be able to follow and carry out the same analysis and arrive at the same set of conclusions. If the two researchers were to arrive at

> different interpretations of the data then a third researcher would be able to see how and why they had arrived at their different interpretations and use his or her judgement to decide which interpretation to accept. (Griggs 1987, 15)

However, Guba and Lincoln (1981) introduce the concept of auditability as the criterion of consistency, or the qualitative parallel to reliability in quantitative terms. Sandelowski summarized the concept of auditability as:

> A study and its findings are auditable when another researcher can clearly follow the 'decision trail' used by the investigator in the study. In addition, another researcher could arrive at the same or comparable but not contradictory conclusions given the researcher's data, perspective, and situation. (Sandelowski 1986, 33)

Although precise replicability is not possible in qualitative research, this does not dismiss the necessity to build research designs that recognize and seek to enhance the concept of reliability in the qualitative sense. Sykes (1990, 1991) suggest this is accomplished by making the research *'transparent'* so that the readers of the research can precisely follow the research. Sandelowski (1986) goes beyond this recommendation and offers guidelines as to how auditability might be accomplished for qualitative research:

> Auditability is specifically achieved by a description, explanation, or justification of 1) how the researcher became interested in the subject matter of the study, 2) how the researcher views the thing studied, 3) the specific purpose(s) of the study, 4) how subjects or pieces of evidence come to be included in the study and how they were approached, 5) the impact the subjects or evidence and the researcher(s) had on each other, 6) how the data were collected, 7) the nature of the setting(s) in which data were collected, 9) how the data were reduced or transformed for analysis, interpretation, and presentation, 10) how various elements of the data were weighted, 11) the inclusiveness and exclusiveness of the categories developed to contain the data, and 12) the specific techniques used to determine the truth value and applicability of the data. (Sandelowski 1986, 34-35)

Qualitative and quantitative approaches differ in the role of reliability and how that role is achieved. Both recognize the necessity to invoke discipline and accountability of the research design. This is extremely important in qualitative research because of the flexibility in design. In essence, flexibility is not a shield for accountability and thoroughness in the research design process.

Validity of Qualitative Research Design

Generally, reliability is viewed as a necessary, although not sufficient, condition for research validity. Patton (1990) suggest the distinction as, "Validity focuses on the meaning and meaningfulness of data; reliability focuses on the consistency of results" (Patton 1986, 223). Sykes (1991) points out that validity is typically used to establish **inference** made from qualitative data and **goodness**, or accuracy of the data generated by qualitative research. Validity in terms of drawing inference, focuses on issues of generalizability of research findings beyond the bounds of the specific research efforts.

Sykes (1990, 1991) identifies 5 forms of validity generally recognized in the literature:

> *Apparent validity* or *face* validity holds when a research method produces the kind of information that is wanted or expected . . . . *Internal validity* . . . refers to internal coherence of the findings - to the snugness of fit between the data and the conclusions . . . . *Instrumental validity* looks at the match between the data provided by a research method and those generated by some alternative procedure itself accepted as valid . . . . *Theoretical validity* . . . . refers to the justifiability of research procedures in terms of established theory . . . . *Consultative validity* refers to the validation of data or interpretations through consultation with those involved in the research process. (Sykes 1991, 10)

While apparent validity is certainly applicable to qualitative inquiry, it is less accepted and subject to be misleading. As Kirk and Miller (1986) point out, "Conclusions of apparent validity can be illusionary" (Kirk and Miller 1986, 22). Internal validity is appropriate to qualitative inquiry, since the findings emerge from the data. Additionally, the flexibility of design permits data to be cross-checked, probed, and amplified as necessary to support apparent validity (Sykes 1990). This serves to enhance the internal validity of the data. However, a major criticism is the ability of the researcher to provide an interpretation of the data which supports internal validity. For quantitative research, internal validity is managed by controlling threats (history, maturation of subjects, etc.). Instrumental validity in qualitative research is achieved by triangulation (Miller and Fredericks 1987), thereby enhancing the research through multiple perspectives. Qualitative methods of data collection, based on established theory, have theoretical validity. However, again, the appropriateness and relation of methods to theory is subject to debate. Finally, qualitative research methods make a strong case for consultative validity. Since feedback from participants is invited, the data is given a check from sources beyond the potentially narrow perspective of the researcher(s).

Qualitative research designs for data collection can be strengthened by consideration of validity criteria principally stemming from quantitative designs. However, there are alternative perspectives for what constitutes qualitative equivalence to validity in the quantitative research domain. Sandelowski (1986)

contends that internal validity in quantitative research finds an equivalent in the concept of **credibility** in qualitative research design:

> A qualitative study is credible when it presents such faithful descriptions of interpretations of a human experience that the people having that experience would immediately recognize it from those descriptions or interpretations of their own. A study is also credible when other people (other researchers or readers) can recognize the experience when confronted with it after having only read about it in a study. (Sandelowski 1986, 30)

Credibility is closely linked to *'fittingness'* as discussed earlier. Both represent equivalence to quantitative notions of validity. Sandelowski (1986) suggest strategies to ensure credibility and fittingness:

> . . . 1) checking for the representativeness of the data as a whole and of coding categories and examples used to reduce and present the data; 2) triangulating across data sources and data collection procedures to determine the congruence of findings among them; 3) checking that descriptions, explanations, or theories about the data contain the typical and atypical elements of the data; 4) deliberately trying to discount of disprove a conclusion drawn about the data; and 5) obtaining validation from the subjects themselves. (Sandelowski 1986, 35)

The key point for enhancing the research validity, in either qualitative or quantitative, is a disciplined design and transparency in the methods used to arrive at, and address, the issues of validity.

Summary

This chapter developed a supporting methodological framework for the research. The framework was developed to form the basis for the research design. The methodological framework was based primarily on Participatory Action Research (Whyte 1990).

The central elements of the PAR framework were established in relation to the research application. In addition, areas of amplification and distinction of the research application, with respect to the PAR framework, were established. These areas included: (1) participation in development of the design, (2) the process focus of the research application, (3) the construction of contexts for research, (4) the level of participation in the application, (5) expectations of research outcomes, and (6) employment of temporary structure for process development. These areas served to develop the specific perspective of PAR for the research design.

This chapter also developed the nature of qualitative research, particularly with respect to the limitations for the research application. Qualitative research was discussed in terms of: (1) researcher influence, (2) generalizability of findings, (3) reproducibility, and (4) validity. In each area, the relevance, and limitations, of qualitative design in research methods was explored in relation to the research design and application.

The methodological framework established the context for development of the research design, application of the design, and interpretation of findings for the research effort. The development of the PAR approach and the nature of qualitative research established the methodological background for the study and supported development of the specific research design.

CHAPTER 4

THE RESEARCH DESIGN

This chapter develops the research design within the methodological framework previously established in Chapter 3. The research was designed as a PAR project. The objective of the project was to study facilitation of the organizational learning process as a process of organizational inquiry, generated through the application of a computer-based strategy. In general, OLP has been developed as an organizational process of inquiry supporting organizational learning. For research purposes, the strategy to facilitate OLP, as supported by the research design, can be thought of in terms of a circular four step process. Quite simply the process steps are; (1) development of alternative organizational perspectives, (2) individual assessment of alternative perspectives, (3) individual exploration of assessments, and (4) joint exploration of assessment results. The resulting OLP of inquiry is circular and, through the research design, is given the opportunity to emerge at both individual and organizational levels. The OLP process phases are presented as distinct for the convenience of illustration and discussion. However, in actuality, the phases of the process are viewed as interrelated, overlapping, and circular in nature.

In addition to the research design, this chapter includes the description of the contextual setting for each phase of the research. The purpose of these contextual descriptions is to provide a rich description of the salient features of the design application in the specific organizational setting. These descriptions of the contextual settings for each phase provide an important link between the research design, the application of that design, and the development of findings resulting from the application.

Overview of the Research Design

To facilitate OLP for study, the research design included the application of the organizational learning process through a computer-based strategy accomplished in six related research phases. The phases of the computer-based strategy correspond to the process steps identified earlier: (1) development of alternative organizational perspectives, (2) individual assessment of alternative perspectives, (3) individual exploration of assessments, and (4) joint exploration of assessment results. To support strategy application and research, the research was accomplished in six phases. These research phases included: (1) Context Development, (2) Generation of an Organizational Profile, (3) Individual Assessment of the Organizational Profile, (4) Individual Exploration of Organizational Profile Assessments, (5) Joint Examination of Organizational Profile Assessments, and (6) Group Assessment of the Research. The relation of these research phases to the computer-based strategy are defined in Figure 9. Figure 10 depicts the computer-based strategy in terms of objectives, instruments and

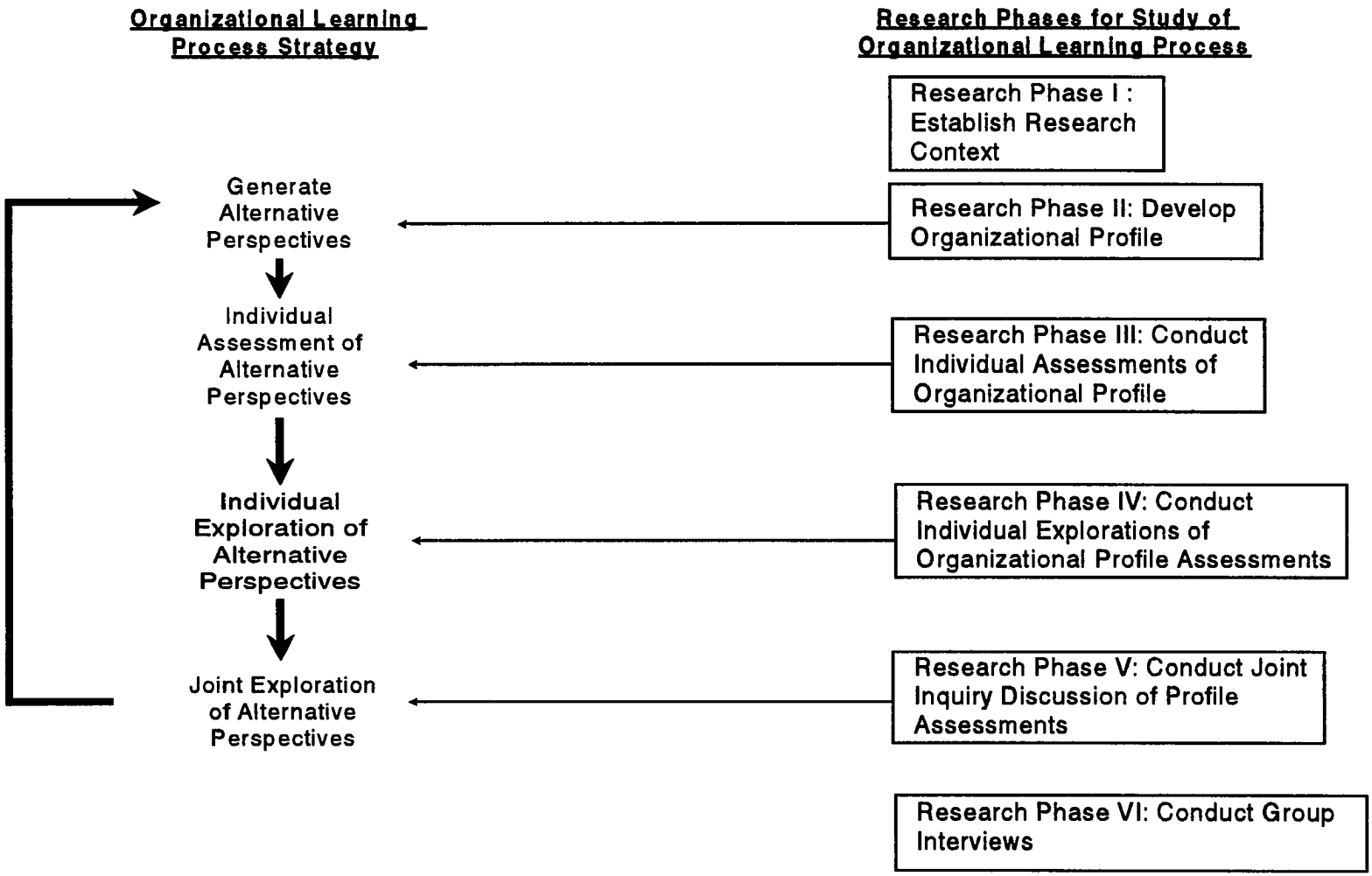

Figure 9. The relation between OLP strategy and associated phases of the research design.

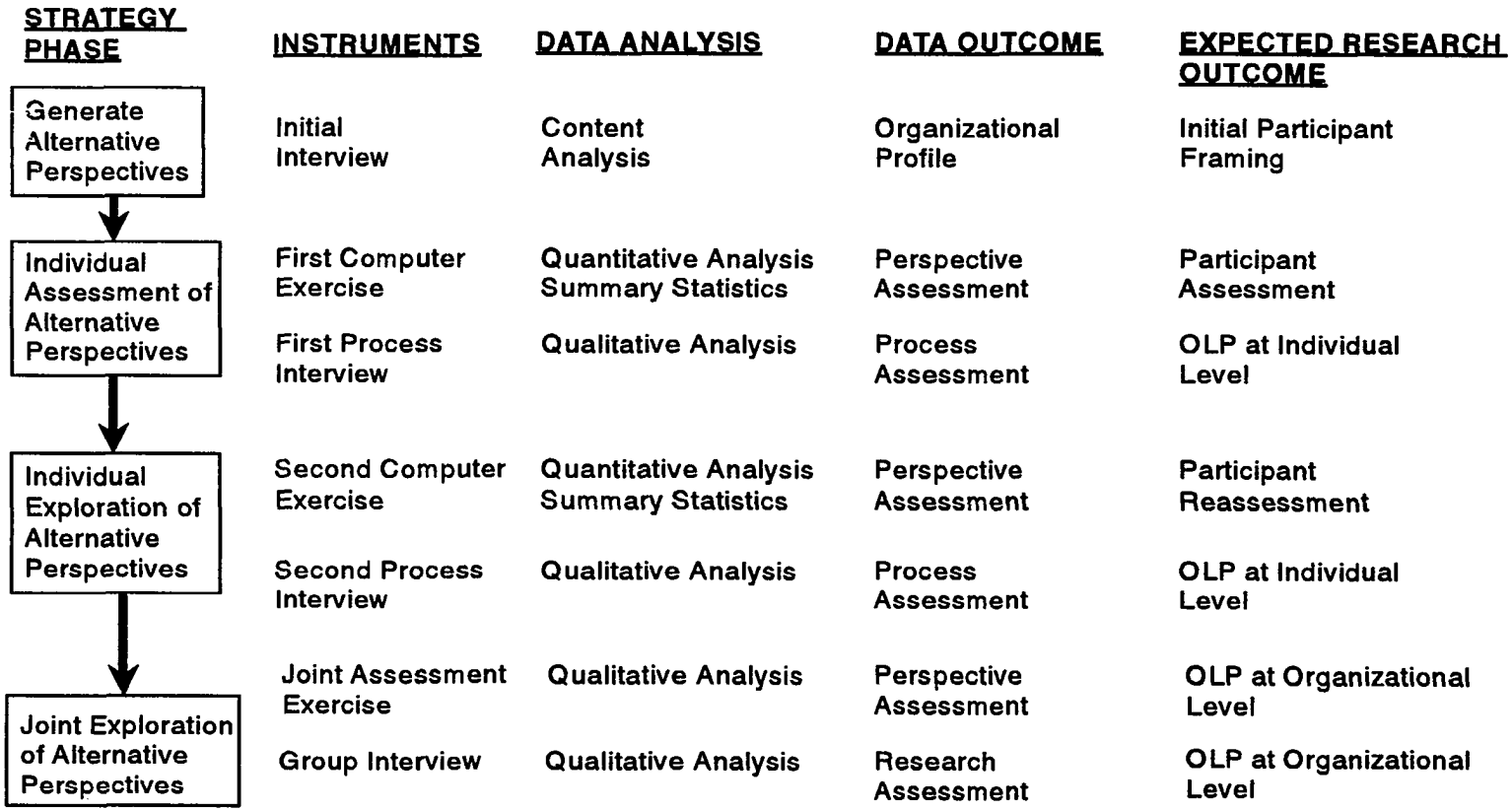

Figure 10. Overview of the research instruments, data, and expected outcomes for the research design.

procedures, and expected products for each phase of the organizational learning process. To make the research design *'transparent',* a detailed explanation of each research phase is developed. This explanation will include discussion of the objectives, design, specific procedures, expectations for each research phase, and the contextual setting for accomplishment of the research phase in the organization. Additionally, the methods of data collection and analysis are developed in relation to the research design.

The key to understanding the research design lies in the primary design purpose. This purpose was to develop OLP as a continuous process; a joint undertaking between the researcher and participants within the context generated through application of the computer-based strategy. This undertaking was accomplished within the domain created by the strategy through the application of the specific methods and tools, applied and refined in partnership with the organization. Additionally, the research design was evaluated as an integral part of the application. Therefore, the strategy was not only designed to generate OLP, but also to provide the feedback for its own transition through that design.

The Organization for Study

The sponsor organization for research was a major health system in the southeastern United States. The health system has approximately 5000 employees. Comprehensive services are provided across a spectrum of healthcare ranging from acute care to long term care. The system spans multiple geographic locations in providing healthcare services to the local community.

Additionally, the health system has been a long term member of the community and experienced continuous growth and rapid expansion within the last 5-10 years. During the application the organization was in a period of uncertainty regarding the future government modification of the healthcare system at the national level.

The organization met several criteria established for selection of the organization to sponsor the study. Among these criteria were: (1) capability to provide participants from diverse elements of the same organization, (2) neither the organization, nor the participants, routinely engaged in organizationally self-referential development processes similar to that proposed by the research, (3) organizational willingness to allocate and commit resources necessary to accomplish the research, (4) agreement to provide the researcher access to organizational information and participants on an informal as well as formal basis, and (5) assignment of organizational representatives as primary contacts for the research effort. Organizational contact was initiated by the researcher. The research was presented to organizational representatives and initial agreement reached on sponsorship. In addition, the research was reviewed and approved by the Human Subjects Review Board of Old Dominion University representing the College of Engineering and Technology.

Working in participation with organizational representatives, the research project was tailored to the organization. It was jointly decided that the research design would be appropriate for the organization. Additionally, the organization requested that 17 senior executives participate in the research. After joint

discussions with the organizational representatives, the participants were separated into 2 groups, each to go through the process independently. Both groups consisted of executives representing diverse organizational elements in terms of geographic location, products, services, and responsibilities. Group 1 consisted of eight executives with responsibilities spanning the entire system. Their focus was not directed to a singular entity within the system. Group 2 consisted of nine executives with responsibilities for various operations and entities within the system. Their focus was directed to a specific segment of the overall system.

Research Phase I: Context Development

Context development had three basic objectives in the research design. These objectives included establishing the research context for the organization, the researcher, and the participants. The first objective was to establish the organizational context for the research. This required meeting with organizational representatives to determine the details of strategy application in the organization. The details included:

1) Establishing organizational understanding of research design and objectives with respect to the organization.

2) Modification and acceptance of the research design by the organizational representatives.

3) Tailoring of the research application (participants, timing, locations, etc.) to the organization.

4) Determination of administrative support and commitment of resources to the project.

The second objective of this research phase was to establish the researcher context. The specific design for this context formation was jointly determined by the researcher and organizational representatives. This included informal introduction to all participants, familiarization with organizational operations, tours of organizational facilities, review of organizational documents, and informal discussions with nonparticipating members of the organization from each segment represented by the participating executives. The final objective of this research phase was the establishment of the participant context for the research effort. This context was established through introductory meetings between the researcher and participants. In addition, the organizational representatives sent correspondence announcing the research project and discussed the project with participants. This established the initial participant context for the research project.

The development of these initial contexts for the research project was an integral part of the research design. Although the precise scope of the context formation was not predetermined, the necessity for this phase was actively factored into the research design. Additionally, the formation of context was viewed as a continual process throughout the research effort. However, the active design of context formation ensured that this vital process would be accomplished.

At the conclusion of this phase of research the application was expected to have generated: (1) an initial research context for researcher, organization, and participants, (2) establishment of the initial plan for accomplishing the research in

the organization, and (3) the researcher familiarization with the organization and participants.

There were several important contextual points to establish the initial organizational context for the research. First, the research was presented to organizational representatives in two separate meetings conducted at the offices of the organizational representatives. These meetings served to describe the research in general terms and gain initial organizational approval for sponsorship of the effort. Second, subsequent to organizational approval, there were two meetings conducted with the two primary organizational representatives at the offices of the organizational representatives. These meetings served to tailor the research design to the organization. The administrative details necessary to accomplish the research in the organization were developed in these meetings. These details included development of the specifics of the application with the representatives. The specifics included determination of participants, division of groups, assignment of potential participants to groups, determination of support specifics (clerical, scheduling, computer resources, interview locations, tentative schedules for accomplishment of research phases, and plan for introduction of the research effort to the participants), and informal discussions with the representatives about the organization and participants. Additionally, a plan for researcher familiarization with the organization was established in general non-specific terms with one organizational representative accepting responsibility to facilitate the familiarization. Finally, an informal working relationship with the

organizational representatives was established and one representative assumed the role of primary contact for the effort. The tailoring of design and determination of the scope of the research effort was accomplished during approximately a two week time period.

The organizational representatives elected to present the research to potential participants via a memorandum and personal contact from a senior executive. However, the informal introductions of the researcher to *'potential'* participants were started prior to formal distribution of the memorandum and contact by the senior executive. Nevertheless, the primary organizational representative conducted the introductions and informal discussions were generated with *'potential'* participants. Additionally, questions concerning the research were answered for all 'potential' participants. All 'potential' participants identified for the research participated. Although participation was not deemed as mandatory, it appeared that once organizational sponsorship was committed, participation by organizational members selected as potential participants was assumed.

A broad plan for orienting the researcher was established with the primary organizational contact. The objectives of this orientation were to: (1) complete an informal introduction to all participants, (2) gain access to, and review, internal documents, (3) meet, and conduct informal discussions with members from the organization, minimally members from the participants assigned area of responsibility, and (4) tour facilities representative of the different segments of the

organization. With these broad objectives, the organizational representative and researcher coordinated a schedule for orientation. The orientation was conducted over a four week period and included the following activities: (1) informal meeting with all participants in the project, (2) a review of internal documents, including annual reports, annual internal management report (detailing missions, objectives, market forecasts, etc.), (3) library review of healthcare journals and current healthcare issues, (4) tours of 17 different geographic sites, including sites managed by each of the participants, (5) detailed scheduled discussions with approximately 40 organizational members representing all areas of operations, (6) attendance at an *"open house"* celebration for the opening of a new facility for the organization, and (7) numerous introductions to staff and personnel at various sites visited. The scheduling and content of the orientation were developed as a coordinated effort between the researcher and the primary organizational contact. The orientation was thorough and accomplished all established objectives.

Research Phase II: Generating an Organizational Profile

The objective of Phase II was to generate an organizational profile. Organizational profile is a term used to describe a series of statements characterizing the participant perspectives of the organization. This profile provided an initial framing of the organization, by participants, as well as the content for the computer-based exercises conducted in subsequent research phases.

The profile was developed through structured open-ended interviews conducted individually with each participant (Appendix 1). These interviews were intended as a starting point to establish an initial individual perspective of the organization. The intent of the profile was only to supply a set of initial distinctions; a snapshot of what individual participants considered to be central to the cultural character of the organization. Therefore, the initial profile was purely designed as a representation and starting point for further exploration and interpretation.

The source of data for the organizational profile was a standardized open-ended interview (Patton, 1980) included as Appendix 1. Interview questions were developed from an organizational culture framework based on Schein's (1985) organizational culture perspective of internal integration. The interview questions were reviewed by organizational representatives for clarity and organizational applicability prior to the interviews being conducted. The same standardized interview was conducted in a confidential session with each individual participant by the same researcher. Interview sessions were tape recorded and data subsequently transcribed. The organizational profile was constructed based on content analysis (Patton 1980) of participant responses to the interview questions. The objective of this analysis was the generation of a set of statements, based on the interview data, representative of the participant responses to the initial interview (Appendix 1).

The data analysis of initial interview was conducted with the sole objective of generating an organizational profile. This profile was to serve as the representation of the organization in subsequent research phases and provide a focal point for the process of inquiry. The analysis was systematically conducted to independently construct the organizational profile for both groups. First, all initial interviews were transcribed by the researcher, from audio tape to computer. The transcription was organized by participant and group. Second, the individual responses to each question were reviewed. From this review, the responses to each question were organized into a series of representative statements for each participant. Third, similar responses for each group were combined into representative statements, organized by question area (core mission, objectives, products and services, measures, short term priorities, methods to identify issues, long term priorities, and distinguishing characteristics). The process of combining similar statements continued until, as determined by the researcher, further integration was not possible. This resulted in a collected set of summary responses to the interview questions for the entire group. The collected set of responses was referred to as the **organizational profile**. This profile was worded, to the greatest extent possible, in the language of the organization and participants.

This phase was necessary to generate the content for the organizational profile which would be assessed in the following phases. The organizational profile was a representation of individual perspectives of the organization

constructed by the researcher from analysis of the initial interview responses. A separate profile was constructed for each group. This representation, or profile, took the form of a series of composite statements about the organization based on individual interview responses. Additionally, this phase served as an opportunity to answer participant questions concerning the research, further developing the researcher, organization, and participant contexts.

At the conclusion of this phase of the research, there were three expected products. First, each participant had generated a personal organizational perspective in responding to the interview questions. Second, these perspectives were analyzed by the researcher to form an organizational profile representing all participant input for each group. Finally, the content for the computer-based exercise was generated from the organizational profile.

This research phase had several salient contextual details concerning the administration of the initial interview and construction of the organizational profile following the interview. The initial interviews were completed with all participants over a two week time period. The initial interview questions were reviewed by the organizational representatives for appropriateness and applicability to the organization. There were no recommended modifications to the questions. The location and time for interviews were scheduled at the convenience of the participants, with times and locations coordinated by the organizational representative's clerical staff. All interviews were conducted in a private setting selected by the participant. Additionally, prior to beginning the interview, the

researcher informally answered all participant questions concerning the research. Interviews were audio taped and subsequently transcribed, by the researcher, as soon as possible after each interview session. In situations where the researcher was unsure about particular responses, clarifications were conducted by phone, or in person where feasible.

Following development of the organizational profile for each group, the profiles were incorporated into the computer-based exercise for the next research phase. The researcher managed all loading of organizational profiles into the computer. The statements were organized into 8 areas corresponding to the categories of questions asked during the organizational profile interview (Appendix 1). The areas included: (1) central elements of the **core mission**, (2) **organizational objectives** in support of the core mission, (3) the **products and services** generated by the organization, (4) the **measures** of organizational performance in progression toward objectives, (5) the mechanisms for **identification of issues** in the organization, (6) the top three **short term priorities** for the organization, (7) the top three **long term priorities** for the organization, and (8) the **distinguishing characteristics** which serve to differentiate the organization. The resulting profile for group 1 consisted of 119 profile statements, including: 10 core mission statements, 15 organizational objectives statements, 1 products and services statement, 19 measures of organizational performance statements, 19 identification of issues statements, 18 short term priority statements, 15 long term priority statements, and 22 distinguishing characteristics statements. The resulting

profile for group 2 consisted of 117 statements, including: 10 core mission statements, 19 organizational objectives statements, 1 products and services statement, 16 measures of organizational performance statements, 18 identification of issues statements, 15 short term priority statements, 19 long term priority statements, and 19 distinguishing characteristics statements. The organizational profiles were similar in many general areas. For example, areas concerning general mission statements and objectives were noticeably similar for both groups. However, in more detailed areas of organizational assessment, the profiles also showed marked differences. For example, identification of short and long term priorities showed distinct differences between groups.

Research Phase III: Individual Assessment of the Organizational Profile

This phase included two objectives for the research. First, the organizational profile was placed in a computer-based exercise, **The Perspectives Development Exercise**, and administered to all participants (Appendix 2). Second, the first *'process'* interview was conducted (Appendix 3). This interview was designed to allow participants to reflect and comment on: (1) the content of the organizational profile, (2) research instruments and procedures, and (3) the process being generated from the application.

The computer-based exercise was designed using the ToolBook (Version 1.5) software construction program by the Asymetrics Corporation. Appendix 2 provides a representation and description of the program and the different computer screen designs used by the program. The primary purpose of the

computer-based exercise was to permit individual participants to graphically assess the organizational profile statements generated from Phase II.

The exercise used a computer-based environment to facilitate individual participant assessment of the organizational profile generated from Phase II. Each profile statement was displayed on a scaled grid for participant assessment. The grid was designed to allow individuals to confidentially assess the importance of the profile statements in the organization. The participants were asked to evaluate the importance of each statement based on the degree that the organization might *'express'* (espoused theory) that the statement is important and the degree to which *'current'* (theory-in-use) organizational actions and decisions demonstrate the statement as important.

The assessment was conducted on a grid, based on a seven point Likert-type scale on both the x-axis and the y-axis. Responses ranged from ***strongly agree*** to ***strongly disagree***. The x-axis of the grid represented the degree to which actions and decisions in the organization (theory-in-use) support the profile statement as important (***CURRENT AXIS***). Similarly, the y-axis (***EXPRESSED AXIS***) represented the degree of importance thought to be *'correct'* (espoused theory) in expressing the profile statement in the organization. In addition to the assessment, participants could make comments by keyboard or audio tape recorder during the session. Therefore, the computer-based design permitted disparities between espoused theory and perceived theory-in-use to emerge for individual participants. The computer grid allowed representation of distinctions

made by individuals to become explicit and visible. In addition, a high level of candidness was invited, since the computer application was anonymous and permitted individuals to interact with the organizational profile, without exposure to other participants or the group.

Following the computer exercise, a structured open-ended interview (Patton, 1980) was conducted (Appendix 4). The purpose of this interview was to gather participant assessments of the organizational profile content, research instruments, and individual participant reflections about the process. The researcher conducted the same standardized open-ended interview, in a confidential session, with each individual participant. Interview sessions were audio tape recorded and data subsequently transcribed for analysis.

At the conclusion of this phase of the research, there were two expected products. First, each participant generated an initial assessment of the organizational profile during the computer-based exercise. This assessment served as the initial framing of the individual perspective of the organizational profile. Second, individual participant reflections on the emerging process were developed through the process interview as well as the comments from the computer-based exercise.

There were several important contextual details for this research phase. These details concerned the administration of the computer-based exercise and the subsequent process interview. The computer-based exercise was completed by all participants over a two week time period. All participants completed the

computer-based exercise and subsequent process interview. The location and time for the computer-based exercise and interviews were scheduled at the convenience of the participants, with times and locations coordinated by the organizational representative's clerical staff. A centrally located office was suggested as a preferred option to minimize movement and set-up of computer equipment. However, in the event that individuals could not visit the central office, arrangements were offered to accommodate participants. All computer-based exercises were conducted in a private setting with individual responses anonymous. Equipment was set-up, operational, and tested prior to participant arrival. Each session was also audio-tape recorded. The researcher informally answered any questions concerning the research prior to beginning the session. A hands-on demonstration of the program and hardware were given to each participant prior to beginning the exercise. This served to familiarize the participants with the hardware (computer mouse, tape-recorder, and keyboard) and operation of the computer program. After all questions were answered, the researcher left the room (doors were closed for privacy) and remained in close proximity while the participant completed the exercise. There was one case where researcher assistance was requested to adjust the screen, which had become *'off-centered'*. All participants completed the computer-based exercise. Following the computer-based exercise, individuals were invited to take a break prior to proceeding with the interview. Interviews were conducted in the same private setting as the computer exercise. Additionally, prior to beginning the interview, the

researcher informally answered all participant questions concerning the research. With the exception of one participant, all participants completed the interview immediately following the computer-based exercise. The one participant unable to immediately complete the interview completed the interview later that same day. Following the interview, the researcher informally answered any participant questions concerning the research effort.

Research Phase IV: Individual Exploration of Organizational Profile Assessments

This phase included two objectives for the research. First, the participants completed a second computer-based exercise, **The Perspectives Exploration Exercise** (Appendix 4). In this exercise participants were exposed to the other participant's assessments of the organizational profile. Second, the second *'process'* interview was conducted directly following the computer exercise (Appendix 6). Similar to the first process interview, this interview was designed to allow participants to reflect and comment on the organizational profile content, instruments, and process being generated.

This computer-based exercise was an extension of the initial computer-based exercise. During the second computer-based exercise, the **Perspectives Exploration Exercise**, participants were challenged to examine the response pattern for each organizational profile statement assessed. In addition, participants were requested to think of specific instances, involving actions and decisions, which may have supported the assessments. Participants were given the

opportunity to adjust their assessments as a result of further reflection during the exploration period.

The computer-based exercise was precisely the same as the initial exercise, except that all participant responses to the perspective statements were displayed. However, the responses of the participant conducting the review were highlighted. All other responses were visible, but could not be identified to specific participants. Additionally, two program modifications were installed based on feedback from the initial process interview. First, the keyboard comments were modified so that they could be directly tied to the question being answered (Appendix 7). Additionally, a marker was installed to allow participants to indicate preferences to discuss specific profile responses in the subsequent group session (Appendix 7).

Following the computer exercise, a structured open-ended interview (Patton, 1980) was conducted. Appendix 6 provides the questions used for this interview. The purpose of this interview was to gather participant assessments of the organizational profile content, research instruments, and reflections on the process. The same standardized interview was conducted in a confidential session with each individual participant by the same researcher. Interview sessions were audio tape recorded to assist field notes and data was subsequently transcribed for analysis.

The expected products at this phase of the research included: (1) a computer profile for each participant representing a reassessment of the

organizational profile, and (2) participant assessment of the research process and instruments.

The were several important contextual details for this research phase concerning the administration of the second computer-based exercise and the subsequent process interview. The procedures for accomplishment of this phase paralleled those of the first computer-based exercise. The second computer-based exercise was completed by all participants over a two week time period. All participants completed the computer-based exercise and subsequent process interview. The location and time for the computer-based exercise and interviews were scheduled at the convenience of the participants, with times and locations coordinated by the organizational representative's clerical staff. A centrally located office was suggested as a preferred option to minimize movement and set-up of computer equipment. However, in the event that individuals could not visit the central office, arrangements were offered to accommodate participants. Equipment was set-up, operational, and tested prior to participant arrival. All computer-based exercises were conducted in a private setting with individual responses anonymous. Each session was also audio-tape recorded. The researcher informally answered any questions concerning the research prior to beginning the session. A hands-on demonstration of the program and hardware were given to each participant prior to beginning the exercise. This served to familiarize the participants with the hardware (computer mouse, tape-recorder, and keyboard) and operation of the computer program. Additionally, the modification

in the program for collection of comments and marking a profile statement for discussion were pointed out and a hands-on demonstration conducted. After all questions were answered, the researcher left the room (doors were closed for privacy) and remained in close proximity while the participant completed the exercise. There were no requests for researcher assistance during the computer-based exercise. All participants completed the computer-based exercise. Following the computer-based exercise, individuals were invited to take a break prior to proceeding with the interview. Interviews were conducted in the same private setting as the computer exercise. Additionally, prior to beginning the interview and after concluding it, the researcher informally answered all participant questions concerning the research.

Research Phase V: Joint Discussion of Assessment Results

The primary purpose of this phase was to jointly examine the profile assessments generated by participants. This was accomplished by all participants joining in an open discussion and inquiry about organizational profile assessments. Each group met separately for the joint discussion.

The session was designed and scheduled as a 90 minute open discussion with three objectives. The session objectives included: (1) to generate discussion about the different assessments of profile statements, (2) as a group critically examine differences in organizational profile assessments, and (3) to identify potential implications from the discussion. In preparation for the session, each

participant was given a package of the items to be discussed at the session. The session was audio tape recorded.

Accomplishment of this research phase had several important contextual characteristics. This was the first effort of the research to conduct an activity with all participants in a group setting. Although each session was designed the same, there were different contextual elements for each discussion. After the contextual design of the session is elaborated, the contextual information for accomplishment of each session will be detailed.

The location and time for the session was scheduled at the convenience of the participants, with the time and location coordinated by the organizational representative's clerical staff. A centrally located conference room was selected as the site for both discussions. The selection of material (profile statements) for discussion was determined by a rank ordering of items marked for discussion during the second computer-based application. Those profile statements with the most selections by participants during the second computer-based exercise became the statements for discussion. A total of 30 statements were selected, in rank order, and prepared by the researcher for discussion. The prepared material included the initial profile assessment (from the first computer-based exercise) and the adjusted profile assessment (from the second computer-based exercise). A package of this material was prepared and distributed to the participants at the beginning of the session. Following suggestions from the first group discussion session, the discussion material was provided to participants from the second

group several days prior to the session. This permitted participants to reflect on material prior to the joint discussions. Each session was started by the researcher discussing the session objectives and the open format for discussion. Additionally, the sessions were audio-tape recorded. The sessions were conducted by displaying (overhead projection) the initial and final profile assessments. Discussion was invited concerning the results of the profile assessments. The review of profile assessments continued until the allotted time expired.

The first joint discussion session for was conducted four weeks after the last participant completed the second computer-based exercise. This session was attended by four of nine participants (a low turnout), with a fifth participant arriving at the conclusion of the session. The session was forced to end early due to a scheduling conflict. A total of six profile statements were discussed during the session. After a discussion with organizational representatives, it was decided to reschedule this joint discussion session. The session was rescheduled and conducted two weeks after the first session. Packages of review material and a memorandum detailing the joint discussion session were issued to participants prior to the session. The second session was attended by eight of nine participants and ran the duration of the allotted time (90 minutes). A total of 15 profile statements were discussed during the session.

The joint discussion session for the other group was conducted 6 weeks after the last participant completed the second computer-based exercise. The session was attended by all group participants. Packages of review material and

a memorandum detailing the joint discussion session was issued to participants prior to the session. The session lasted two hours, approximately 30 minutes more than had been scheduled. A total of 15 profile statements were discussed during the session.

Phase VI: Group Interview and Final Process Interview

The group interview was conducted to jointly discuss the process, instruments, and accomplishment of the research in a group setting (Appendix 8). The purpose of these interviews was to: (1) turn the strategy back on itself, and through a self-referential process, allow the strategy to be reframed through the very processes it generated, (2) jointly evaluate the capabilities, at the individual and organizational levels, of the strategy to produce organizational learning process, and (3) potentially provide a basis for management and individual action suggested by the process discoveries.

The group interview was a structured open-ended interview (Patton 1980) guided by the researcher. The interviews were administered during a scheduled one hour session in a private setting. The same standardized interview was conducted in a confidential session with each group by the same researcher. Interview sessions were audio tape recorded to assist field notes and data was subsequently transcribed for analysis.

The final process interview was scheduled and conducted with individual participants subsequent to the group interview session. Originally, the final process interview was scheduled to be conducted following the group discussion

and prior to the group interview. However, the proximity of sessions dictated that the final process interview be conducted following the group interview session for both groups. The interview was a structured open-ended interview (Patton, 1980). Appendix 9 provides the questions for the interview. The purpose of this interview was to gather participant assessments of the organizational profile content, research instruments, and reflections on the entire research process. The same standardized interview was conducted in a confidential session with each individual participant by the same researcher. Interview sessions were tape recorded and data subsequently transcribed for analysis.

The group interviews and final process interviews were critical to the research effort. Elaboration of the salient contextual setting for these activities is important to understanding their accomplishment and contribution to the overall research effort.

The group interviews were the second time the groups were assembled in a group process activity. The location and time for the group interviews were scheduled at the convenience of the participants, with the time and location coordinated by the organizational representative's clerical staff. The Group 1 group interview was conducted two weeks following the joint discussion session. For Group 2 the group interview was accomplished one week after the second joint discussion session. Both interviews were conducted in a centrally located conference room. Each interview was started by the researcher discussing the intent and the open discussion format of the interview session. Both interview

sessions were audio-tape recorded. The interviews were conducted by the researcher asking the interview question and opening the floor up to discussion. The group interview for Group 1 was attended by all participants and accomplished within the allotted time (60 minutes). However, the Group 2 interview lasted approximately 90 minutes and was attended by seven of the nine participants.

The final individual process interviews were completed with all participants over a two week time period following the group interviews. The location and time for interviews were scheduled at the convenience of the participants, with times and locations coordinated by the organizational representative's staff. All interviews were conducted in a private setting selected by the participant. Additionally, prior to beginning the interview, the researcher informally answered all participant questions concerning the research. Interviews were audio tape-recorded and subsequently transcribed for data analysis.

Data Collection Methods

In each phase of the research, data collection was designed to respond to the research questions. There were three prime sources of data collection for the research project. These sources included: (1) process interviews conducted at the conclusion of Phases III, IV, and VI, (2) quantitative assessments of organizational profile statements during the computer-based exercises, and (3) group interviews about the research project.

The process interviews were designed to generate participant reflections on three areas. First, interviews gathered reflections on the content of the

organizational profile generated. Specifically, questions were directed at the completeness and representativeness of the organizational profile generated. The major thrust was to engage participants in an assessment of the adequacy of the organizational profile. Second, the interview questions engaged participants to reflect on the instruments during each phase of the research project. Thus, they became not static subjects of the research, but active participants making assessments of not only the content generated by the instruments, but also critically assessing the instruments responsible for generating and representing the content. Finally, participants were asked to reflect on the process being generated by the project. This entailed a critical reflection about the implications of the process individuals as well as the organization. Since the research questions concerned the generation of OLP, the participant's reflections on the results of the strategy, at both individual and organizational levels, was essential to establish the response to the research questions. All process interviews were tape recorded and subsequently transcribed for data analysis.

The second major method of data collection was through the responses to the computer-based exercises. The responses allowed for numerical representation of the participant assessments of the organizational profile statements (Appendix 5). The specific statements are not included to protect organizational confidentiality. Although the assessments of profiles were not the primary source of data to respond to the research questions, it was valuable to the research for several reasons. First, it allowed a graphical representation of

apparent differences in perspectives of the organizational profile to emerge. Second, the computer data permitted positive determination of shifts in subsequent participant assessments of the computer profile. All computer responses were numerically coded for analysis. Summaries of computer responses are included as Appendix 5. Additionally, comments during the computer exercises were taken by keyboard in addition to the session being tape recorded. Keyboard comments were collected and tape recordings transcribed to support data analysis.

The final method of data collection came from the group interview sessions conducted with each group. The primary objective of the sessions was to create a group reflection on the research project. Specifically, these group reflections concerned the organizational profile content, instruments used during the research project, and the resulting process generated through application of the strategy. These sessions were designed to engage in joint reflection, determining implications beyond the individual level stemming from the discussion in a joint forum.

Methods Used to Analyze Data

The primary objective of the data analysis was to develop relevance of the data to the research questions investigated. Data analysis is the attempt to methodically bring a structure and order to the data through a process of organization and interpretation of the accumulated mass of research data. The data analysis plan included: (1) coding (Strauss and Corbin 1990) of individual interview responses for process interviews conducted in Phases III, IV, and VI, (2)

coding (Strauss and Corbin 1990) of group interviews, and (3) summary statistics for the participant responses to the computer-based exercises conducted in Phases III and IV.

Confidentiality of Data

The data generated from the research was carefully screened prior to inclusion in the dissertation. Organizational profile data was not included due to the proprietary nature of the profile statements. Additionally, representative data quotes were reviewed, and all references or inferences to the specific organization or participants were removed prior to inclusion. This included material which might have been viewed as inappropriate, in any form, for representation of the organization or individual participants. The screening of data was accomplished to preclude any misinterpretation by participants or organizational members concerning the data, attributions of the data to specific participants, or data which might be deemed inappropriate for inclusion. The data was screened by both the researcher and organizational representatives for appropriateness.

The protection of confidentiality of participants and the organization were accepted as the first priority in reporting results of the research. This did not detract from the presentation of research findings, but only served as the ethical response to respect the trust and confidence established between the researcher, participants, and the organization. The establishment and maintenance of this trust throughout the research effort was viewed as a critical aspect of the research.

Procedures for Analysis of Qualitative Data

Qualitative data analysis was undertaken with recognized predispositions of the research, including: (1) a detailed perspective of the organizational learning process phenomenon being investigated, (2) a theoretical perspective of organizational learning established from the literature, (3) a structured approach for the design of data collection, and (4) detailed data collection instruments developed for the purpose of generating input concerning organizational profile content, assessment of instruments/procedures used, and assessment of the process being generated. In addition the analysis was directed at the established research questions organized around individual, organizational, and strategy levels of analysis.

The procedures for qualitative data analysis were developed as a coding scheme based on procedures detailed by Strauss and Corbin (1990). The qualitative analysis had two primary objectives. The first objective of the qualitative analysis was to develop a systematic approach to the analysis of data. This was accomplished by defining the data analysis procedures (figure 11). The second objective of the data analysis was to generate a descriptive interpretation of the application of the strategy. This was accomplished by performing the data analysis in accordance with the established data analysis procedures. Although, for purposes of description of the analysis procedures, the analysis appears to proceed in a completely linear fashion, in actuality the process involved a constant movement between data and analysis.

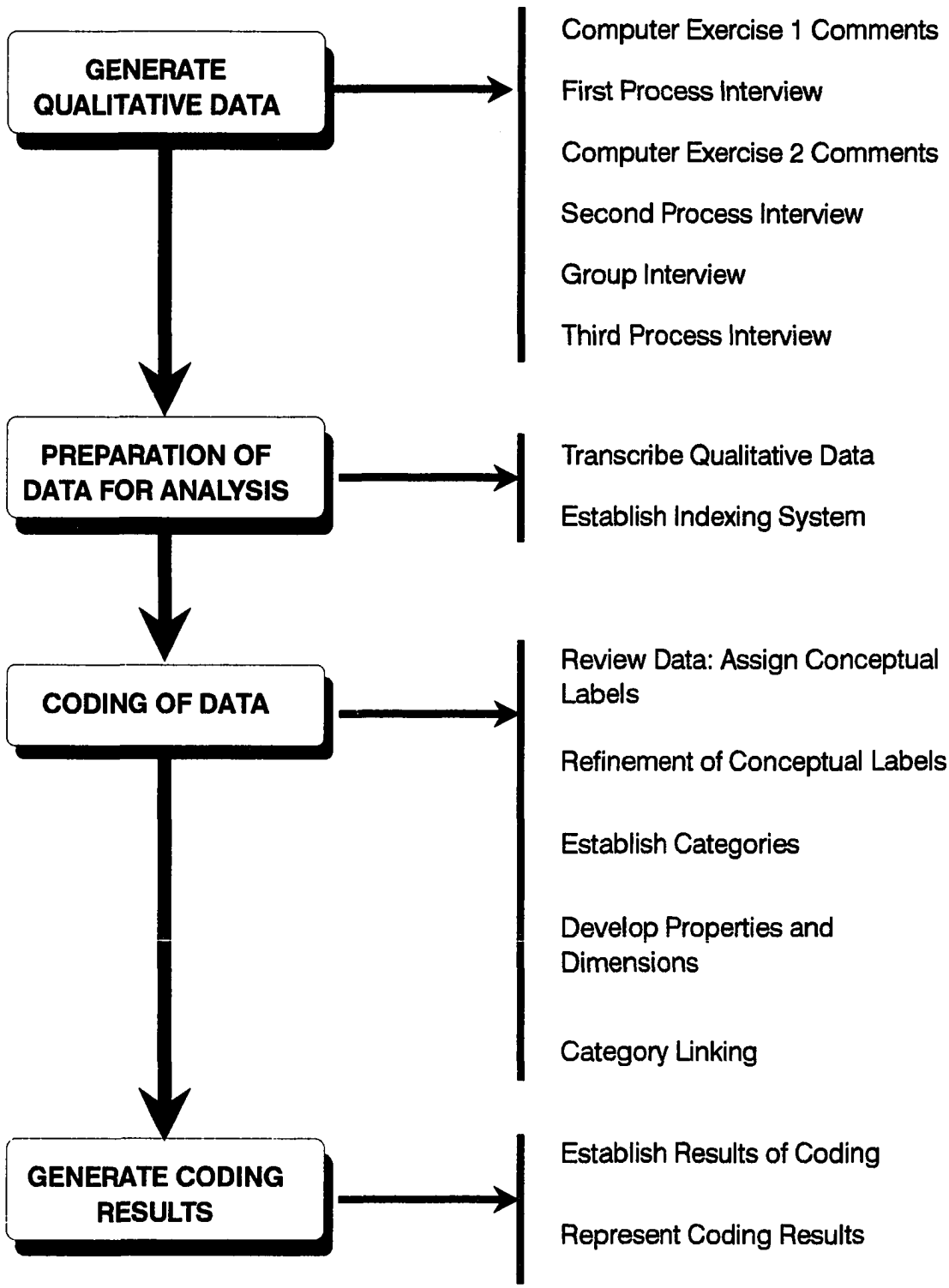

Figure 11. Qualitative data analysis procedures for the research.

Data for qualitative analysis were generated from several sources. These sources included: (1) process interviews conducted throughout the strategy application, (2) Comments, by keyboard and audio tape, during the computer exercises, and (3) the group interviews. The collection of this data constituted the first step in the data analysis procedure.

The second step in the qualitative analysis was the preparation of the data for analysis. This consisted of transcribing audio tape recordings and collecting the computer keyboard comments. Data was subsequently put in a text form to facilitate analysis. An indexing system was established to identify the source of the data source for subsequent analysis. The indexing system was designed to identify text coding by interview, participant, group, and question.

The third step in the data analysis was coding of the data. In general, coding was accomplished by: (1) reviewing the text of data, (2) assigning conceptual labels to data relevant to the study, (3) refinement of conceptual labels, (4) establishment of categories, (5) development of properties and dimensions, (6) linking of categories, and (7) verification of categories and subcategories against data. Although the coding process appears to be linear, in actuality it involves movement between the data and analysis in a circular process.

Prior to coding the data was transcribed (by the researcher) from audio tape to computer word processor. The transcription was organized by interview, participant response, and question. A separate text document was created for each participant. A computer printout was subsequently generated for analysis.

The responses of each participant were reviewed by the researcher. This review was based on reviewing the data for perceived relevance to understanding organizational learning process and responding to the research questions (individual, organizational, and strategy). Data which was determined to be relevant to the investigation was identified in the text by marginal notes. These marginal notes were subsequently reviewed and preliminary conceptual labels assigned to the text. Labels were assigned to be descriptive of data and identified the textual information for identified data within each interview question. Initial conceptual labels were refined to be as descriptive as possible for the textual information they were representing. This refinement was based on the researcher's judgement of the representativeness of the labeling system to the data represented. The refined labels were recorded and attached to the margins for each identified portion of text. The identified, labeled portions of text were then segregated from the larger interview text. The text was separated by interview and conceptual label. During this segregation of text, conceptual labels were reviewed for appropriate fit, as determined by the researcher, to the data. An indexing scheme was developed to identify each text passage by interview, participant, question, and conceptual label. For example, 114201 would be 1- interview one, 14- the fourteenth participant, 2- research group 2, and 1- question one of the interview. The segregation of text was managed entirely in the computer environment with labels assigned from margin notes. Data was subsequently organized in the computer by group, conceptual label, and interview. At this point

conceptual labels were again reviewed and refined, by the researcher, for appropriateness to the data they were representing. Conceptual labels were then grouped to form subcategories. This grouping of conceptual labels was developed by the researcher based on inclusion of conceptual labels which bore a proximity in describing the process under investigation and supporting a response to the research questions. Grouped conceptual labels were developed into representative subcategories. The subcategories were subsequently defined in terms of properties (attributes or characteristics) and dimensions (the range of variation for each property). For example a property ROUTINENESS might have been established for a subcategory and the dimensional range would be specified as varying from NON-ROUTINE to ROUTINE. Additionally, a definition was developed for each identified subcategory. The result of these coding efforts was the establishment of a set of subcategories, associated properties and dimensions, and the definitions for the subcategories.

The next coding task was to establish links of subcategories falling under the analysis levels of individual, organizational, and strategy. The linking of subcategories was based on researcher determination of apparent fit of subcategories which bore a proximity in describing and defining similar aspects of the phenomenon at the individual, organizational, or strategy levels of analysis. In essence, subcategories were formed which could be descriptive of a more general category relevant to the research questions. The new categories were defined in terms of properties, dimensions, and definitions. For the purposes of

data analysis for the research effort, qualitative analysis did not go beyond the establishment of categories, subcategories, and specifying properties and dimensions.

The final step in the analysis of data was the generation of the results from the data analysis. The data analysis generated a set of categories and specifying subcategories in a tentative descriptive framework. The analysis was also structured to address analysis at three levels, including: individual, organizational, and strategy. Categories, associated subcategories, and the specifying properties and dimensions form a tentative framework representative of the results of data analysis. This framework emerged as the representation of the data analysis, imposing structure, order, and interpretative description on the data. Additionally, the categories and subcategories which emerged from the analysis provide the research findings for establishing the response to the research questions.

The procedures established for the analysis of the qualitative data are sufficiently detailed to make the analysis transparent. The procedures present a systematic and ordered process for developing the data to formulate a response to the research questions. However, the framework represents an exploratory effort to describe the process generated through application of the strategy. The framework generated is considered tentative, with the intent to develop a categorization of the data descriptive of the process and formulate a response to the research questions. The framework is not proposed as a singular and only way to provide a description or inductive analysis of the data. On the contrary, the

procedures used for data analysis, and the corresponding results of that data analysis, present a useful way of organizing and describing the results of the research effort.

Procedures for Analysis of Quantitative Data

The primary objective of the quantitative analysis of was to summarize the participant computer assessments, and reassessments, of the organizational profile. The quantitative data was not the primary source of data supporting research findings. Instead, the quantitative data were simply used to show shifts in responses, or reassessments of organizational profile statements, and provide numerical summaries for the patterns of responses. Although, the numerical data potentially has further application, for the research project it was secondary, only supporting categories which emerged from the qualitative data analysis.

The quantitative data generated through the computer-based applications provided the capability for extended numerical analysis. For instance, the shifting of mean distance from the response patterns provides an opportunity for conducting a paired t-test to statistically determine if a *'significant'* shift in the mean response to the statement had occurred. While this was certainly recognized as an approach to potentially determine the impact of the strategy application, it was not the approach selected for developing the response to the research questions. On the contrary, the numerical shifts in means, from the initial to final assessments of the organizational profile statements, was simply taken as supportive of the qualitative research findings. For example, a review of Appendix 5 demonstrates

the shifting of means from the first to second computer exercise. However, these shifts are only indicative of modifications in individual assessments of the organizational profile statements. Alone they are not indicative of participant perspectives being influenced through the strategy application. The indication of perspective influence was generated through the qualitative data analysis of interview data. The quantitative data showing shifts in means only served to add support for the qualitative analysis by the recognition of numerical shifts in assessments of the organizational profile statements. Additionally, it is important to note that numerical data from the two computer-based exercises occurred prior to the group discussion sessions. Therefore, they were only indicative of shifts in response patterns at the individual level, without exposure to organizational inquiry through the group process.

The numerical data generated by the computer-based applications presented an opportunity for detailed numerical analysis. For example, detailed numerical analysis methods (t-test, cluster analysis) could have been performed for the computer-based data. However, the quantitative data role for the research effort was minimal, restricted to providing support to the qualitative analysis. The research design was not constructed for reliance on quantitative data to establish the response to research questions. However, the quantitative potential for the computer-based data was recognized. The summary statistics included in Appendix 5 provide several summary statistics capable of being generated from

the computer-based quantitative data. Figure 12 is a summary of the quantitative data analysis procedures used to develop the Appendix 5 data.

The first step in the quantitative data analysis was the collection of the quantitative data. This data was generated from the participant responses to the computer-based exercises conducted in Phases III and IV. All data was collected and maintained in computer databases for analysis.

The second step in the quantitative analysis was the preparation of the data for analysis. For the quantitative data this was simply representing participant responses as an x axis (CURRENT) value ranging from Strongly Disagree (1) to Strongly Agree (7). Data was subsequently put in a form to facilitate generation of statistics.

The third step in the Quantitative data analysis was calculation of the statistics for each group. These statistics included: (1) mean expressed value, (2) mean current value, (3) range of expressed value, (4) range of current value, and (5) mean distance from group pattern midpoint. The final step in the analysis of data was the generation representation of results, included as Appendix 5.

The summary statistics provided in Appendix 5 were not presented to participants during the research effort. This was intentional, in an effort not to direct summary information or external comparisons of the pattern of assessments for the organizational profile. Therefore, all data points for the representation (grid pattern) were generated by participants. The summary statistics are only presented to demonstrate a potential ability for further numerical analysis of the

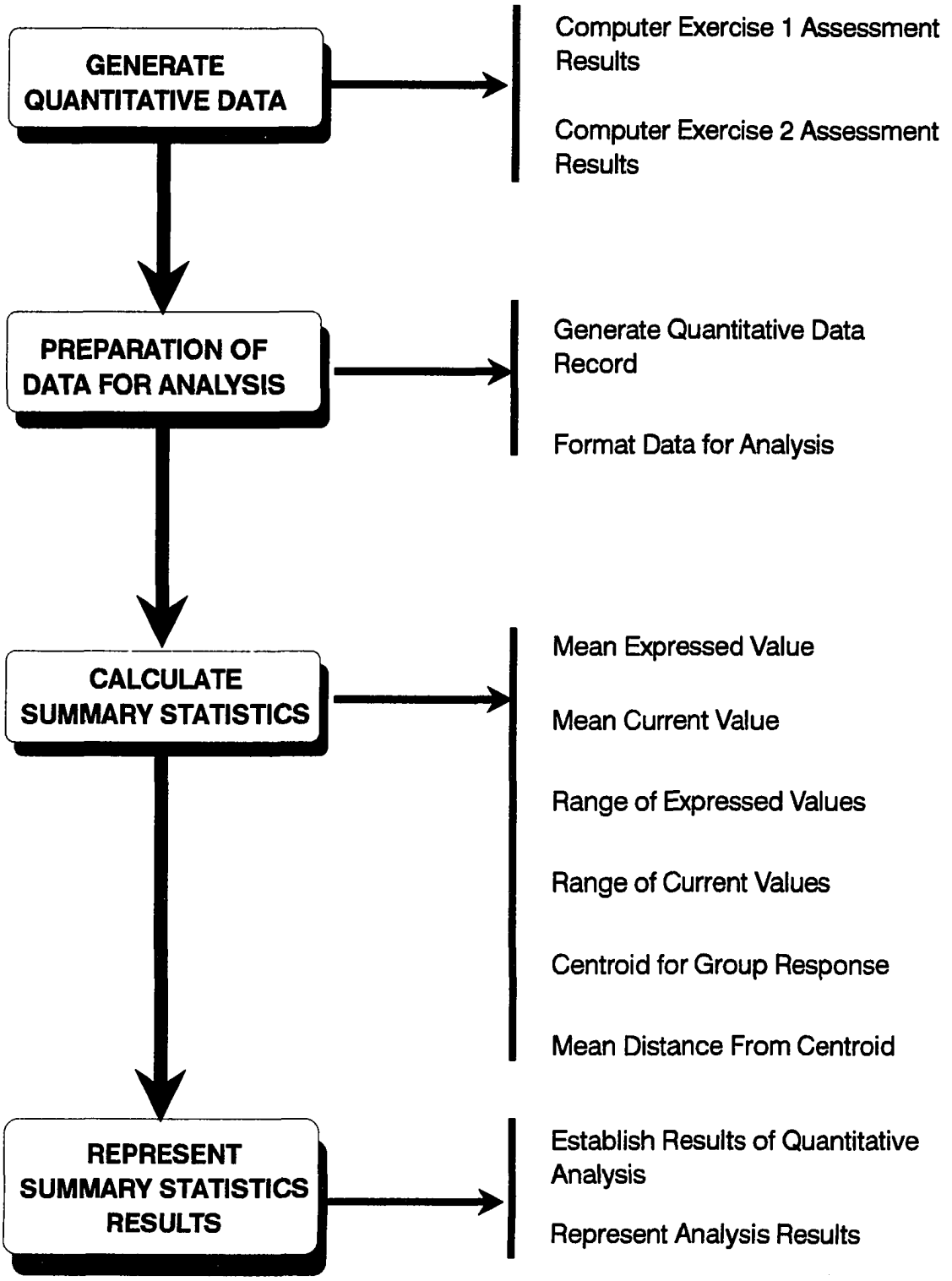

Figure 12. Quantitative data analysis procedures for the research.

data. However, the focus of the research effort was the process of inquiry generated through the strategy, not numerical analysis of data.

There are two apparent generalizations suggested from inspection of the numerical data generated during the computer-based exercises. Although the numerical data and generalizations about the numerical data are not the subject of the research, they are provided to recognize some potential applications for numerical analysis of computer-based data. The numerical analysis also indicates the potential for further development of the quantitative analysis component of the strategy. The generalizations are presented simply to recognize apparent consistencies in the data, without explanations or further development.

First, the responses were, for the most part, generally grouped in the upper right quadrant. For example, Group 1 only had three statements for which both the mean current and mean expressed values fell outside the upper right quadrant for the second computer-based exercise. Similarly, Group 2 also had only three statements where means fell outside the upper right quadrant. The upper right quadrant was indicative of a higher level of perceived agreement between the expressions (expressed axis) and actions (current axis) of the organization.

Second, assessments from the second computer-based application, generally resulted in a *'tightening'*, or increased proximity of the response patterns for both groups. In essence, there were fewer *'strong'* outliers from the group, resulting in a tighter pattern of responses. For instance, Group 1 had 96 statements out of 119 for which the pattern increased in the tightness (reduced

mean distance of response from the centroid) from the initial to final assessment. Likewise, Group 2 had 94 out of 117 statements for which the response pattern tightness, or proximity of responses, increased. In addition, the mean ranges, for both *expressed* and *current* assessments, showed either no movement, or a decrease from the initial to final assessments. Group 1 mean ranges for *expressed axis* responses decreased on 34 responses and remained the same for 85 responses. For the mean range of *current axis* responses, Group 1 mean ranges decreased on 21 and remained the same for the remaining 98 responses. Group 2 mean ranges demonstrated a similar decrease from the initial to final assessments. The Group 2 mean ranges for *expressed axis* responses decreased on 44 responses and remained the same for 73 responses. For the mean range of *current axis* responses, Group 2 mean ranges decreased on 57 and remained the same for the remaining 60 responses. In essence, the quantitative data for both groups showed an increase in proximity of assessments from the initial to the final assessment patterns.

In essence, the numerical data appeared to suggest that the assessments from the second computer-based application resulted in a closer grouping in patterns, fewer outliers from the group, and a more positive (agree) shift in assessment.

The quantitative data analysis was relatively straightforward and was not significant in the development of research findings. However, this data did provide

support for the qualitative data in the identification that a shift, of some degree, did occur in the reassessment phase of the strategy.

Reliability and Validity of Research Data

The research design and procedures for data collection incorporated several mechanisms to help assure reliability of data. Reliability was primarily addressed through: (1) establishing a detailed strategy and plan for data collection during the research project, (2) use of multiple methods and sources for data collection, (3) detailed data collection instrument design, consistent administration, and systematic recording of data, and (4) acknowledgement of assumptions and theoretical sensitivities of the researcher. A further explanation of these areas will address efforts to enhance reliability of the research design and data collection methods.

The foremost action taken to enhance reliability was the detailed strategy of the research design and the associated methods of data collection. The specific research design, including: specific activities to be accomplished during each research phase, the design of interviews, the computer-based exercises, and data collection points have been described in detail and made *'transparent'*. In this sense, the research strived to create a credible research design with the condition of auditibility as described by Sandelowski (1986):

> A study and its findings are auditable when another researcher can clearly follow the "decision trail" used by the investigator in the study. In addition, another researcher could arrive at the same or comparable but not contradictory conclusions given the researchers data, perspective, and situation. (Sandelowski 1986, 33)

Thus, the objective of the research design is not to create the illusion of replicability, or attempt to free the research from the context bound nature of the study. As Whitt points out, ". . . replicability (essential to establish reliability) is impossible, given the context-boundedness of qualitative studies" (Whitt, 1991, 413). On the contrary, the detailed articulation and description of the qualitative research design is necessary to enhance credibility of the research.

The concept of triangulation (Miller and Fredericks 1987) was used to enhance reliability of the research project data. Triangulation was achieved in data collection methods, multiple perspectives of the research process, and theory. Data collection included multiple individual interviews conducted throughout the research project, quantitative data generated during the computer-based exercises, individual comments recorded (by keyboard or audio recorder) during the computer-based exercises, group discussions, and a group interview. Each of these data sources served to *'triangulate'* the research by data collection source. Additionally, the research was *'triangulated'* by the design of data collection from individual and group interview sessions. During these sessions multiple perspectives of the research project were developed. These multiple perspectives of the research activities served to *'triangulate'* the research by introduction of multiple perspectives. Finally, *'triangulation'* by theory was accomplished by developing the research findings within the theoretical domain of organizational learning, particular Argyris and Schön's (1978) theory of action perspective.

Reliability of data was enhanced by collection methods for interviews and computer-based exercises. Specifically, the reliability of data was enhanced by: (1) audio recording of comments made during the computer-based exercises, individual interviews, group discussion sessions, and the group interviews, (2) administration of the same computer-based applications to all participants, (3) all interviews conducted by the same researcher using a structured open-ended format, (5) review of initial interview language with organizational representatives prior to administration, and (6) gaining participant feedback throughout the process in individual interview sessions. These efforts served to strengthen accurate recording of data and enhance data analysis.

The final mechanism to enhance reliability is the acknowledgement of researcher assumptions and theoretical sensitivity. This question of researcher objectivity is not confined to any particular form, qualitative or quantitative, of research. As Sandelowski (1986) suggests:

> No rules or protocol can change the fact that there is no way to study a thing without changing it. Any study and its findings are at least as much a reflection of the investigator as of the phenomenon studied (Sandelowski 1986, 34).

However, the importance of the question of objectivity is how this reflection is acknowledged and accounted for in the design, collection of data, interpretation, and reporting of research findings. The acknowledgement will always be incomplete, since all assumptions and biases simply cannot be expressed or fully known. However, reliability is enhanced by acceptance of assumptions and biases and establishment of the research design to address them. Therefore, the

research design forces constant reflection, by participants as well as researcher, throughout the research project.

The research design has incorporated several features to enhance validity of data and findings generated. First, there are multiple sources of data collection. The research design is reflexive with respect to participants constantly assessing the adequacy of data generated from the initial interview as representative of organizational perspective.

Summary

This chapter developed the research design within the methodological framework established in Chapter 3. The research design was based on trying to develop a four phased approach to generate OLP. These phases were: (1) development of alternative organizational perspectives, (2) individual assessment of alternative perspectives, (3) individual exploration of assessments, and (4) joint exploration of assessment results. To accomplish the research six research phases were established. These phases included: (1) Context Development, (2) Generation of an Organizational Profile, (3) Individual Assessment of the Organizational Profile, (4) Individual Exploration of Organizational Profile Assessments, (5) Joint Examination of Organizational Profile Assessments, and (6) Group Assessment of the Research. These research phases corresponded to the four phased approach to generate OLP. The research phases were necessary to fully account for the research design implemented to generate the process,

conduct analysis of that implementation, and develop implications from that analysis.

The research design for data collection and analysis procedures was developed in detail. This included procedures for qualitative and quantitative data analysis. The design addressed issues of reliability and validity.

The research design was presented as a "transparent" approach to accomplishment of the research. In effect, the accounting of the design provided a detailed description of the research effort, including design for the strategy, methods, and procedures to develop research findings.

CHAPTER 5

RESEARCH FINDINGS AT THE INDIVIDUAL LEVEL

In this chapter the salient individual level research findings are presented. The first question guiding the research focused on the strategy impact at the individual level. In essence, the ability of the strategy to facilitate OLP at the individual participant level. The first research question was: *Does the application of the strategy generate organizational learning process at the individual level?* To formulate a response to this research question, findings were developed from the qualitative analysis of research data. Data for the analysis was generated from interview data and computer exercises accomplished prior to the Phase V joint discussion session. Therefore, the findings are generated solely at the individual level of analysis, without exposure to organizational or group level processes. *Individual level* is representative of the application of the strategy prior to the group discussions.

There are two major points that serve to clarify the research perspective with respect to the distinctions being made by the term *individual level.* First, prior to the joint discussion sessions, each participant was viewed as an individual participant in the strategy application. This implied that the formation of perspectives, and the operation of the organizational process of inquiry, were

accomplished solely by individual participants through the confidential medium provided by the research design and the computer-based exercises. Although the participants were exposed to other characterizations of the organization through the organizational profile and subsequent profile assessments, the inquiry process was accomplished solely by the individual. The second point, the process of inquiry conducted by participants at the *individual level* became an organizational inquiry through the strategy design. The strategy design permitted individuals to be confidentially exposed to other organizational perspectives. This occurred without exposure to any group or organizational processes. The result was the opportunity to develop the process of organizational inquiry conducted solely by individuals. In essence, this perspective of the *individual level* permits investigation of the organizational learning process of inquiry to proceed in the absence of organizational exchange or process.

The objective of data analysis was to bring order and structure to the mass of data through a systematic and disciplined qualitative analysis of the data. Since the focus of analysis is centered on the individual level impact of the application, no distinction was made between participating groups. All data was generated at an individual level to support the subsequent individual level data analysis. The resulting findings provide a data driven interpretative understanding of the process generated by application of the computer-based strategy at the individual level. The analysis describes the results of the strategy application grounded in the data. The product of the analysis is the establishment of relevant categories and

supporting subcategories which emerged from the data. Both categories and subcategories are defined and described in terms of properties and dimensions which serve to add depth to the description. Finally, quotations from interviews are provided to illustrate subcategories.

The chapter is organized to present each category developed in terms of: (1) an overview of the category in terms of definition, properties, and associated dimensional ranges, (2) the supporting subcategories, with associated definitions, properties, and dimensional ranges, and (3) representative interview quotes from which the subcategories were inductively developed. The overview focused on an overarching discussion of the emergent individual level categories. Supporting subcategories are presented, defined, and discussed in specific terms. This includes a representation of the interview data used to generate categories, defining properties, and dimensional ranges for the data. Interview data is provided to illustrate the subcategories. The convention used through the dissertation for identification of pauses in conversations is to indicate a pause with four periods enclosed in parenthesis (....). This notation is used to ease readability of the material. Additionally, supporting quantitative data from the computer exercises is presented, where applicable, to support research findings. The findings are limited to presentation of categories, subcategories, and their associated properties and dimensions. Conclusions, theoretical implications, and organizational implications are reserved for interpretation of results. The thrust of

this chapter is to generate research findings necessary to respond to the first research question.

Overview of Individual Level Findings

Analysis of data at the individual level generated two major categories. Figure 13 depicts these categories in terms of their relevant properties and dimensions. The emergent categories include: (1) Individual Organizational Congruence Reflective, and (2) Individual Organizational Reflective. The thrust of these categories was the engagement of individuals in reflection about the organization. This reflection was accomplished at the individual level through the medium created by the computer-based strategy. The result of data analysis was a categorization of the application of the computer-based strategy at the individual level. The two categories which emerged from the individual level data are developed in detail below.

Category 1: Individual Organizational Congruence Reflective

Individual Organizational Congruence Reflective (IOCR) emerged from the data analysis as a major category. The essence of this category was the necessity of individuals to distinguish themselves from the larger organization. This suggested that there may not be congruence between the perspective the individual would present as organizationally appropriate versus the perspective representative of the individual perspective. I vividly recall two conversations with participants which made this clear. During these conversations, the individuals

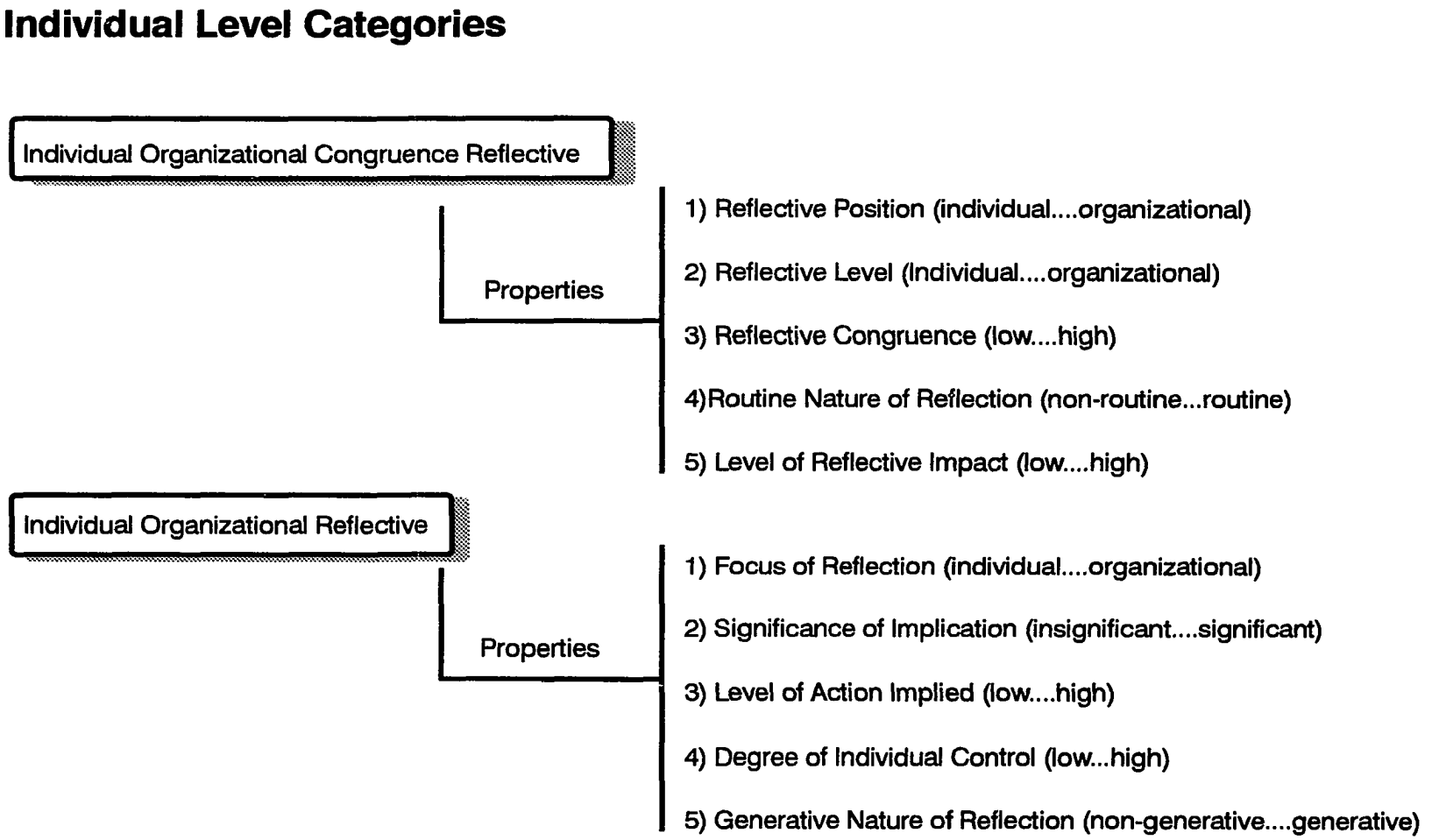

Figure 13. Individual level subcategories, associated properties, and dimensions.

suggested that they wanted to respond to an organizational profile statement differently than their response for the organizational perspective. Instead, they insisted their perspective was different than that which they perceived the organization to hold. The participants pointed out that the strategy did not permit this distinction, of individual perspective in contrast to the organizational perspective, to be expressed. In an earlier conversation during a familiarization tour, I was also reminded that the determination of congruence, by individuals in informal contexts, was a continuous process in the organization. During this particular visit an individual gave a detailed description of the characteristics of the organization that distinguished the organization as a place to work. Among these characteristics were: (1) an extremely fast pace, and (2) the giving of responsibility as quickly as it was willing to be accepted. The individual continued to describe that the organizational style was not for everybody. In fact, a close relative of the individual had interviewed at the organization and determined that the pace was too fast. The individual agreed, concluding that there would have been an inappropriate fit to the organization. These episodes served to reinforce the necessity of individuals to make distinctions with respect to their congruence to the organization. However, it is also important to note the difference between informal/tacit distinctions and formal/explicit distinctions being made by individual agents of the organization. The strategy developed an explicit representation of congruence in perspectives. through the strategy.

Figure 14 depicts the category in terms of defining subcategories, subcategory properties, and dimensions. The IOCR category describes an individual level impact from application of the computer-based strategy. IOCR was defined as: **The individual determination of position similarity generated from explicit examination of self with respect to the organization from the non-routine context created by the computer-based strategy.** The position of the individual was the perceived placement of the individual in relation to the organization. The position could be seen as a relation of congruence, or to some degree, incongruence with the organization. Explicit examination refers to the assessment of the organizational profile generated during Phase III of the research. The non-routine context refers to the recognition of the strategy as outside normal organizational practices.

Five properties were developed from the data as characteristics, or attributes, of the Individual Organizational Congruence Reflective category (IOCR). These included: (1) Reflective Position, (2) Reflective Level (3) Reflective Congruence, (4) Routine Nature of Reflection, and (5) Significance of Reflection (SOR). Reflective Position (RP) defines the particular location from which the reflection emanates, ranging dimensionally from individual through organization. Reflective level (RL) is indicative of the level within the organization which is the target of the reflection. RL ranges dimensionally from individual through organization. Reflective Congruence (RC) depicts the perceived agreement within the organization and ranges from low to high congruence. Additionally, Routine

Individual Organizational Congruence Reflective Category

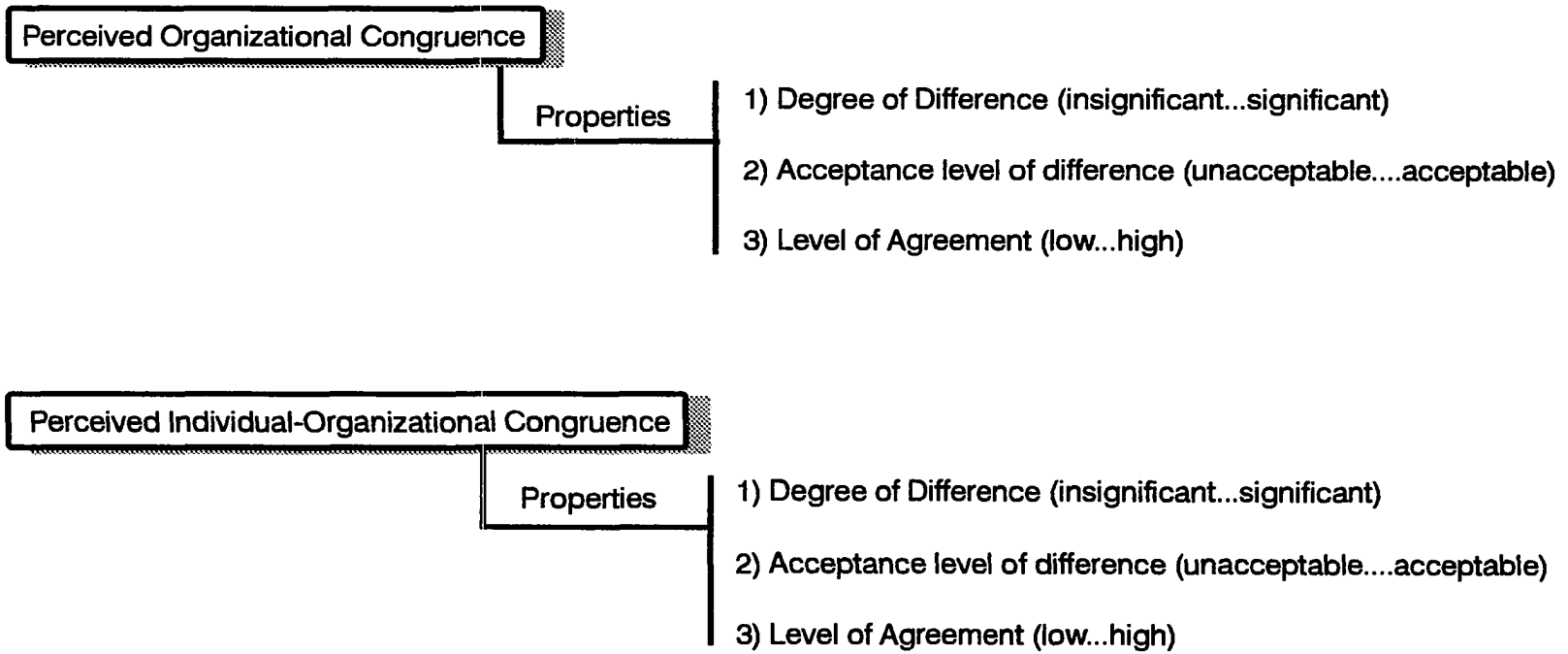

Figure 14. Individual Organizational Congruence Reflective subcategories, associated properties, and dimensions.

Nature of Reflection (RNR) is an indicator of the degree to which the reflective practice is a normal occurrence. This property ranges from non-routine to routine. The final IOCR property is Significance of Reflection (SOR). This property describes the degree of importance attributed to the reflection. It ranges dimensionally from insignificant to significant. Collectively, these properties defined the IOCR category.

In addition to the properties characteristic of IOCR, the category was further defined in terms of two supporting subcategories. These subcategories include: (1) Perceived Individual Organizational Congruence, and (2) Perceived Organizational Congruence. Each of these subcategories will be developed in detail, including properties and representative interview data used to generate the subcategories.

Subcategory : Perceived Organizational Congruence

Perceived Organizational Congruence (POC) is defined as: **the apparent organizational similarity recognized by individuals.** Congruence is apparent since it is a function of the individual perception of what constitutes an acceptable 'spread', or pattern, of responses to the organizational profile statements. The subcategory POC is characterized by three properties: (1) Degree of Difference (DOD), (2) Acceptance Level of the Difference (ALD), and (3) Level of Agreement (LOA). The Degree of Difference represents the extent to which response patterns imply a recognized difference in the assessments. The DOD ranges from insignificant to significant. The ALD is indicative of the individual's determination

as to whether or not the apparent difference falls within an acceptable range. Acceptance ranges from a level of unacceptable to acceptable. The final property, LOA, represents the individual's determination concerning the existence of the difference with respect to personal experience in the organization. This property ranges from disagree to agree.

The data demonstrated the strategy ability to generate individual determination of congruence concerning the response patterns to the organizational profile response statements. This determination emerged through the process of inquiry generated by the strategy at the individual level. Additionally, there emerged an underlying acceptance that a congruity in response patterns was a more comfortable pattern than a wide dispersion. It was noteworthy that there was no guide or discussion about what might constitute an acceptable 'spread' within the pattern of responses. This determination was left solely to the individual interpretation of the representation patterns.

> 217111 ...and I think organizationally it's also really good to know, that for the most part, the people who participated are thinking along (....) pretty cohesive thinking....
>
> 20222 ...the thing that sort of sticks out is that many times there was a lone outlier, you know, there was somebody in that group that was just totally adverse to what everybody else was saying....
>
> 21221 There were some fairly diverse responses, and there were some that I was surprised that we were as close on as we were....

Additionally, the data demonstrated a tendency to develop, or explain, distinctions which were being made in the patterns. Again, these explanations were formed in the absence of formal exposure to group or organizational processes.

> 21322 I don't know if there was one person, but there seemed to be someone who fell out of the scatter in the negative direction (....) I didn't spend a lot of time trying to figure out who that was, and in some cases I thought it was (....) either they misunderstood the question or it was so wrongly negative then there is probably a fair attitude problem....

> 21223 I think its just (....) how I explained it in my mind was, the differences in perspectives because of where we all sit in the organization...so I kind of wrote them all off as that....

The preceding examples demonstrate the subcategory POC which emerged from the data at the individual level. The examples illustrate the strategy generating an individual determination concerning the apparent congruity of the responses to the organizational profile. Additionally, the generation of individual inquiry as to the acceptability, as well as development of potential explanation for the apparent congruence in the patterns of responses was illustrated.

Subcategory : Perceived Individual Organizational Congruence

The second subcategory supporting the category Individual Organizational Reflective is Perceived Individual Organizational Congruence (PIOC). This subcategory is similar to Perceived Organizational Congruence. However, the focus of POC was the individual viewing congruence of the organization. In contrast, PIOC emerged from the individual viewing congruence in terms of the relation of the individual to the organization. PIOC is defined as: **the individual perception of similarity between the self and the organization.** The major thrust of

this category is the process of inquiry generated by the strategy which produced the recognition of distinction between the apparent perspective held by the organization as opposed to that held by the individual. Hence, the determination of the relation between individual and organization was forced through the inquiry process. Again, this inquiry was conducted at the individual level, without exposure to organizational level processes. Properties developed to characterize this subcategory include: (1) Degree of Difference, (2) Acceptance of Diversity, and (3) Level of Agreement. Degree of Difference (DOD) is an individual determination of the difference between the individual and the organization. The dimensional range spans from insignificant to significant. Acceptance of Diversity (AOD) is indicative of the individual acknowledgement that a divergence between the individual and the organization exist. This property ranges from differences which are acceptable to those which are unacceptable to the individual. Finally, Level of Agreement (LOA) represents the individual's determination concerning the accuracy of the difference to personal experience within the organization. The LOA may range from low to high. The following examples depict the strategy evoking an individual determination of congruence with the remainder of participants. This established a personal position with respect to other participant responses.

> 21712 I think I was somewhat surprised, that my answers, responses were close...since many times I'm not in meetings where decisions and plans are discussed....

> 20717 I think I noted just from a personal perspective that it appeared I was a little more consistent with the expressed and a little more judgmental and harsh in the current, from the group as a whole....

Additionally, there was a determination of acceptability of the differences of the individual in relation to the pattern of responses. This demonstrated the strategy ability to generate the inquiry process at the individual level with respect to the explicit representation of apparent differences in response patterns. Also, the individual inquiry resulted in determination of apparent congruence, and the acceptability of that congruence.

> 21717 I think it confirmed in my own mind that my perceptions are pretty accurate I guess. It confirmed that, I guess from where I sit, my knowledge base of the system is pretty strong, and I guess another impact it has is it forces you to sit back and think, a (....) why you select certain things, and in some of the areas, even though my response was perhaps the only one in that category, my response was because of where I sit and what I do. I think that has an impact....

> 20419 ...there's a couple of them in here I just would like to discuss that I marked discuss, in an open forum to see why we are thinking that way (....) and the majority is thinking that way (....) I mean I just (....) maybe if it was explained to me (....) you know in the open forum....

> 20417 I think some of my ideas are different than the others (....) I mean, where our direction is.

Finally, as the following data illustrates, there was a necessity to distinguish between a response which might be organizationally appropriate and not necessarily appropriate for the individual participant. The strategy did not permit individuals to respond differently than what they would offer as the organizational assessment of profile statements.

> 10718 ...there were some questions I wanted to say should be instead of is (....) this should be important to us (....) I'm not sure it is important to us...
>
> 10229 ...it's sort of like I was trying to answer for what other people thought, rather than exactly the way I thought that (....) the way I think about the health system versus the way the public or the internal...community thinks about the health system....I almost felt compelled to do that a couple of times (....) well I don't think it should be (....) but I had to answer for what the system thought and where I think it is versus where I think it should be....
>
> 11427 I tried to answer 'em based on what I thought the systems priorities were and a followup question for that might have been what do you see as the priorities (....) you might have gotten a variation....
>
> 10229 I got to wondering (....) I got to thinking that it was my perspective on other peoples perspective and I wonder if it wouldn't be (....) you know (....) almost wished that I could have been answering for myself....

The PIOC category identified the emergence of distinctions between the individuals and the organization. The examples illustrate the strategy capability for generating an individual level inquiry into distinctions between individual and organizational perspectives concerning the organization.

Category 2 : Individual Organizational Reflective

A major individual level category which developed from the data was Individual Organizational Reflective. The organizational profile served as a representation of the organization and the focus for generating organizational inquiry. During a familiarization tour I was reminded that the profile was only one form of representation to describe the organization. I recall a conversation with one individual who provided an interesting alternative representation of the organization. As we generally discussed the organization, the individual described

the organization in terms of a person. The organization was described as a 75 year old lady, attractive for her age, clean and neat, people are jealous of her, and she sometimes has uncombed hair because she gets in too much of a hurry. Certainly a representation of the organization with a potential to generate inquiry.

Figure 15 represents the Individual Organizational Reflective (IOR) category, defining properties, subcategories, and subcategory properties. The IOR category describes an individual level impact to application of the computer-based strategy. IOR was defined as: **the generation of individual level attributions or realizations from explicit examination of self with respect to the organization**. The thrust of this category is the individual discoveries and explicit organizational insight generated from application of the strategy at the individual level. The discoveries were individual level discoveries, generated outside group or organizational processes. Additionally, organizational interpretations, at the individual level, were made explicit through the strategy. In essence, the research served as a platform to launch these individual discoveries and explicit organizational interpretations. IOR is defined by several properties, including: (1) Focus of Reflection (FR), (2) Significance of Implication (SI), (3) Level of Action Implied (LAI), (4) Degree of Individual Control (DIC), and (5) Generative Nature of Reflection (GNR). FR identifies the target of the individual reflection. The dimensional range of the focus moves from individual through organization. SI depicts the importance attributed to the reflection and ranges dimensionally from insignificant to significant. LAI identifies the particular level where a response (action) is suggested by the

Individual Organizational Reflective Category

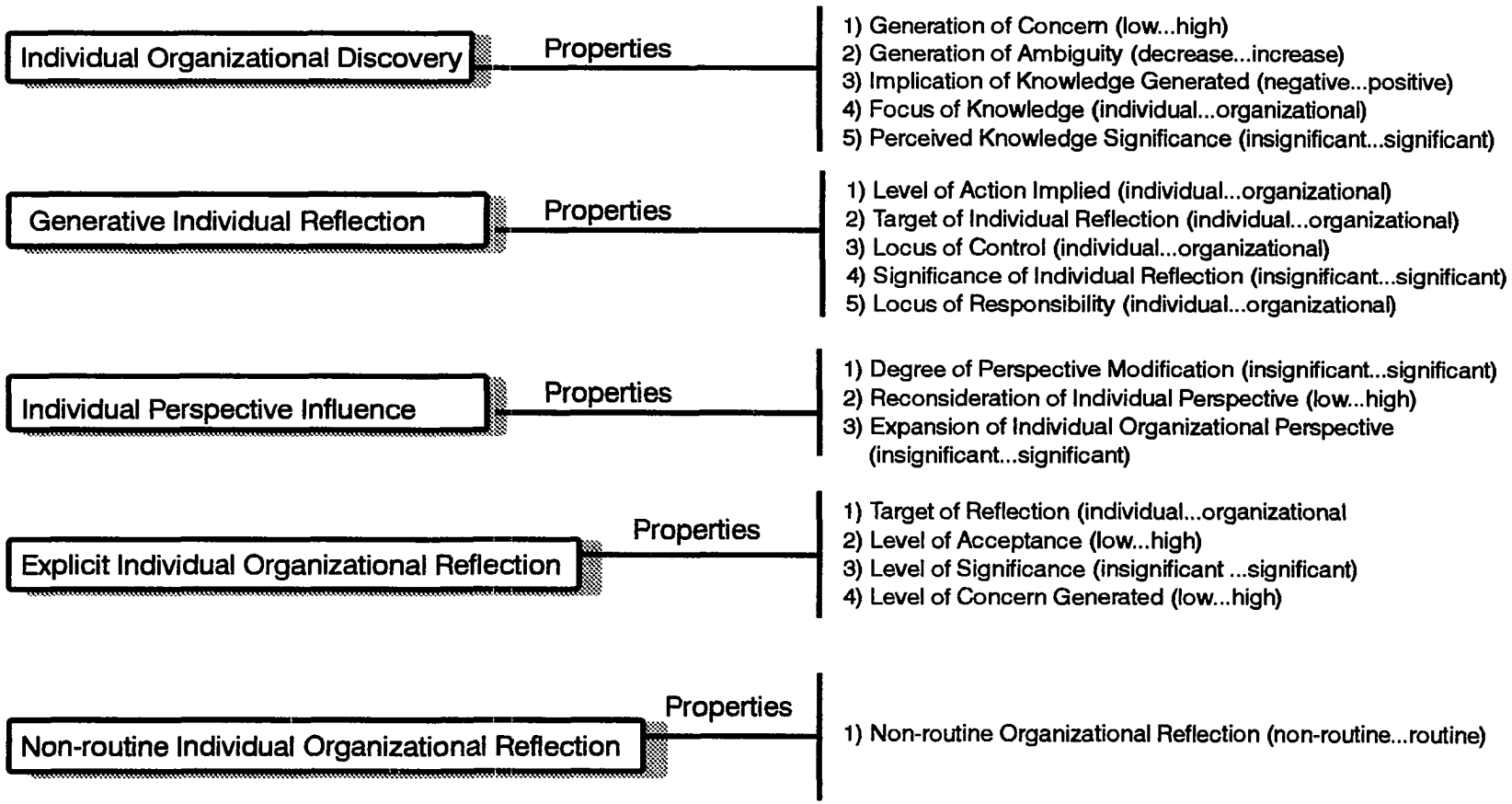

Figure 15. Individual Organizational Reflective subcategories, associated properties, and dimensions.

reflection. The range for LAI moves from individual through organization. The DIC property indicates the individual assessment of the level of control the individual has with respect to the reflection. This property ranges from a low to high level of control. Finally, GNR represents the degree to which the reflection is new organizational knowledge for the individual. New organizational knowledge is indicative of the emergence of knowledge which was previously implicit or recognized as emerging through the strategy application. The dimensional range for GNR varies from generative, or production of new knowledge, to non-generative, or the development of existing organizational knowledge.

There are four subcategories developed which supported the IOR category. The subcategories include: (1) Individual Organizational Discovery (IOD), (2) Generative Individual Reflection (GIR), (3) Individual Perspective Influence (IPI), and (4) Individual Explicit Organizational Reflection (IEOR). Each subcategory was developed in terms of properties and dimensional ranges for properties. Additionally, supporting examples from the data are provided to illustrate each subcategory.

Individual Organizational Discovery

Individual Organizational Discovery (IOD) is defined as: **the generation of individual knowledge about the organization.** Individual knowledge, in this case, is viewed as information which was generated as a result of individual reflection in the course of the application of the computer-based strategy. It is important that these generative discoveries did not necessarily result in action. IOD is defined

by five properties, including: (1) Generation of Concern (GOC), (2) Generation of Ambiguity (GOA), (3) Implication of Knowledge Generated (IKG), (4) Focus of Knowledge (FOK), and (5) Perceived Knowledge Significance (PKS).

The concept of the strategy generating individual discoveries about the organization was evident from the data. However, informal conversations with organization members also indicated the strategy's ability to generate inquiry capable of producing discovery at the individual level. In essence, these discoveries involved the participants, through the process of inquiry, finding out something about the organization previously tacit, or not recognized. I distinctly recall a conversation with one participant about the impact of inquiry generated by the strategy. After going through the initial interview, the participant confided that they had felt compelled to go back to organizational documents to *'see'* what the documents expressed as the organizational profile. The result was the discovery of several inconsistencies between what the participant had described and what the *'official'* documents stated. The implication for the individual was to examine the source of differences. The discovery was provoked through the application of the strategy and occurred outside the scope of the application.

The defining properties of IOD reflect the strategy's capability to generate organizational reflection and inquiry at the individual level. Generation of Concern (GOC) is indicative of the individual developing a concern provoked by individual reflection resulting from the computer-based strategy. GOC ranges dimensionally from low to high. GOA represents the level of perceived uncertainty introduced by

the discovery. The dimensional range of GOA moves from decreased to increased levels of ambiguity. The property IKG depicts the nature of the discovery with respect to potential consequences for the organization. The range for IKG varies from negative to positive. The FOK property represents the particular target of the individual discovery. The level ranges dimensionally from individual to organizational. Finally, PKS represents the perceived significance of the particular knowledge generated. This property ranges from insignificant to significant. The following representative examples illustrate the strategy ability to generate individual level inquiry. This inquiry resulted in explicit development of areas of individual discovery about the organization.

> 11226 I don't know if this goes here or not, but part of it pointed out to me even more than we had talked about before and even some discussions we have had over the last several years, the fact that there is really not a clear understanding even at the management level, about what the system is doing, I think (....) some of the basics we all have a good understanding of, but there is a fair amount of diversity depending on your perspective (....) as of what the stated system objectives are and our mission are and how we handle certain things.

> 112211 I think it pointed out to me sometimes some of the things that we actually do, and yeah they are important, we don't really talk enough about those...I'm not sure that we do as good a job of communicating some of those things.

> 20719 I think about all the things that were mentioned, however, I do believe there are some things that, as a result seeing them on here, it is now my impression we haven't given enough discussion and thought to, throughout the organization....

The IOD subcategory illustrates the generation of organizational discovery by individuals. These discoveries were initiated through the process of inquiry facilitated by the strategy and developed solely at the individual level, without

formal exposure to the group. Therefore, although the discoveries may be targeted at the organization, they emerged as a product of the strategy at the individual level. Additionally, the examples demonstrate the strategy ability to generate explicit realization of the organizational discoveries made at the individual level. These discoveries may have suggested, or implied action. However, the discoveries alone did not necessarily generate corresponding action at the individual or organizational levels.

Subcategory : Generative Individual Reflection

The second subcategory of the GIOR category is Generative Individual Reflection (GIR), defined as: **the development of new self knowledge.** The thrust of this subcategory is development of individual level self knowledge which was generated through the strategy. Data supporting development of this subcategory was indicative of the strategy ability to produce inquiry capable of generating individual self-knowledge. I recall a conversation with one participant that resulted in an expression of individual concern regarding the individual implications resulting from exposure to the organizational profile. In essence, the exposure to the organizational profile required assessments which assumed exposure to different of areas of the organization. However, this participant did not feel knowledgeable enough to adequately assess the different areas. This resulted in an uncomfortable situation for the individual. After further reflection, the individual concluded that the source of the discomfort stemmed from the feeling that they should have been knowledgeable enough to feel comfortable in making the

assessments. Therefore, the strategy application had resulted in self-reflective knowledge for the individual.

The Generative Individual Reflective subcategory is defined by the following properties: (1) Level of Action Implied (LAI), (2) Target of Individual Reflection (TIR), (3) Locus of Control (LOC), (4) Significance of Individual Reflection (SIR), and (5) Locus of Responsibility (LOR). LAI indicates the source for taking action implied by the individual reflection. This property ranges from individual to organizational levels. TIR represents the focal area for the reflection. The dimensional range moves from individual through organizational. LOC is the individual perception as to where, organizationally, the ability to impact what has been identified through the reflection. The range for this property is from individual to organization. The SIR property depicts the degree to which the realization is perceived to be important to the organization. The range for the SIR property varies from insignificant to significant. Finally, the LOR property represents the individual determination of responsibility for the reflection. In essence, where in the organization responsibility for addressing the reflection resides. This is similar to LOC, however, the organizational levels where control and responsibility are perceived to reside do not necessarily coincide. The dimensional range for LOR is from individual to organizational.

The following data examples illustrate the strategy ability to develop self-knowledge. In these cases the knowledge was directed at the individual, reflecting

on self as a result of the application. Again, this reflection occurred at the individual level, without formal exposure to group processes.

> 10321 ...I realized that I was somewhat uninformed in a lot of those areas. ...and as I answered that I felt that you know I really should know (....) I really should know what we are doing in this area....
>
> 213210 Probably, it emphasized to me a need, the need to be a better communicator to my staff, to my subordinates....
>
> 212214 Probably the biggest thing and something that I've always tried to do and I've been probably a little more aware of than I was, is as we are doing things...trying to look at the impact that has on other facilities, and how if I were on the receiving end I would want that decision made....
>
> 211210 I think on assessing my view of things, I had more of a negative outlook on things, and I think I need to address the source of my negativism...

In each of the preceding examples, the development of self-knowledge through the process of inquiry generated by the strategy was directed toward the individual generating the reflection. However, the development of knowledge at the individual was also focused at the organization. Although the knowledge was developed concerning the organization, again, the knowledge was generated at the individual level, in the absence of any group process. The following examples demonstrate this organizational focus by individuals.

> 203214 Some of my thoughts about what other people's perspectives were on these issues have changed...I knew we were not exactly a tight group in terms of our philosophies and thoughts (....) but we're more diverse than I had even thought.
>
> 207112 ....thinking about the questions that have been raised in relationship to where we are as an organization right now and where we want to be as an organization, so it definitely influences a (....) my work outside of this process itself....

> 214212 you think about, as you are trying to do your job, I've tried to stop and think back of what the broader direction (....) what some of the broader issues are that have been brought up by this, also you realize that, intuitively, there is not always a unanimous feeling in any one area....
>
> 212214 ...reinforced the feeling that we need to try to come up with a better way of communicating what our mission and values were....

In essence, the GIR subcategory illustrates the generation of individual self-knowledge within the organization. This self-knowledge generation was initiated by the strategy and developed solely at the individual level, without formal exposure to the group. Therefore, although the discoveries may be targeted at the organization, they emerged as an individual realization and a product of the individual interaction with the strategy.

Subcategory : Individual Perspective Influence

The third subcategory supporting the major category Individual Organizational Reflective is Individual Perspective Influence (IPI). This subcategory is defined as: **the modification in individual perspective of the organization.** I recall a conversation with one participant concerning the nature of the organizational profile content. The thrust of the conversation was that there were certain core principles, values, and missions that were constant and not subject to change. This sentiment was echoed through other similar conversations with participants. In fact, one participant described the profile as organizational 'motherhood', not controversial in the understanding of the organization. However, even on the most fundamental 'motherhood' attributes of the organization, there were differences in assessments of what those attributes were as well as how the

organization was acting in accordance with those attributes. I clearly recall one participant expressing surprise, and concern, about the apparent differences in the array of responses assessing the organizational profile.

Properties developed to characterize the Individual Perspective Influence subcategory included: (1) Degree of Perspective Modification, (2) Reconsideration of Individual Perspective, and (3) Expansion of Individual Organizational Perspective. Degree of Perspective Modification (DPM) is an indication of the extent to which the individual exposure to the other participant perspectives, at the individual level, produced a perceived modification to the individual perspective. The dimensional range spans from insignificant to significant. Reconsideration of Individual Perspective (RIP) is the degree to which the individual questioned, or re-evaluated their perspective, as a result of the explicit exposure to perspectives generated through the strategy. RPD ranges from low to high levels of reconsideration. Expansion of Individual Organizational Perspective (EIOP) is the degree to which the individual perspective was broadened through the exposure to other perspectives generated by the strategy. This property is different than DPM in that it suggests an addition to perspective and not necessarily a change to an already existing perspective. This property ranges from insignificant to significant in terms of impact.

The following examples illustrate the recognition of expansion of individual perspectives through the exposure to the larger aggregate of organizational

perspectives. The strategy allowed the individuals to experience a perspective, beyond their own, without exposure to group processes.

> 107112 I don't know that when you went thorough this initial interview question session with me that I paid as much attention to the measures, the indicators, as the perspective profile helped me think through (....) I think that expansion was good.

> 11422 I think some of the things I think distinguish us weren't always listed or weren't in the phraseology...just what people consider a distinguishing characteristic about the system, different from my own thoughts.

Additionally, the assessment of perspectives generated inquiry and reassessment about the apparent spread of responses. In particular, in cases where the individual viewed self as an 'outlier' from the rest of the group, the data suggests this stimulated an internal process of inquiry concerning the assessment pattern.

> 21124 ...I think in those areas where I was out of line, apparently, with the others, it forced me at that instant to reexamine and reassess...

> 20522 ...there were some way out there...and then there were some where I was way out (....) that surprised me (....) it made me question why my perspective was that way....

> 20327 Certainly caused me to rethink several of the perspectives (....) a (....) maybe in cases where maybe my answer was out of the norm (....) I looked closer on those issues, sometimes it did in fact change my answer as I rethought it....

The strategy also generated the capability to confidentially leave 'outlier' responses, without modification, or concern, about potentially uncomfortable exposure to the larger group. This was an important recognition by participants and supported the strategy ability to generate an atmosphere of confidentiality and candor.

> 21427 ...by seeing where other people were, then you think, well maybe I was too hard on myself or the organization when I answered that and so you moved it (....) sometimes you would think about moving but you would say no I really feel that that's how I'd still answer it....
>
> 21124 ...I didn't feel obliged to fall in with the mainstream, but it forced me to either to reconsider, yes that's my position and I'm sticking to it, or now why am I so far out, what was I thinking and I would reread the question, and kind of go through that reassessment.
>
> 21518 I mean there were a few questions where I disagreed, I mean I was clear off the picture a little bit on some things and I didn't change them either (....) one of us was interpreting it wrong and I don't think it was me.
>
> 21124 ...I didn't feel pulled to change answers simply because everyone else had, you know where I was clearly out of line, there are some areas where I stay out of line.
>
> 20527 ...there were some that I was an outlier that I thought I had answered it truthfully so I left it the way it was (....) and I put some comments in there on some of those where I thought I knew why I was an outlier...

The IPI subcategory demonstrates the influence of the strategy in generating a process of self inquiry with respect to the organization. This reflective inquiry is developed entirely at the individual level, without formal exposure to the group. Thus, the individual is permitted to recognize divergence and experience influence in self perspective of the organization without direct exposure to group or organizational processes.

Subcategory : Individual Explicit Organizational Reflection

The final subcategory emerging from the individual level data analysis was Individual Explicit Organizational Reflection (IEOR). The IEOR category is defined as: **exposure of individual level non-generative organizational knowledge.** Non-

generative indicates that the knowledge was not recognized as new to the individual, but is already held, or known, by the individual. The strategy simply acted as a vehicle to make that knowledge explicit. There is a similarity between this subcategory and the GIR subcategory. However, the chief difference is the nature of this category not generating new organizational knowledge for the individual. Four properties characterize the IEOR category. These properties are: (1) Target of Reflection (TOR), ranging from individual through organizational, (2) Level of Acceptance (LOA), ranging from low to high, (3) Level of Significance (LOS) varying from insignificant to significant, and (4) Level of Concern Generated (LCG), ranging from a low to high level. Figure 16 represents the IEOR category and supporting subcategories.

The IEOR category was generated from two supporting subcategories: (1) Confirmation of Individual Organizational Knowledge (CIOK), and (2) Individual Organizational Knowledge Development (IOKD).

IEOR Subcategory : Confirmation of Individual Organizational Knowledge

The CIOK subcategory is defined as: **individual reflection on the relation of the individual to the organization resulting in perceived verification of previously held understandings.** The properties of CIOK include: (1) Individual Expectation Fulfillment (IEF), (2) Acceptability of Organizational Knowledge (AOK), and (3) Significance of Organizational Knowledge (SOK). IEF represents the degree to which the individual reflection was previously understood by the individual and is simply being explicitly reflected within the context of the strategy application. The

Individual Explicit Organizational Reflection Subcategory

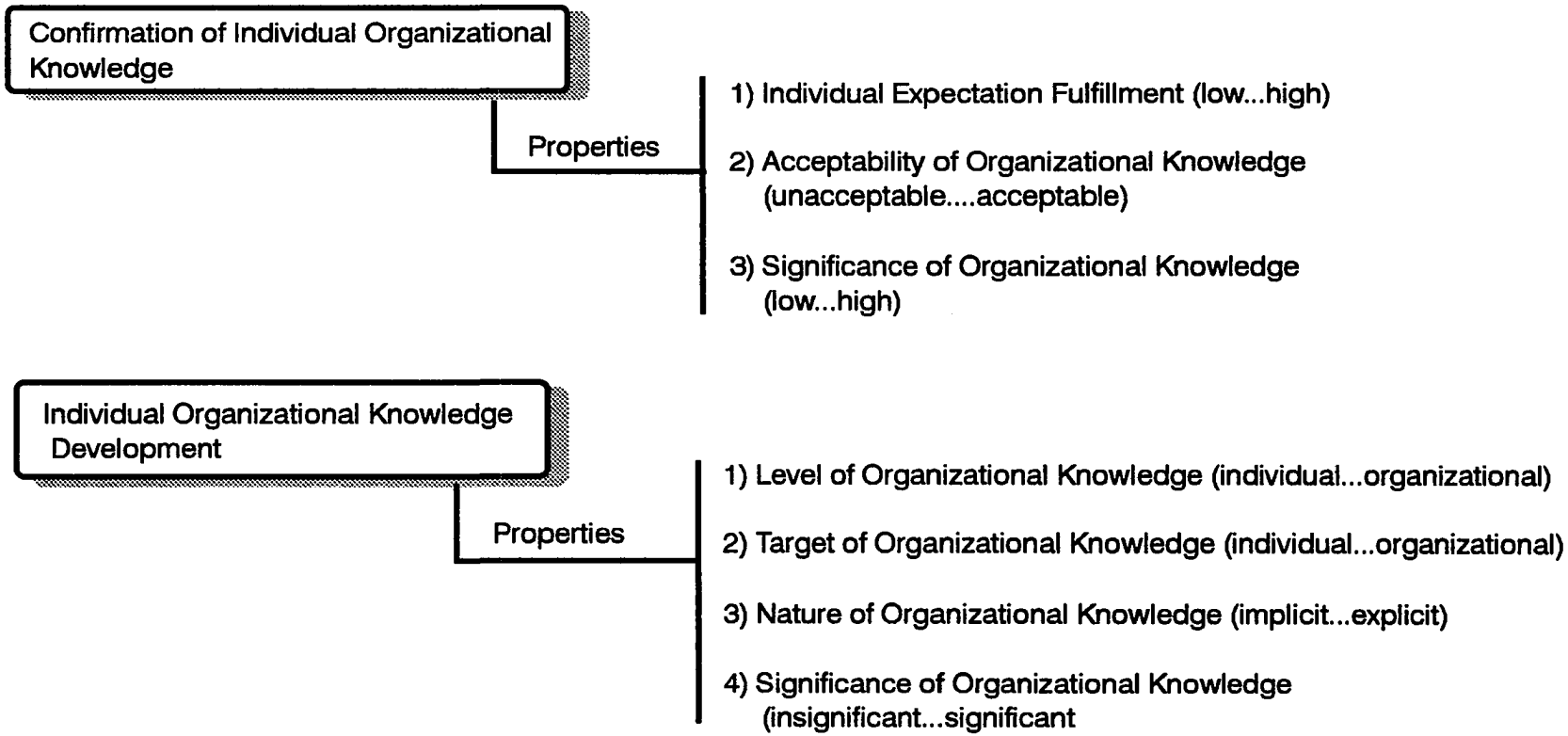

Figure 16. Individual Explicit Organizational Reflection associated subcategories, properties, and dimensions.

range of this property moves from a low to high level of fulfillment. The AOK property depicts the degree of individual acceptance of the reflected organizational knowledge. The level of acceptance ranges from unacceptable to acceptable. Finally, SOK is indicative of the particular significance the individual attaches to the knowledge. The dimensional range of significance moves from low to high. The CIOK category demonstrated the strategy ability to provide individuals with an affirmation that their knowledge of the organization was in acceptable proximity to the group. As the data indicates, the confirmation of proximity had a positive effect for the individuals.

> 21127 ...overall I had a feeling of a, I guess I felt very positive that there was diversity in the answers, but in those areas where I thought perhaps that we had some system problems, it was clear to me others perceived that the same way, so in that sense I felt validated in some of my thoughts....
>
> 208114....confirmed that my thoughts seemed to be on the same wavelength as the rest of the other managers....
>
> 217110 I think it makes me feel good that my knowledge of the system and the industry a (....) is good, and I think that was confirmed through this process. You know often times you think, you think you're on the right track, and you think your processing of information is correct, but I think something like this really confirms it in your mind, that you're not too off base, particularly on the important issues and areas....

The CIOK subcategory demonstrates the strategy capability to confirm implicitly assumed organizational knowledge at the individual level. Again, this confirmation was accomplished in exclusion of any organizational level processes. Therefore, individuals were permitted to confirm assumed, or implicitly held knowledge, through application of the strategy at the individual level.

IEOR Subcategory : Individual Organizational Knowledge Development

The second subcategory of IEOR is Individual Organizational Knowledge Development (IOKD). IOKD is defined as: **individual reflection about the organization serving to express individually held organizational knowledge.** This subcategory is defined by the following properties: (1) Level of Organizational Knowledge (LOK), (2) Target of Organizational Knowledge (TOK), (3) Nature of Organizational Knowledge (NOK), and (4) Significance of Organizational Knowledge (SOK). LOK represents the specific organization level, ranging from individual to organization, where the particular knowledge is held. TOK indicates the focus of the organizational knowledge, again ranging from individual to organizational. NOK is indicative of the explicit nature of the knowledge. In essence, was the knowledge in a communicable form, capable of being shared within the organization. This property ranges from implicit to explicit. Finally, SOK represents the degree to which the knowledge is perceived to be of importance to the organization. The dimensional range is from significant to insignificant. The strategy generated explicit organizational knowledge through the interview sessions. Although the design of the interviews was not interned to generate organizational knowledge, the following data illustrates the ability of the strategy to generate explicit organizational knowledge.

> 107113 ...we really don't measure...nor do we talk about that very much in our organization....
>
> 107114 I think our short term and long term time frames are inappropriately short, both of them.

> 11322 I would have to say in general that the communication...is poor (....) there's always the assumption that everybody already knows...well I'm here to tell you that everybody doesn't know that....
>
> 211211 ...I think that our senior management does a good job at...articulating the state of affairs today, but most of those short and long term priorities I'm not sure they are well communicated among the whole organization....

The IOKD subcategory illustrates the capability of the strategy to make explicit, or draw out implicitly held organizational knowledge. This knowledge exist at the individual level as implicit knowledge, not necessarily subject to organizational level exposure. It is important to recognize that this knowledge generation was not anticipated in the design of the strategy. Therefore, although the knowledge was made explicit during the interview sessions, there was no strategy design to array or project that knowledge for the larger group.

Subcategory: Non-Routine Individual Organizational Reflection

The organizational members were able to identify several different programs and activities that generated some form of organizational inquiry. For example, I recall several instances of individual participants identifying different organizational programs designed to develop objectives, annual budgets, and other similar type experiences. However, one particular conversation stood out as an indicator of the difference in the type of reflection the strategy was generating. During this conversation the individual recounted that deep discussions about mission and philosophy had once taken place. These discussions were markedly different in that the focus went beyond the day-to-day operational, or crisis issues. This

individual confided that there was a satisfaction that the strategy pointed out a necessity to return to that level of organizational discussion. This point was made by several participants recalling past practices of inquiry and recognizing the difference in the type of inquiry required by the strategy. In effect, this recognized the strategy as generating a context of inquiry lying outside normal organizational programs and practices.

The final subcategory under IOR is Non-Routine Individual Organizational Reflection (NIOR). This subcategory is defined as **individual engagement in unfamiliar contexts of organizational inquiry.** The subcategory has the property of Non-routine Organizational Reflection (NOR), ranging dimensionally from routine to non-routine. The following data demonstrate a recognition of the ability of the strategy to engage individuals in non-routine inquiry about the organization.

> 106213 ...on a day to day basis, at my level you tend to focus on issues at the facility...these are things I that just don't think about due to the issues here at this facility.
>
> 20119 I think anytime you go through an exercise like this it gives you an opportunity to sit and think about things that maybe you normally don't think enough about....
>
> 21429 ...as you go through it you stop and think about things on a day to day basis...you probably, at least I know I don't, stop and ponder....
>
> 20628 ...the overall goals and objectives of the system...I tend to take for granted because...I am so focused on what I am doing in...this just kind of causes you to sit back and think about them....

The Non-Routine Individual Organizational Reflection subcategory demonstrated the strategy capability to engage participants, at an individual level, in non-routine reflection about the organization. It is important to note that this inquiry, although

focused on the organization, was conducted at the individual level. Therefore, organizational inquiry was generated without exposure to organizational, or group process.

Summary

Individual level data analyses generated two major categories. These categories included: (1) Individual Organizational Congruence Reflective, and (2) Individual Organizational Reflective. These categories emerged from data analyses at the individual level. The major thrust of these categories was the strategy engaging participants in a process of inquiry about the organization. This inquiry generated reflection about the relation between the individuals and organization. Additionally, the strategy engaged participants in reflection about the organization. These categories, and their specifying subcategories, represent research findings necessary to respond to the first research question: *Does the application of the strategy generate organizational learning process at the individual level?*

The Individual Organizational Congruence Reflective category emerged as an individual determination concerning the perceived congruent nature of relations with respect to: (1) the individual and the organization, and (2) within the organization. The Individual Organizational Reflective category represented the strategy capability to engage the individual in organizational inquiry, without formal exposure to formal organizational level processes. In essence, organizational inquiry, based on the organizational profile assessment, was conducted through

the strategy. The primary characteristic of this inquiry was the accessibility of organizational level information, without engaging in organizational level processes.

The individual level research findings form the basis for responding to the question concerning the strategy capabilities of generating OLP at the individual level. The categories which emerged from the analysis of data provided an interpretative description of the results of the strategy application. In effect, the findings demonstrate the reflective capability of the strategy in directing the organizational inquiry at the individual level, in the absence of formal organizational processes. The framework generated by the categories and subcategories, in relation to the research question, is discussed in Chapter 8.

CHAPTER 6

RESEARCH FINDINGS AT THE ORGANIZATIONAL LEVEL

This purpose of this chapter is to present research findings for the application of the strategy at the organizational level. The product of the organizational level analysis is the establishment of relevant categories, and supporting subcategories, grounded in the data. The findings provide a data driven interpretative understanding of the organizational level process generated by application of the computer-based strategy. The focus of the second research question concerned the ability of the strategy to generate OLP at the organizational level. This shifts the level of analysis from the individual to the organization. Therefore, the data supporting the analysis was generated from: (1) the final process interview, focusing on individual attributions about the strategy application at the organizational level, and (2) the group interviews conducted subsequent to the Phase V group discussion. Since the strategy was employed separately with each group, where necessary, group distinctions in findings are presented.

Similar to the individual level analysis, this chapter is organized to present each category developed in terms of: (1) an overview of the category, (2) the supporting subcategories, and (3) interview data representative of the

subcategories. The overview describes the application results at the organizational level, focusing on an overarching discussion of the emergent categories. Supporting subcategories are presented, defined, and discussed in specific terms. This includes a representation of the interview data used to generate categories. In addition, particular attention is given to emergent distinctions between groups. Therefore, these findings serve as the basis to formulate the response to the second research question: *Does the application of the strategy generate OLP at the organizational level?* The findings support development of the response through the structured generation of categories descriptive of the process generated at the organizational level.

There are two major points that serve to clarify the research perspective with respect to the distinctions being made by the term *organizational level.* First, the *organizational level* recognizes the application as moving beyond the individual level. This implies that the assessment of perspectives, and the operation of the organizational process of inquiry, were accomplished through the group discussion sessions. The second point, there was exposure to group and organizational process which was absent from the process of organizational inquiry conducted at the individual level. The process of organizational inquiry was shifted from the confidential process of organizational inquiry created for participants through the strategy design and computer-based applications. The *organizational level* application required the organizational process of inquiry to be conducted in the presence of group and organizational processes.

The present analysis of data is limited to systematic development of research findings at the organizational level. These findings are represented through the detailed categorization of data. Conclusions, theoretical implications, and organizational implications are reserved for interpretation of results.

Overview of Organizational Level Findings

Analysis of data at the organizational level generated two major categories. Figure 17 depicts these categories in terms of their relevant properties and dimensions. The emergent categories include: (1) Generated Organizational Reflection, and (2) Emergent Learning Process Environment. These categories emerged as a result of the strategy application at the organizational level. Specifically, the point at which groups were brought together to discuss the results of the organizational profile assessments. In essence, this represented the first formal exposure to organizational level process. Although the organizational profile and assessments were reviewed by individual participants during computer applications, there was no exposure to formal group process.

Category 1 : Generated Organizational Reflection

In response to initial organizational profile questions participants were asked to focus on the system level to formulate responses and assessments. However, I recall how difficult this was for several individuals. In one instance, an individual described how it was extremely difficult to focus at the system level, to the point of being uncomfortable. The participant stated that it was much easier to focus at

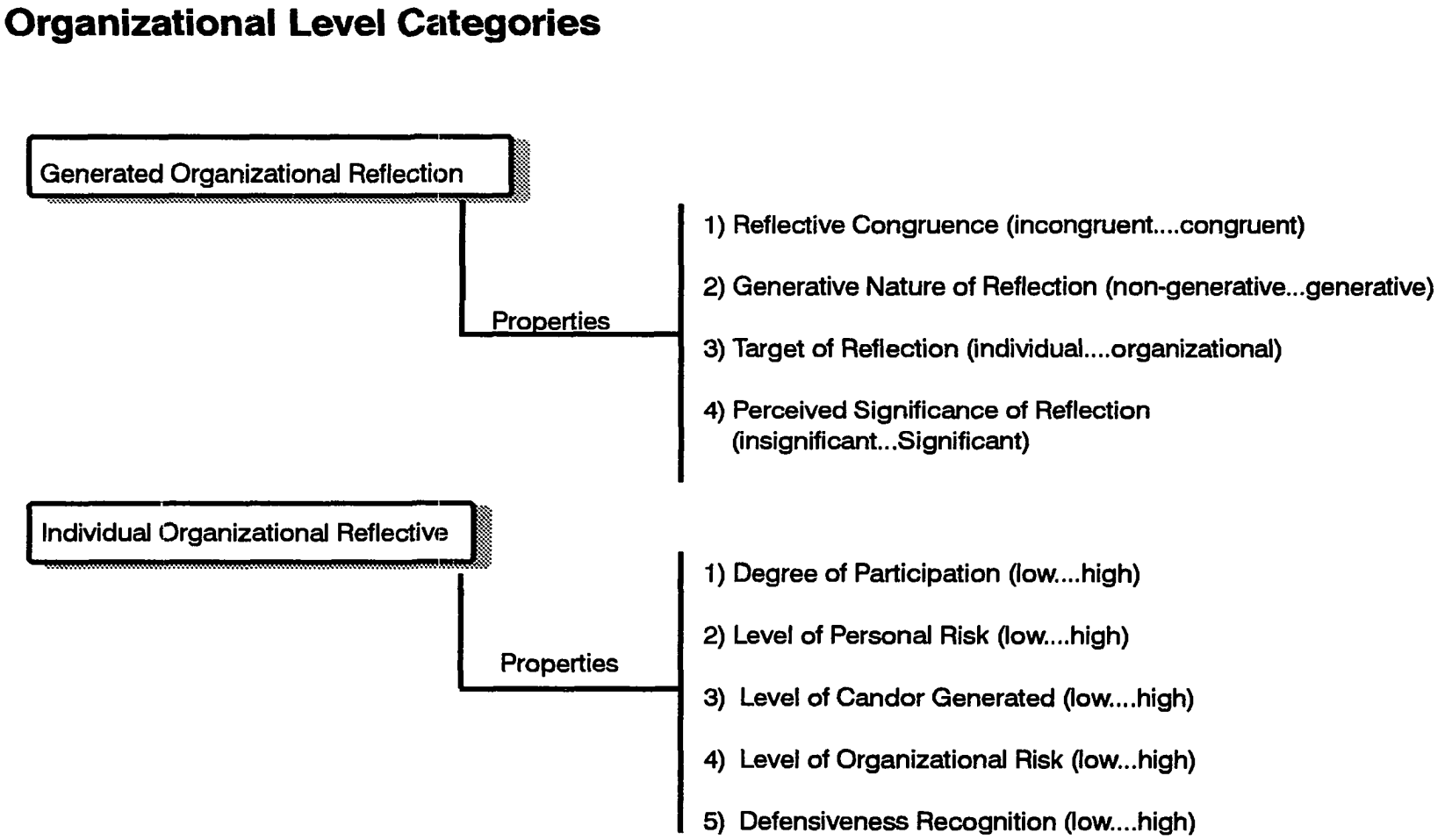

Figure 17. Organizational level categories and associated properties and dimensions.

the operational level, which was hierarchically subordinate to the system level. Also, this was the level for day to day focus of effort occurred for the individual. Therefore, the operational level represented more familiar *'organizational terrain'*. This strong operational focus was recognized by several other participants during the project. I found these participant reactions to be reassuring that the strategy was engaging individuals in unfamiliar contexts of organizational inquiry and reflection.

The category Generated Organizational Reflection (GOR) is defined as: **the emergence of organizational reflective practice.** GOR was defined in terms of four properties, including: (1) Reflective Congruence (RC), (2) Generative Nature of Reflection (GNR), (3) Target of Reflection (TOR), and (4) Perceived Significance of Reflection (PSR). These properties serve as the attributes to define GOR. RC refers to the degree to which the organization is seen as being in congruence with respect to the reflection. This property ranges from congruent to incongruent. GNR depicts the degree to which the reflection develops new organizational knowledge or perpetuates knowledge already accepted as present in the organization. Dimensionally, this property ranges from generative to non-generative. TOR depicts the specific focus of the reflection. The range for TOR moves from individual through organizational. The final property, PSR, is representative of the importance of the reflection and ranges from insignificant to significant. Collectively, the properties of GOR serve to define the characteristics

of the category. The category is further specified by the contributing subcategories from which the category emerged.

The Generated Organizational Reflection category is comprised of three subcategories: (1) Non-Generative Organizational Reflection (NOR), (2) Generative Organizational Reflective (GOR), and (3) Organizational Perspective Influence (OPI). Each subcategory will be defined and developed in terms of defining properties and dimensional ranges. Additionally, supporting quotations from the data will be provided to illustrate each subcategory. Figure 18 summarizes the GOR category and supporting subcategories.

Subcategory : Non-Generative Organizational Reflection

Non-Generative Organizational Reflection (NOR) represents the development of reflections which do not produce new organizational knowledge. NOR is defined as : **emergence of organizational level reflection which does not generate new organizational knowledge.** It is important to recognize that, although organizational knowledge may not be new, NOR has the impact of making knowledge explicit for purposes of assessment and inquiry. This knowledge may have been previously held by individuals. However, the strategy facilitated the explicit exposure of the knowledge at the organizational level. This point was made clear through the generation of organizational reaction to one particular question. For confidentially concerns the subject matter of the question is omitted. This question was generated, although in different forms, in the organizational profiles of both groups. I recall the surprise expressed, as well as the tension, the

Generated Organizational Reflection Category

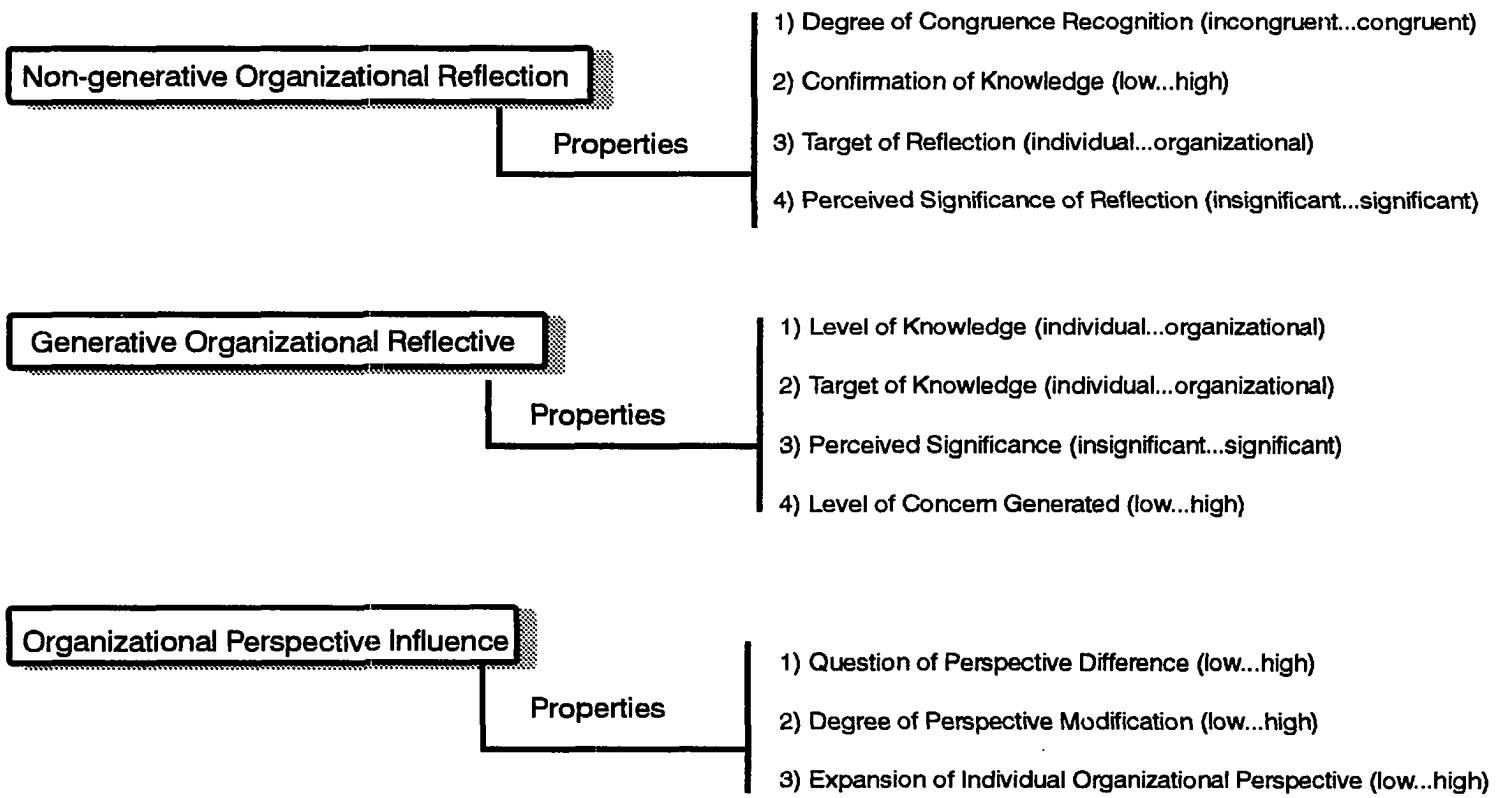

Figure 18. Generated Organizational Reflective subcategories, associated properties, and dimensions.

question seemed to evoke among participants. It seemed as though something which was a private thought about the organization had been made explicit. In one group the subject was approached and recognized as something which had been an *'undiscussable issue'* within the organization. However, the subject was addressed through the process, and what was previously a tacitly held issue by individuals was placed in a an explicit organizational forum for assessment. The impact of making the information explicit and the resulting discussions was not addressed by the research. However, one participant confided that, had it not been for the strategy, the information would have remained tacit within the organization.

The NOR subcategory is further defined by four properties, including: (1) Degree of Congruence Recognition (DCR), (2) Confirmation of Knowledge (CK), (3) Target of Reflection (TOR), and (4) Perceived Significance of Reflection (PSR). DCR represents the degree, ranging from incongruent to congruent, to which the organization is perceived as being in alignment. The CK property depicts the degree to which there is verification of previously held, implicitly or explicitly, knowledge within the organization. The dimensional range for CK moves from low to high. The TOR property depicts the particular level of focus for the reflection, ranging from individual through organizational. The final property, PSR, is representative of the importance of the reflection and ranges from insignificant to significant. As the following examples serve to illustrate, the knowledge held by

individuals was being drawn out, explicitly, through reflection and inquiry generated through the strategy.

> 317113 ...we're still evolving. That there seems to be some confusion of the role of the corporate office to the individual facilities, divisions, and I think that's true...and I don't see anything wrong with that, I think it's just one of the stages you go through as you're evolving.
>
> 312214 I think it reconfirmed some things in terms of there being a divergence of opinion on some of the key issues, and even what are the key issues....

In addition, the inquiry had an effect of clarification and confirmation of organizational knowledge. This occurred through making the knowledge explicit, beyond the individual level. This resulted in the reassurance of individuals that the knowledge was held beyond the individual level.

> 316110 Probably increased comfort that we were all on the same wavelength for the most part. And clarification of some of the issues.
>
> 313213 ...in fact I'm probably more comforted or reassured that being, you know, that I'm not the lone voice in the wilderness, I sometimes feel that I'm out of the loop. It became pretty clear that a lot of people shared the same concerns....

The NOR subcategory also emerged through one group interview. This was significant since, in effect, the group interview also became a medium to generate organizational reflection and inquiry. This occurred although the strategy was not designed with the group interview as a source for organizational inquiry. The following examples are representative of the emergence of the NOR subcategory during the group interview.

> G2Mult9 P122 - As a group it was nice to see...there are some consistencies in things we have difficulty with (....) and there's also some marked difference too, but there is some

> consistency in some things we have problems with, both individually and as a system...
>
> P112 - I think in a way it served as a unifying factor among the group, you know, we don't often see ourselves as being exactly in the same endeavor, and I think often times we don't necessarily see ourselves as even being on the same team, even though we're on the same side so to speak....

The NOR subcategory demonstrated the strategy capability to develop organizational reflection, although the reflection was not generative in nature. However, even though the reflection was non-generative, the strategy made the reflection explicit and subject to inquiry at the organizational level. The making of knowledge explicit created the opportunity for exposure of knowledge, previously held tacitly, to be explicitly confirmed in the group process.

Subcategory : Generative Organizational Reflective

The Generative Organizational Reflective subcategory emerged as a significant subcategory from application of the strategy. GOR is defined as: **emergence of organizational level reflection which generates new organizational knowledge.** I recall a specific discussion during a joint discussion session where the exchange and sharing of viewpoints identified an inconsistency in the organization. As the discussion developed the process of discovery which resulted from the joint inquiry moved beyond the initial point which provoked the discussion. This resulted in a new consensual understanding about the organization, and the inconsistency which the process of inquiry had revealed. I remember being fascinated that the movement of the inquiry had progressed rapidly and uncovered

a source of inconsistency not previously recognized by the participants. The source of inconsistency was not recognized, or explicit, prior to the engagement in the inquiry.

Essentially, the GOR subcategory describes knowledge developed through the strategy. This knowledge was not recognized prior to the application of the strategy. This subcategory is defined by four properties, including: (1) Level of Knowledge (LOK), (2) Target of Knowledge (TOK), (3) Perceived Significance (PS), and (4) Level of Concern Generated (LCG). LOK is the specific level within the organization at which the knowledge has been generated. The range for LOK varies from individual through organization. TOK depicts the particular level of the organization to which the knowledge is addressed. This property ranges dimensionally from individual to organizational. The PS property describes the level of importance accorded to the knowledge. The dimensional range for the PS property varies from insignificant to significant. The LCG property represents the degree of concern the particular knowledge creates. The range for LCG moves from a low to high level of concern. Together, these properties serve to define the GOR subcategory in terms of properties and their associated dimensions. The GOR subcategory demonstrated the impact of the strategy, at the organizational level, of generating reflection through the process of inquiry. One form of this reflection, as the following quotes demonstrate, was the individual realization about the organization as a result of the inquiry process at the organizational level. Although the knowledge was generated from the organizational level, in the

following instances the realizations were attributed to the organization by individuals. Therefore, this became new individual knowledge about the organization generated through the strategy application at the organizational level.

> 307110 I think that's what I learned from this, that the level of commitment to these things varies more than I would have guessed....
>
> 312210 That's part of the internal politics of the organization, just when you have it slap you in the face like that, you say yeah OK that's why we have that problem, and that was helpful because it gave you a better understanding of some of the individuals in there and why they have difficulty with some of the things we try to do with as a system....
>
> 307113 My conclusions are we're not as cohesive as I thought we were. We're cohesive in that we would come up with the same key elements....We're cohesive enough to know that's what we say as our perspective, so we share a common language. That common language means far different things to people than the language would lead you to believe. So I think I was naive about the commonness of the language. We may be saying the same words, but we are meaning different things when we say them, and our priority, even though we may strongly agree in the same area, priorities I think are very very different.
>
> 315112 We got down to talking about our philosophy and even some policies. And I think that's important, I'm not sure that we as a team right now have a solidified philosophy of what we're here for.
>
> 314214 I guess that there are differing viewpoints with regard to the organization. That the organization is not as focused as I thought it was.

These individual reflections about the organization, and group, were discovered as a result of the organizational level inquiry generated by the strategy. There was also a recognition of some specific knowledge generated from the participation in the joint sessions. This knowledge was recognized by individuals through reflection about the joint session results.

> 314214 I think we need to maybe take a longer view of what we're doing and make it more clearly defined in the organization what we're trying to

> accomplish. Recognize that there are different types of services and they have a different perspective on where the overall organization is going. I think from an organizational perspective we need to do, we need to become more decentralized.
>
> 312213 ...from a planning standpoint, that as a system...for the most part we are a month to month organization in terms of the way our operational planning is done.
>
> 31013 ...the one I recall being a definite point of, different point of view, had to do with...and I think that was worthwhile, it was good, it was obvious we had differing views on just how important a function it was.

The recognition of the strategy ability to produce generative reflection concerning the organization was also apparent in the group interview data. This was important since the recognition of generative capability was established in the group presence. Therefore, the group interview became an extension of the process of inquiry. The interview session permitted not only recognition of organizational knowledge having been generated through the strategy, but the session also became a medium for generation of additional organizational knowledge through the process of inquiry.

> G10718 The role of communication, that word probably gets overworked more than any (....) any word in our vocabulary as far as an excuse or reason for things not going well, and yet I think this process identified that perhaps we don't always communicate where we think we are....
>
> G21123 ...one of the things that this points out (....) to me (....) simply that we don't all have a common framework for (....) for gaging our own actions and how that contribute to the overall success and direction of the...System (....) I think that was pretty damn clear....
>
> G21125 It points out that we don't have unanimity on what short and long term planning constitutes.

These illustrative examples demonstrate the GOR subcategory which emerged at the organizational level. It is important that the recognition of this generative capability came from the participatory assessments during individual interviews as well as group interviews following the joint discussion sessions.

Subcategory : Organizational Perspective Influence

The modification of organizational perspective by individuals emerged during application of the project. However, it was also recognized that the complexities of organizations result in perspectives, and representations of those perspectives, which are in constant flux. I was reminded of this during a conversation with several participants concerning the response to one particular organizational profile statement. As the statement was reviewed, one participant commented that since the project started there had been several meetings, discussions, and organizational directives concerning the subject area. Also, you could be quite certain that all perspectives had been *'realigned'* so that all responses would be in the upper right hand corner of the graph (indicating strong agreement with action and expression in the organization). The other participants laughed and agreed with the comment, recognizing that there had been a directed emphasis placed on the subject area, removing any doubt about the organizational emphasis being placed on that area. This renewed emphasis was certainly not due to the application of the strategy. However, it did emphasize the tentative nature of the representation, as well as the assessments of that representation, in a dynamic organizational context.

The Organizational Perspective Influence (OPI) subcategory is defined as: **the modification of individual perspective of the organization through exposure to organizational level inquiry.** In this sense, through the organizational level exposure, the individually held perspectives of the organization are potentially modified. This is similar to perspective influence at the individual level of analysis. However, the level of analysis for OPI is at the organizational level. The modification is recognized by individual participants, but is a resultant product of the organizational level application of the strategy. There are three properties which define the subcategory. These properties include: (1) Question of Perspective Difference (QPD), (2) Degree of Perspective Modification (DPM), and (3) Expansion of Individual Organizational Perspective (EIOP). The QPD property depicts the degree to which differences in assessments of the organizational profile generate a reflective questioning of the difference. The dimensional range for QPD varies from a low to high degree. The DPM property is indicative of the level of change experienced in perspective as a result of the participation in the organizational level discussion. DPM ranges from low to high in terms of modification. EIOP represents the extension of perspective as a result of exposure to the organizational level application of the strategy. This differs from DPM in that EIOP represents an extension, or a new realization of perspective. On the contrary, DPM is focused primarily on the change to existing perspectives as a result of the application. EIOP ranges from minor to major extension of perspective. The following examples illustrate the OPI subcategory which

emerged from the data analysis of final individual interviews from both groups. The data demonstrated the potential of the process of inquiry to influence individual perspectives of the organization. However, the data also suggests that exposure and inquiry into multiple viewpoints and perspectives did not necessarily result in modification of individually held perspectives of the organization, group, or self.

> 314211 ...going through the joint discussion, and hearing different peoples viewpoint, it would cause you to maybe answer some questions differently, at least to give you a better understanding of where people were coming from.....
>
> 309212 Not that they don't routinely think about it or work with it, but I think they saw other sides of it and probably had a different reflection on it as a group. Most of us are individuals that kind of do our own thing and go our own way....But I think it was a (....) gave you the chance to see some other ways of looking at the same thing.
>
> 314210 I mean I think it was helpful, instead of just seeing the raw data on paper, you got why people, as best they could remember, why they thought that way. You got the information from people of where they were thinking, and maybe in their work how it drove their thoughts. You know the comparison of...just reading the same question has a different perspective on it.

The OPI subcategory emerged as representative of the strategy ability to influence the organizational perspective of participants through the application. The properties of OPI recognize a range for the degree of perspective influence resulting during the research project. This was indicative of the limited depth and duration of the application. Although the subcategory was identified through the individual interviews for both groups, it did not emerge during either group interview.

Category 2 : Emergent Learning Process Environment

The second category developed at the organizational level is Emergent Learning Process Environment (ELPE). This category is defined as: **the form of the learning environment generated through application of the strategy at the organizational level.** Figure 19 is a summary diagram of the category and associated subcategories. In essence, this category focuses on the operation of the strategy, and the corresponding environment developed, through the group level joint discussions and group interviews. The ELPE category is defined by five characteristics properties. These properties include: (1) Degree of Participation (DP), (2) Level of Personal Risk (LPR), (3) Level of Organizational Risk (LOR), (4) Level of Candor Generated (LCG), and (5) Defensiveness Recognition (DR). The DP property is focused on the level of involvement attributed to participants. This level ranges from low to high levels. It is important to point out that the determination of the degree of participation was generated as an assessment by the participants, not the researcher. LPR is a property which depicts the perceived personal risk of participation in the strategy application. The LPR property ranges dimensionally from low to high. Similar to LPR, the LOR property represents the perceived organizational risk of participation in the strategy. However, in the case of LOR, the associated risk is attributed to the organization and not the individual participants. The LOR property ranges dimensionally from low to high. LCG characterizes the particular level of directness attributed to participants in the organizational level discussions generated by the strategy. The LCG property

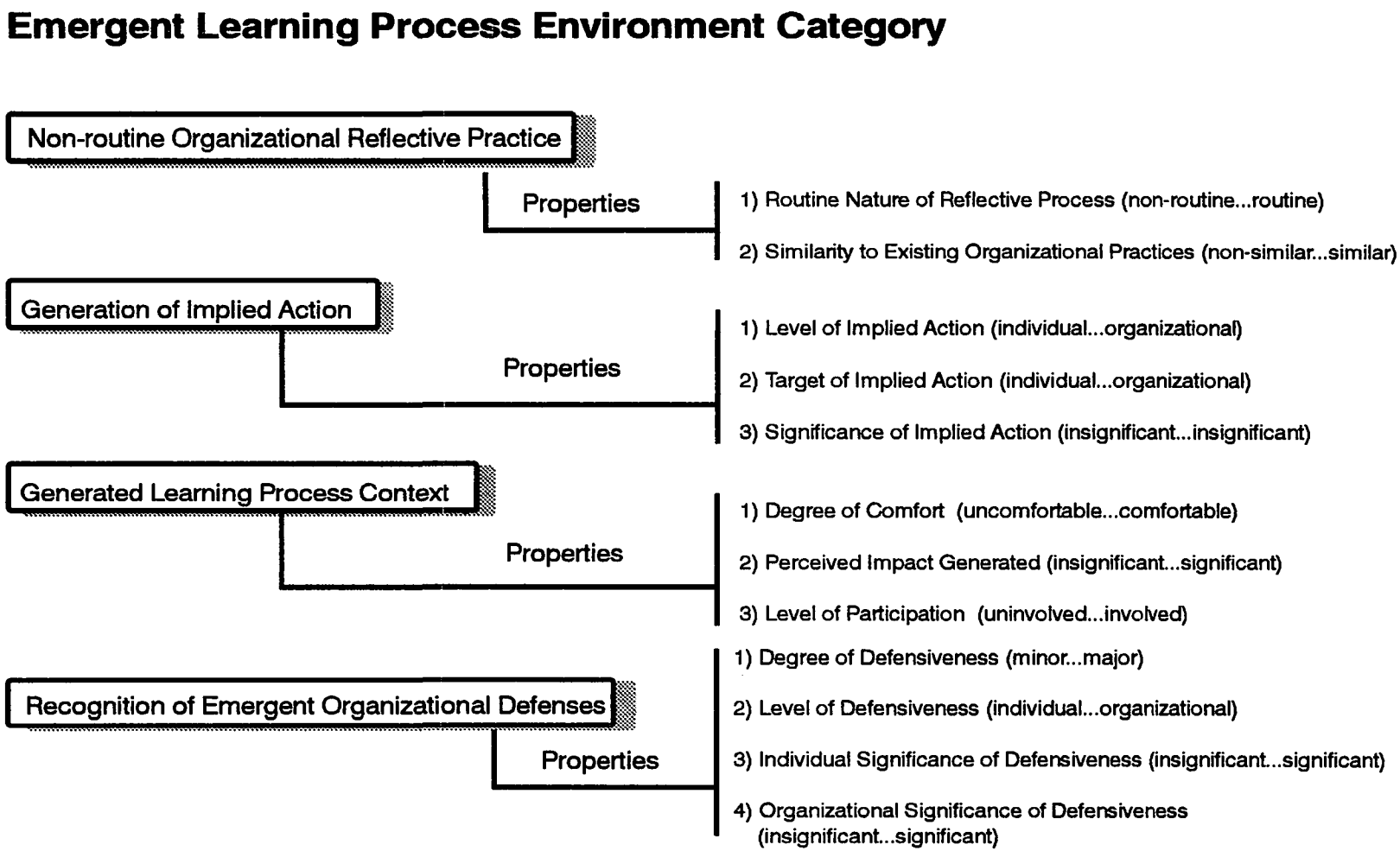

Figure 19. Emergent Learning Process Environment subcategories, associated properties, and dimensions.

ranges dimensionally from low to high levels of candor. DR represents the recognized existence of barriers affecting the development of discussion generated by the strategy application. The DR property ranges from low to high levels. The preceding properties, and corresponding dimensional ranges, serve to characterize the ELPE category in terms of relevant attributes. The category is further defined by four supporting subcategories. These subcategories include: (1) Non-Routine Organizational Reflective Practice, (2) Generation of Implied Action, (3) Generated Learning Process Context, and (4) Recognition of Emergent Organizational Defenses. Each subcategory is developed in terms of properties, dimensional ranges of properties, and examples of data supporting emergence of the subcategories.

Subcategory : Non-Routine Organizational Reflective Practice

The Non-Routine Organizational Reflective Practice (NORP) subcategory is defined as: **the degree to which the application of the strategy is recognized as engaging the organization in reflection beyond the scope of ordinary organizational practices.** I recall one particular reaction of a participant to the necessity of having to reflect about the organization, beyond their scope of responsibility and perceived influence. Although the initial questions were designed to be general and non-confrontational, this participant expressed a low degree of comfort in responding to the questions. The individual confided that thinking at that level of the organization was not routine for them and created an uncomfortable situation. I recall how this stood as a stark reminder of the degree to which individuals engage

in thinking which might be assumed to be routine (by the researcher), but in the participant experience might be completely out of the ordinary. However, I had several individuals confide that they frequently thought about the subject areas raised by the initial interview questions, although not in the particular format of the strategy. These participants were at ease with the questions. Therefore, participants engaging in the strategy developed different comfort levels with respect to the strategy. These comfort levels varied with respect to the subject matter for the representation as well as the instruments designed to develop the content for the representation.

The NORP subcategory is further defined by two supporting properties. These properties are: (1) Routine Nature of Reflective Process (RNRP) and, (2) Similarity to Existing Organizational Practices (SEOP). RNRP represents the degree to which the reflective practice generated by the process is representative of reflective practices in place prior to the engagement in the application of the strategy application. The dimensional range for RNRP varies from non-routine to routine. The SEOP property depicts the degree of association between existing organizational programs and the application of the strategy. In essence, the ability to create a perceived linkage between existing, or formally structured organizational programs, and the temporary practice generated by application of the strategy. SEOP ranges from similar to non-similar. The following examples demonstrate the emergence of the NORP category from the final individual interviews. As the following examples demonstrate, the strategy resulted in

generating reflective practice which was recognized as non-routine for the organization. The NORP subcategory was apparent in both groups.

> 315110 The impact was that we sat down for the first time in a long time and talked about goals, objectives, and the planning process rather than crisis issues.

> 301112 I think these are things we think about, they are things we talk about, but the sort of things that instead of devoting a two or three hour meeting to discuss these things it's the sort of thing that may come up at the end of a two or three hour meeting and never get fully discussed as we were able to do with this exercise.

> 312213 I don't remember who it was that said it, I think it would be safe to say, with the exception of some sideline conversations here and there, and especially with that level of depth and variety of perspectives, that never occurs at that level....

Additionally, the subject matter serving as the focus of the process of inquiry was recognized as falling outside routine organizational practice.

> 310112 I think this exercise got you into a lot of a (....) more, I don't want to say philosophical, but overall mission discussions that we don't normally do. There is a tendency in most organizations to jump beyond that, because we all know our mission, we all are in agreement on that, and I think this sort of really makes you focus on that.

> 314212 In fact I got that as one of the consensus (....) issues that made people think about things they don't normally think about, and in different ways than they might normally think about them.

The group interviews also supported the recognition of the non-routine nature of inquiry generated by the strategy.

> G10818 I think the value of going through the exercise is just a reminder ....of why we're here...I know just thinking about this, you know, you don't do that every day, you know, when you're fighting fires and other things.

> G11111 We talk about specific problems and so forth, I'm not sure that short of an exercise like this that we really take the time to look at the organization....
>
> G212213 But this diversity of individuals has never had any depth of discussion even close to what we have touched on....

The NORP subcategory was indicative of the strategy capability to generate non-routine reflection at the organizational level.

Subcategory : Generation of Implied Action

Generation of Implied Action (GIA) is defined as: **recognition of individual or organizational action suggested as a result of application of the strategy.** This subcategory established the strategy's ability to suggest, and make explicit, actions that are recognized as a result of the application. It is important that these implied actions do not necessarily result in action being taken by individuals or the organization. They simply identify opportunities for individual or organizational action. As the project progressed, I recall there was a constant struggle by participants as to what was going to be the outcome of the research effort. This also became a challenge for the researcher, to maintain the focus on the process aspect of the effort rather that the potential products generated. In essence, there was a constant question as to what products or actions would be generated by the research effort. In one conversation, a participant pointed out that the difference between the project being just *'something we had a good time with'* versus *'something of high impact for the organization'* would be in the action taken as a result of the effort. Similar sentiments were echoed by other participants

throughout the application. However, the focus of the strategy design was generation of process, not a predetermined conclusion, or format for *'accomplishment'* of action.

The GIA subcategory is defined by the following properties: (1) Level of Implied Action (LIA), (2) Target of Implied Action (TIA), and (3) Significance of Implied Action (SIA). LIA represents the particular level from which the action is implied as necessary. This identifies the source for taking possible action. The LIA property ranges from individual to organizational. The TIA property depicts the level to which the action is directed. TIA also ranges from individual to organizational. Although this subcategory emerged from both groups during final interviews, it was only evident in one group interview. There were a multitude of actions suggested through the individual interviews as well as group sessions. However, to observe the confidentiality of both individuals and the organization, specific actions are omitted. The following quotes illustrate the recognition that specific actions were suggested by the strategy.

> G212215 There were some things brought out that we obviously need to address (....) that we are having difficulty with and you can darn bet that the people that report to each of us have difficult with....
>
> 301114 Well it has certainly been interesting to...review their answers to these questions and their thoughts on our organization, and I think it has probably impressed me with the need to devote a little more time in this area.
>
> 311214 I believe the implications are that, if we do not do something periodically to identify and develop agreement, if not consensus, at least agreement on supporting goals, missions, and so forth, that...will have the possibility...of going off on a tack that they feel is well suited to organizational missions and find out it is completely without support....

There was also a recognition that the process should, in some form, be continued. This was a general action implied through application of the strategy.

> 30715 My overall impression is that it's a very positive thing to do. And I think the consensus is clearly expressed that we need to be doing that more, and that it's an easy thing to put off, because it's not day to day handling of issues and crises.
>
> 301113 I don't know other than the fact that the need to maybe spend more time discussing our organization and our management's thoughts on our organization....
>
> 307114 Well I think any time you are given an opportunity to gain insight, and we were, through this whole exercise...if you don't do anything with them, I think there's a real danger that if you stop that process....you would miss some opportunities to make it something really worthwhile.

The GIA subcategory emerged from the data as the strategy ability to engage the participants and organization in reflective practice identifying implied action. However, it is important to recognize that the implication of action, at the individual or organizational level, was only suggested by the strategy. There was no mechanism designed to make implied action either explicit or ensure accomplishment.

Subcategory : Generated Learning Process Context

The subcategory Generated Learning Process Context (GLPC) is defined as: **the recognized capability of the strategy to generate a supportive context for development of the organizational learning process**. The thrust of this subcategory is the strategy generating a context within which the organizational learning process of the group could be supported. I remember one participant suggesting

that the group session had produced discussion about topics that would not have been generated in an organizationally public forum. Furthermore, that there was a concern that the detailed discussion items would somehow be exposed beyond the immediate group and potentially generate negative consequences for participants. The participant recognized the strategy as a catalyst in providing a context within which those candid discussions could be generated. However, the strategy was also perceived, at the joint discussion level, as not affording total anonymity for individual positions or discussions.

The GLPC subcategory is defined by the following properties: (1) Degree of Comfort (DC), (2) Perceived Impact Generated (PIG), and (3) Level of Participation (LP). The DC property represents the degree to which the context of the organizational level application creates a non-threatening environment, both individually and organizationally. The dimensional range for the DC property varies from uncomfortable to comfortable. PIG represents the particular impact the organizational level application presents. This property ranges from insignificant to significant. The final property, LP, depicts the level of involvement, by participants, in the organizational level application. LP ranges from uninvolved to involved. This subcategory was supported by data from individual interviews of participants from both groups. The following examples illustrate the ability of the strategy to generate a context in which individuals developed insight into other participant perspectives:

> G10712 I learned some things in the group discussion that I was unaware of...in terms of other peoples perspective in this room (....) I

was a little bit surprised that we weren't more congruent in the way we perceived relative to our beliefs and the way we actualized it.

30522 From their perspectives, I was surprised to see so much consensus on where our issues are and what is important to discuss. Not consensus that everybody agrees, but everybody agreed it was important, so some things I thought people weren't concerned about, I was surprised to hear they were concerned about.

309214 ...it helped me with that group to get their feelings and understanding and to know that we are thinking the same....

In addition, there was a recognition that the joint sessions generated a context where conversations which might not have otherwise been generated could develop.

305214 Just an opportunity to share some insight with people that we don't normally do. Personally, I thought it was a good experience because I learned more about the people I work with. I learned how little I trust them probably, because I held back a lot of things that I would say and I was in an anonymous situation...I thought I would feel much more comfortable about it than I did.

302212 I think just one of the big things to come out was there was more willingness in that group session to be able to talk about things that are not a (....) that people are not willing to talk about...the nature of the material forced people to be able to say those things....I think the group dynamics even helped foster that....So I think because of the group, the people who were there, the questions that were being asked, the issues that were being discussed, and the people who weren't there all helped to have a good healthy conversation about things that ordinarily wouldn't be discussed.

G212214 If you took...us and set us down, other than through this process, would all seven of us have discussed that, no way....maybe off somewhere where we're not heard.

The following data illustrates the recognition by participants that the context was perceived to develop some level of candor from participants. However, there was

also recognition of the context not being free from perceived risk and reservation in the open discussion.

> 302210 ...the surprise that there was such (....) openness to discuss a lot of the issues....
>
> 30525 ...that was good because you got to see, well people still do have barriers up. It broke down a lot of them by having this process and being in a room, closed door, nobody repeat anything kind of room. That broke down some barriers, but learning that people still had not completely unveiled themselves was good to know....
>
> 31421 I'm not sure that everybody was as open as, I think some people were very open, I think some people kind of held back a little bit. I think some people just didn't say anything at all.
>
> 31126 I think the reluctance to speak out resurfaced. And for whatever reason people seemed initially reluctant to try to interpret what had happened during the exploration of the different perspectives. Even to the point that we joked in the group about who wasn't speaking.

The GLPC subcategory developed as a characterization of the learning process environment generated by the strategy application. This subcategory emerged solely from the final process interviews with individuals. The group interviews did not generate data supportive of this subcategory.

Recognition of Emergent Organizational Defenses

The final subcategory under GOR is Recognition of Emergent Organizational Defenses (REOD). REOD is defined as: **the recognition of the existence of organizational barriers impacting the process of inquiry.** I recall one exchange with participants which demonstrated the power of organizational defenses to quickly permeate the learning process. In this instance the group session had been completed an a discussion began about the sharing of

quantitative data beyond the group. The exchanges quickly rose to an almost outright reservation about the data exposure to any part of the organization beyond the group participants. The reservations were unchecked and quickly escalated to a level of mistrust concerning legitimate use of the data. However, in subsequent individual discussions with each participant concerning reservations about data, each participant individually confided they had no reservations about the data. In fact, several commented that they failed to understand the adamant positions taken during the exchange which took place following the group discussion. In essence, the defensive posture assumed in the group discussion appeared to *'feed'* itself, ultimately denying any accessibility to anonymous data. However, in individual level discussion, reservations were not escalated and the same barriers which were developed in the group process were not experienced at the individual level. This was interesting since the discussion following the group discussion had appeared to develop an immovable position.

The ROD subcategory was characterized by four properties, including: (1) Degree of Defensiveness (DD), (2) Level of Defensiveness (LD), (3) Individual Significance of Defensiveness (ISD), and (4) Organizational Significance of Defensiveness (OSD). The Degree of Defensiveness indicates the extent to which the defensiveness was recognizable by participants and ranges from minor to major. LD represents the particular level, ranging from individual to organizational, to which the defensiveness is attributed. The importance of the defensive behavior is identified in terms of significance at both the individual (ISD) and organizational

(OSD) levels. The range for significance ranges dimensionally from insignificant to significant for both properties. The ROD subcategory emerged from both groups through final individual interviews. The subcategory was only supported by one group from group interview data. The following quotes from the interview data demonstrate the recognition of the reservations in the group sessions. Similar to the level of candor recognized in the Generated Learning Process Context subcategory, the organizational inquiry was recognized as generating a reluctance of individual exposure.

> 30925 ... it was kind of slow at first, everybody was a little, kind of hold back. Some things you can say and some you can't, it just gets down to that. So I think you probably got 75/25 of the truth, didn't get a hundred percent, it's just not going to happen.
>
> 30328 This speaks more for the people in the group than the process, some people are a little more reserved than others. And I don't know if that was from caution, or confidentiality concerns or whatever.
>
> 31122 I think I was a little bit surprised in the joint session of the initial timidity of the participants to say anything....But I think the group interaction was, did seem to be somewhat intimidated by the process, potentially divulging deeply held personally held secrets or thoughts, or not wanting to expose to possible retaliation from anybody, thoughts they had that were outside of group norms, even though there are no norms per say, or the apparent norms I should say....I think they lightened up, not everybody....

Additionally, there were suggestions as to the potential sources for organizational defenses.

> 31225 I don't think within that group there was the same level of trust that existed with you as the researcher, with some of the members of the group. Like I said at the joint meeting, anything that was said most people were aware would probably be repeated somewhere by one of the people in there. So I think there were some things that were postured as a result of that, and there were others of us that said what

we thought, because that's what we usually do, and run the risk associated with it.

307113 It's also my perception that the reason there was some reluctance is because there's a sense, among some participants at least, that (....) there's a fear of exposure, and that if everybody shares it then somehow I lose my edge....

Finally, in one group session there was a discussion about the recognition of the organizational defenses. Although this discussion recognized the impact of the defenses on discussion, it did not make attributions about the apparent form or cause of the defenses.

G2Mult8 P112 I was I think a little surprised by how the appearance existed of some level of everybody who walked in and started to talk (....)

Researcher - Discomfort?

P112 - Yeah, like I'm not sure I want to talk about it.

P? - Wasn't a problem for me.

P112 - I don't think I'm wrong, I just

P32 - (interrupting) No, I think your right, but I think

P122 - (interrupting) I did find myself, after I walked out of the thing wondering if I should have said some of the things I said.

G2Mult8 Researcher - Was the session (....) less than candid?

P112 - I didn't hear anything I thought was an outright lie (....) but I guess you probably got about 60% of what we thought.

P92 - It was candid, but it just wasn't

P32 - (interrupting) Reserved.

P112 - That's why they had to say the whole truth (laughter)

P22 - I wasn't there I can't talk about it.

P92 - Well too, not only being reserved, but a (....) you are wondering what your peers are thinking too (....) whether your comments are appropriate or not.

The REOD subcategory was recognized as present in the group level process for both groups. This subcategory demonstrated that a characteristic of the generated learning environment was also the capability to generate organizational defenses. The presence of defenses was acknowledged in individual interviews with participants from both groups.

Summary

Organizational level data analysis generated two major categories. These categories included: (1) Generated Organizational Reflection, and (2) Emergent Learning Process Environment. The major thrust of these categories was the strategy engaging participants in an organizational level process of inquiry and the context which emerged in support of that process. This organizational level process of inquiry generated reflection about the organization. Additionally, the inquiry developed generative, or new knowledge, and non-generative, or knowledged which was present but not necessarily in an explicit form. These categories, and their specifying subcategories, represent research findings necessary to respond to the second research question: *Does the application of the strategy generate organizational learning process at the organizational level?*

The Generated Organizational Reflection category developed as the emergence of organizational reflective practice through the application of the

strategy. The impact was generation of knowledge, either new knowledge or knowledge made explicit through the strategy application. The reflective practice generated by the strategy did not necessarily make the knowledge explicit and available for assessment. The strategy design did not incorporate a mechanism to make knowledge generated in individual interview sessions accessible to the remainder of the group. However, knowledge generated as a result to the group sessions and group interviews was accessible to the entire group. Therefore, the opportunity for influence of organizational perspectives was generated. The Individual Organizational Reflective category represented the strategy capability to engage the organization in a process of inquiry. This inquiry was conducted at the organizational level, and therefore subject to formal organizational level processes. The primary characteristic of this inquiry was the accessibility of organizational level information, subject to organizational level processes.

The Emergent Learning Process Environment category represents the form of the learning environment which emerged through application of the strategy. This category was indicative of the strategy ability to create a context capable of supporting OLP at the organizational level. The environment was characterized as: (1) generating non-routine organizational reflective practice, (2) identifying potential action as a result of the reflective inquiry, and (3) recognizing the emergence of organizational defenses with the potential to create barriers to organizational inquiry.

The organizational level research findings form the basis for responding to the research question concerning the strategy capabilities of generating OLP at the organizational level. The categories which emerged from the analysis of data provided an interpretative description of the results of the strategy application. In effect, the findings demonstrate the reflective capability of the strategy in directing the process of inquiry at the organizational level. The implications for the framework generated by the categories and subcategories, in relation to the research question, is discussed in Chapter 8.

CHAPTER 7

RESEARCH FINDINGS AT THE STRATEGY LEVEL

The purpose of this chapter is to present research findings for the application of the strategy at the strategy level. The third research question investigated was: *Does the participatory approach generate reframing of the strategy as a result of the application*? The focus of the this research question concerned the ability of the strategy, through the participatory approach, to provide the capability for reframing. *Strategy* is the term used to include the research design, instruments, and procedures used during the effort. This shifts the level of data analysis beyond the individual and organizational levels. Thus, the strategy is turned back on itself, generating the data for the strategy level analysis through the participants. The data supporting the analysis was generated from: (1) the individual interviews conducted throughout the application, focusing on individual participant's responses to questions concerning the application of the strategy, and (2) the group interviews, developing responses and discussion about the strategy in the group environment. The findings developed from the strategy level analysis serve as the basis to formulate the response to the third research question. The findings support this response through the structured development

of categories. Since the strategy was the focus of this level of analysis, distinctions between groups were not made.

Similar to previous chapters for individual and organizational levels of analysis, this chapter is organized to present each category developed in terms of: (1) an overview of the category, (2) the supporting subcategories, and (3) presentation of illustrative quotes from the data. The overview will describe the emergent categories based on data analysis at the strategy level. Supporting subcategories are then presented, defined, and developed in terms of properties and dimensions. Finally, direct quotations from interviews are provided as examples of the supporting data from which the categories were developed.

The present analysis of data is limited to systematic development of research findings at the strategy level. Conclusions, theoretical implications, and organizational implications for findings are presented in the following chapter. The thrust of this chapter is simply to generate research findings to form the response to the strategy level research question.

Overview of Strategy Level Findings

Analysis of data at the strategy level generated three major categories. Figure 20 depicts these categories in terms of their relevant subcategories, properties, and dimensions. The emergent categories include: (1) Local Strategy Application Outcome Reflective, (2) Organizational Profile Reflective, and (3) Generative Strategy Reflective. The strategy design incorporated the potential ability to cause the strategy to become self-reflective. This self-reflective process

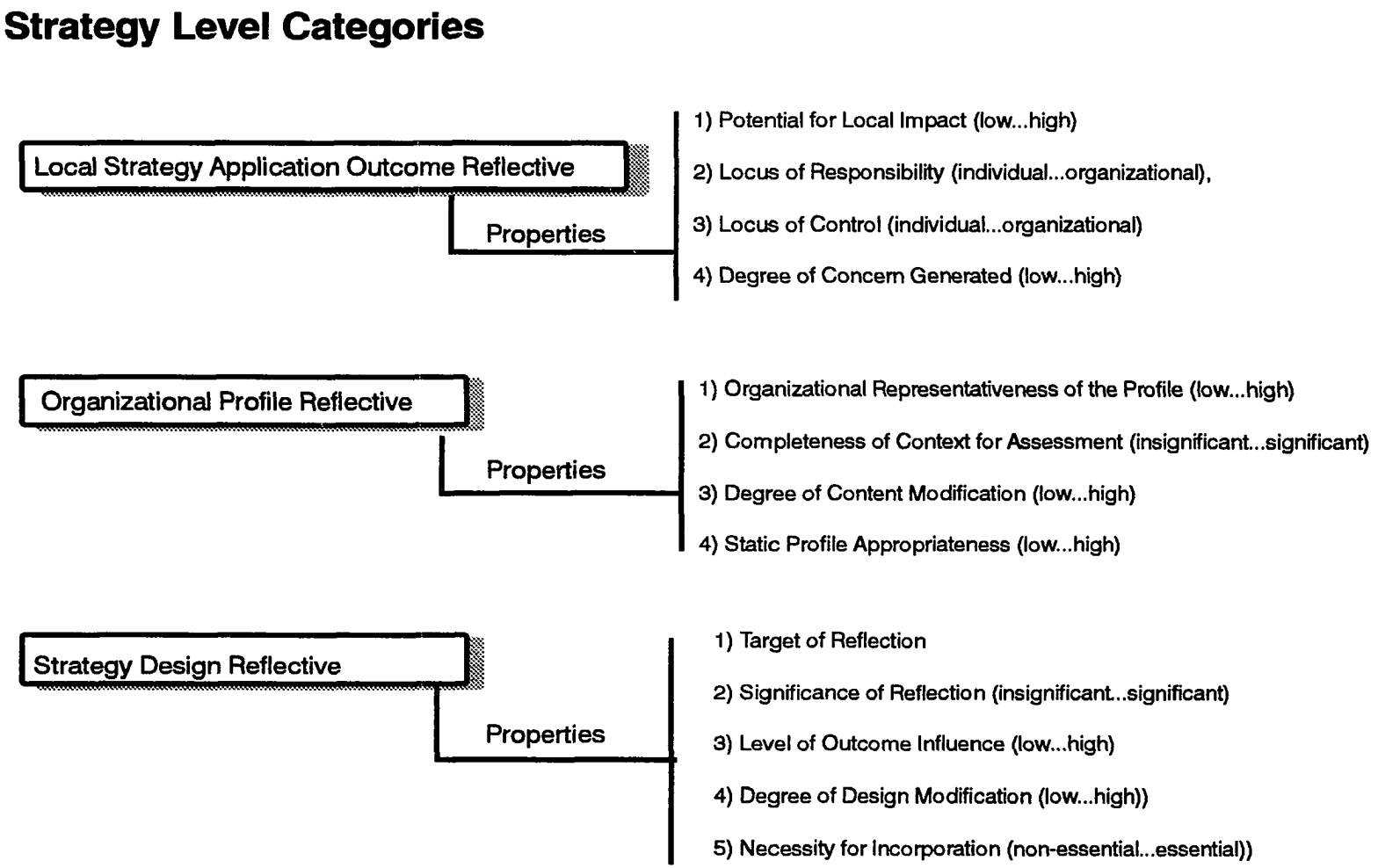

Figure 20. Strategy level subcategories, associated properties, and dimensions.

was generated through the participants at both the individual and organizational levels. In essence, the strategy design had the built-in capability to generate participatory feedback for it's own redesign. The categories which emerged from the analysis are descriptive of the results of the participatory feedback concerning the strategy.

Category 1 : Local Strategy Application Outcome Reflective

The category Local Strategy Application Outcome Reflective (LSAOR) is defined as: **the individual and organizational reflections concerning the outcomes for the local application of the strategy.** The thrust of this category is the ability of the strategy to generate explicit expectations concerning the direction of the application. I recall one conversation in particular where a participant summarized the process as *'interesting'* to go through. However, they continued to explain that the *'true test'* of the strategy would be what was done with the results. If nothing changed, then we just *'had a good time'.* But if there was organizational change, then the strategy would have had a *'worthwhile impact'* for the organization. It was evident that, although the design was not envisioned to generate explicit expectations it was capable of generating expectations for application outcomes based on participatory reflection generated by the strategy.

The LSAOR category is further defined by four properties, including: (1) Potential for Local Impact (PLI), (2) Locus of Responsibility (LOR), (3) Locus of Control (LOC), and (4) Degree of Concern Generated (DCG). PLI represents the potential, as identified at the individual or organizational levels, for the application

to generate results capable of having an impact in the organization. The dimensional range for PLI varies from a low to high potential. The LOR property depicts the particular level at which responsibility for the development of potential rests. This property ranges from individual to organizational, including the researcher within this dimensional range. LOC characterizes the level at which the ability to generate the impact lies. The LOC property ranges from individual to organizational. Finally, LCG represents the degree to which the reflection produces a concern for the individual or organization. The dimensional range for DCG varies from low to high. The LSAOR category has no supporting subcategories. The following examples illustrate the emergence of expectations for outcomes and direction of the application:

> 110110 I mean cause it would seem to me a good outcome of this exercise would be to identify some areas of different opinion and then to try to discuss and work them through.
>
> 103210 ...what I'll bet will come out of this as a side product is that you will find that more people will want to be more well informed on some of these issues....
>
> 103214 I hope that we can in some form speak to these statements as a group and continue to discuss them and come to a point when we agree as a group what really is important and what resources we need to commit to it.
>
> 10118 ...hopefully out of this we will find that it will require some time on our part to plan maybe a little more thoroughly together and evaluate together where we are so we're all at least moving in the same direction ...and I'll be surprised if we don't find that there is some divergence of thought there.

The LSAOR category is indicative of the capability of the strategy to generate reflection about the outcome direction. It is important to note that the strategy,

although it generated reflection on outcomes, did not have a designed mechanism to make explicit, follow-up, or develop participant expectations and reflected outcomes.

Category 2 : Organizational Profile Reflective

Organizational Profile Reflective (OPR) emerged as a category at the strategy level and is defined as: **the reflective assessment of the appropriateness of the organizational profile.** Throughout the research project I was constantly reminded of the dynamic nature of both the organization and the corresponding perspectives of the organization. I recall many conversations with participants concerning the uncertainty of the healthcare environment the were confronting and the impending changes they would ultimately face in the near future. However, I was continually reminded that the organizational profile was only a temporal representation of the organization. It only served as a brief glimpse of the complex organization it was designed to represent. The representation could only begin to capture the essence of the organization. This was apparent as I thought about my limited experience with the organization and events which would ultimately shape a personal representation of the organization. I distinctly recall one particular instance which left an indelible image of the organization, beyond that which any profile would capture. I was invited to tour a facility responsible for producing prosthetic devices. I was quite impressed with the capability, and artistry, involved in the manufacture of each unique item. However, the conversation with one individual seemed to capture what I had been sensing throughout my limited

experience with the organization. I recall asking about how they kept up with all the requirements and bureaucracy to support individuals in need of services. The individual recounted the seemingly tireless government bureaucracies and the challenges it placed on trying to help people in a difficult situation. But the essence of the conversation was the bottom line placement of people above the requirements. This individual was determined not to let bureaucratic requirements impede what needed to be done *'now'* to help people. I was fascinated at the 'special' things which were done to push the bureaucracy to action. Also, the admission that sometimes they just have to go ahead, and if the bureaucracy denies the individual they *'will find some way to ensure people get what they need'.* As the research progressed I frequently thought about this instance, constantly reminded of the rich context from which the very limited organizational profile was drawn. Also, questioning the ability of the profile to capture the essence of the organization through such a narrow representation.

The essence of the OPR category was the strategy ability to become self-reflective, through the participants, with respect to the representation of the organization developed for assessment. In Research Phase II, the organizational profile was constructed, by the researcher, from data analysis of initial interviews. Therefore, OPR emerged as the form of the strategy check on the adequacy of the researcher generated organizational profile from Phase I.

The OPR category is further defined by the following properties: (1) Organizational Representativeness of the Profile (ORP), (2) Completeness of

Context for Assessment (CCA), (3) Degree of Content Modification (DCM), and (4) Static Profile Appropriateness (SPA). The ORP property represents the degree to which the profile was considered reflective of the organization. The dimensional range for ORP varies from a low degree to a high degree of representativeness. CCA depicts the degree to which the organizational profile is capable of being assessed without additional context. This property ranges from sufficient to insufficient context for making an assessment. DCM is indicative of the degree of addition, change, or deletion perceived as necessary for the organizational profile. The range for DCM varies from low to high. Finally, the SPA property represents the degree to which the profile remains appropriate, based on dynamic organizational conditions since the initial generation of the profile. SPA ranges dimensionally from a low to high level of modification based on changed organizational conditions. The Organizational Profile Reflective category has no subcategories. The following data illustrates the necessity of individuals to create a context for interpretation of the organizational profile. In these instances the context required clarification by the individuals.

> 10712 On a couple of the questions I left notes either verbally or on the machine, because I wanted to clarify that I agreed with it in part but not in full.

> 11223 I made comments on ones where I felt like my interpretation of the question may impact how I am responding...that part was helpful (....) I didn't feel like it was just an answer without any explanation.

Additionally, there was a recognition that some organizational profile statements were subject to different assessments based on perceived multiple content within the organizational profile statements.

> 30921 I was concerned like some of the other group was that, no fault of your own, that some of the statements had, would generate different answers, that the statement should have been separated, does that make sense? Some of the questions were hard to answer, they had two thoughts in them.
>
> 31129 We did comment in the group discussion that some of the questions, rather the statements, or goals, or mission, you know were not just complex sentences, in some cases involved two really radically separate issues, and to make sure that each statement, each perspective statement, involved one thought and not two or more. That somehow you write that into the design.

The dynamic nature of the organization, and the impact on the organizational profile, as well as the assessments of that profile, was recognized by participants. This demonstrated the static nature of the profile as a representation of the organization.

> 10322 Well other than some of the statements had to have been written very recently, because of some initiatives that I know were undertaken (....) I wondered if in fact were some of these statements written after we had taken some initiatives and committed some resources in those areas....
>
> 10229 I suspect that the results you would get out of those types of questions are going to be starkly different than what you would have gotten a couple of months ago, just because of some changes....You might even have had someone do this exercise before certain meetings that would have a completely different perspective now....
>
> G2Mult4 P122 - ...I think if you take our responses on day one and you asked us those same questions in the context of today's environment...our answers would be different...

315111 Well I would say that between that time and now some things have changed, not an awful lot, but right now we are just in an industry that's changing so fast, we might have reworded some of those statements I think.

The OPR subcategory emerged as an assessment of the adequacy of the profile generated during Research Phase II. The crucial point of this category is the strategy design incorporating the capability for self assessment, through participants, concerning the organizational profile generated. However, the strategy did not incorporate mechanisms for organizational profile modification during the application. In essence, although the organization was recognized as dynamic, the organizational profile existed as a static representation of that organization.

Category 3 : Strategy Design Reflective

Strategy Design Reflective (SDR) emerged from data analysis as a category at the strategy level. SDR is defined as: **the development of participatory reflection concerning aspects of strategy design.** The strategy was designed entirely by the researcher, including the computer program. I recollect that there was a curiosity about where the design originated, in particular the design for the computer programs. With several participants this appeared to be an important point. I was asked if I had written the program, or if it was a commercial software product, a *'canned program'*. I was surprised that it was an important point that the computer program had been written by the researcher for the organization, and not something that had been purchased and could be applied by anyone. Additionally,

I recall there was an apparent satisfaction for several participants having identified a potential design modification to the computer program following the first computer session and the realization that it had been incorporated for the second session (Appendix 7). This is indicative of the ability of the strategy to generate the basis, through participatory reflection, for its own redesign in light of the local application.

Five properties serve to define characteristic attributes of the SDR subcategory. These properties include: (1) Target of Reflection (TOR), (2) Significance of Reflection (SOR), (3) Level of Outcome Influence (LOI), (4) Degree of Design Modification (DDM), and (5) Necessity for Incorporation (NI). The TOR property represents the particular focus of the reflection, ranging across the spectrum of events and items conducted throughout the phases of the research application. SOR depicts the importance accorded to the reflection with respect to the strategy design. This property ranges from insignificant to significant. LOI is indicative of the degree to which the reflection is perceived to have had an impact on the results of the strategy application. LOI ranges in degree from low to high. The DDM property represents the level, ranging dimensionally from low to high, of strategy design change indicated by the reflection. Finally, the NI property indicates the degree to which the reflective change is viewed as an essential modification to the strategy. This property ranges from non-essential to essential. Collectively, these properties serve to define the subcategory.

There were numerous reflections about the design of the computer programs suggesting potential redesign. The following examples illustrate the suggestions for computer program redesign.

> 11014 the titling gets a little (....) you have to continually remind yourself which axis is suppose to be which...it just seems that there might be a way to make it a little easier to remember which side was which...
>
> 11229 ...I started to initially type in comments, then I realized that I was going to have the same comments screen on everyone and would just continue to add on, that made it a little bit cumbersome to do...
>
> 21013 It would have been easier if the description of the axis were in layman's terms...I found myself continually having to remind myself which was which.

In addition, there were reflections about the design of the joint discussion sessions. Several of these reflections commented on the length of the joint discussion sessions. In particular, that the sessions were too short to cover the material.

> 30117 ...but I do think that probably two sessions there would have been worthwhile. One session to go through it all might be a little long, so two session might be best, I think that would be something I would do.
>
> 30527 With that big a pile of information, and with issues that are that broad, I thing you need more time to discuss them instead of trying to push them into however many hours we were there.
>
> 30418 I think maybe next time if you did that, you ought to, at that level you might want to make it a three hour off-side even, at a conference center or something.

Finally, as the following data illustrates, the strategy developed participatory reflection on the mechanics of the application. In these cases, specifically potential improvement in the accessibility of the computer program.

> 109211 ...I would have liked to have had a disk taken it home put it into my computer and worked on it (....) instead of spending an hour here maybe I would have spent 3-4 hours on this process over a period of two to three days or something like that....
>
> 30928 ...it would have been great if the computer would have been on the network, so you could have done it in your office in the evening....
>
> G212211 I think I mentioned this in terms of making this easier, if there was a way to put that out on a disk, or a network that was set up...if there was some way we could do that in our own office.....

The Strategy Design Reflective category demonstrated the strategy's ability to generate self-reflective feedback concerning the design of the application. The reflective capability was designed and generated through all phases of the research project. However, with the exception of incorporated computer program design modifications, the strategy did not facilitate incorporation, or further examination of the redesign feedback. Therefore, during the application the design was relatively static even though participatory direction for potential design changes was being generated.

Summary

Strategy level data analyses generated three major categories. These categories included: (1) Local Strategy Application Outcome Reflective, (2) Organizational Profile Reflective, and (3) Generative Strategy Application Reflective. The major thrust of these categories was the strategy engaging participants in a process of participatory inquiry about the strategy. This inquiry generated reflection about the strategy, including the accomplishment of the strategy at the local level as well as reflecting on the broader design issues for the

strategy application beyond the local organization. The categories, and their specifying subcategories, represent research findings necessary to respond to the final research question: *Does the participatory approach generate reframing of the strategy as a result of the application?*

The Local Strategy Application Outcome Reflective category emerged as a continuous development of expectations with respect to the direction for the local level strategy application. The Organizational Profile Reflective category represented the ability of the strategy to generate reflection concerning the organizational profile developed by the researcher in Research Phase II. Finally, the Strategy Design Reflective category demonstrated the ability of the strategy ability to generate participatory feedback, from both the individual and organizational levels, for potential redesign. In essence, strategy inquiry, was conducted through the strategy. In effect, the findings demonstrate the reflective capability of the strategy in directing the organizational inquiry at the individual and organizational levels. The focus of this inquiry was the strategy and potential for modification of the strategy suggested through the participatory process. The framework generated by the categories and subcategories, in relation to the research question, is discussed in Chapter 8.

CHAPTER 8

RESEARCH IMPLICATIONS AND DIRECTIONS

The primary purpose of this chapter is to develop the response to the research questions and implications based on the research findings. Due to the exploratory nature of the research, the findings must be viewed as tentative at this point. In essence, the research stands as a descriptive exploration of the process generated through the application of the computer-based strategy. This strategy included the supporting procedures, computer applications, and research instruments. Although the research findings are tentative in nature, they begin movement in a direction toward understanding the organizational learning process phenomenon as a process of organizational inquiry supporting organizational learning. The form of description was developed as the set of categories, supporting subcategories, and associated properties and dimensions serving to form an initial descriptive framework of the OLP generated through application of the strategy. Therefore, the interpretation of research findings emerges as implications from the description of the process generated through the application of the computer-based strategy.

The implications from the research findings are developed with respect several areas, including: (1) informing a response to the research questions initially

guiding the effort, (2) local level implications for the participating organization and individuals, (3) the suggested redesign of the strategy for future application, (4) implications for the larger body of organizational knowledge, particularly organizational learning theory, (5) implications for the management of organizations, and (6) the direction of future research suggested by the research findings and implications.

The chapter is organized to develop each of the implication areas based on findings. In addition, an overview of the findings is presented as a platform for the follow-on discussion of implications.

Overview of Research Findings

The application of the computer-based strategy generated findings at the individual, organizational, and strategy levels. These findings are the descriptive result of the inductive data analysis from each of the levels. Figure 21 presents a summary of the categories and subcategories which emerged at each level of data analysis. The table is constructed to identify the analysis level, categories, and associated subcategories. In essence, these findings form a descriptive framework of the process emerging from application of the computer-based strategy. This framework begins to articulate the process of inquiry which emerged from the local application and project implications to the larger domain of organizational knowledge.

The application of the computer-based strategy at the individual level generated two major categories; Individual Organizational Congruence Reflective

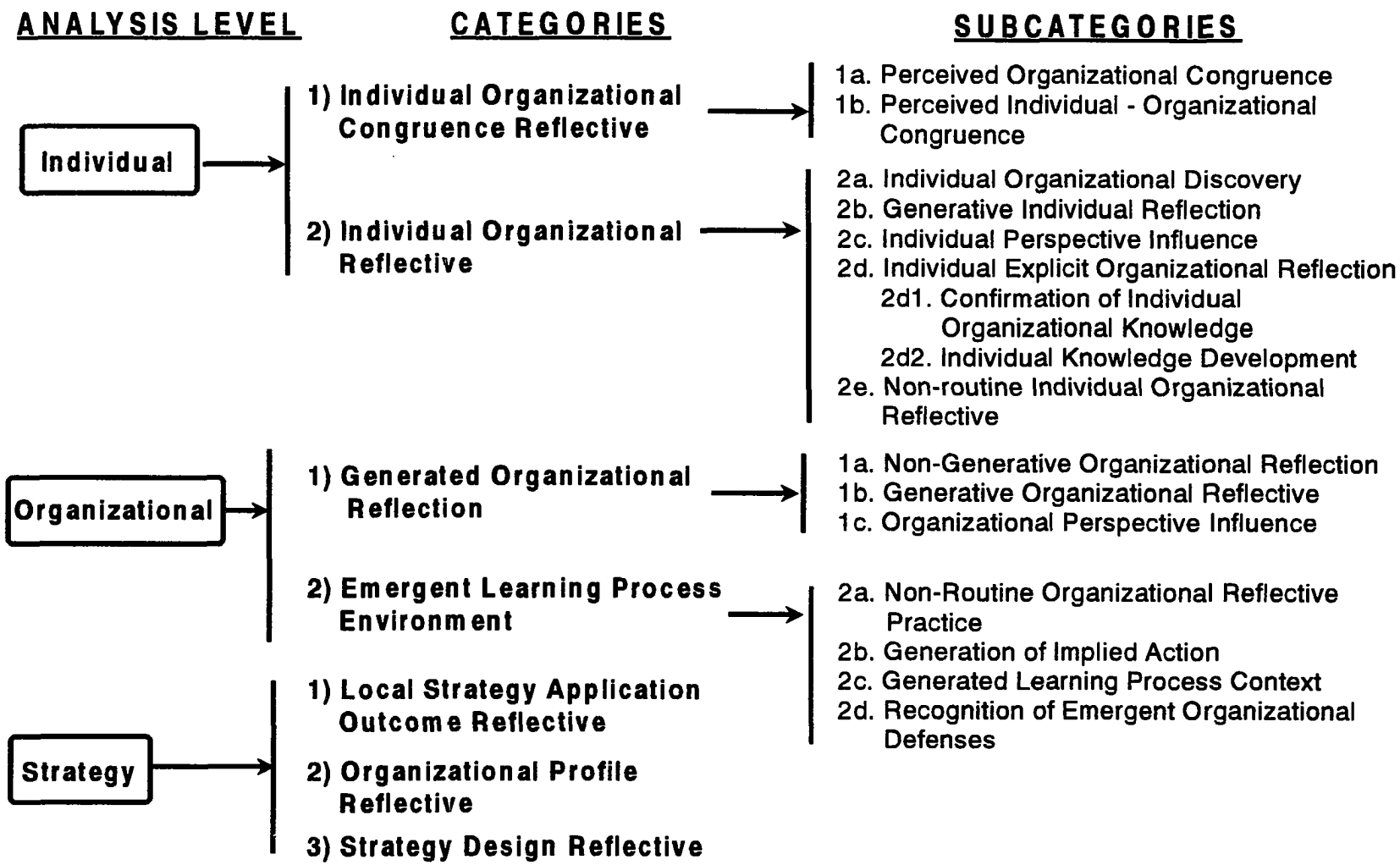

Figure 21. Research findings overview as an exploratory framework of categories and associated subcategories.

and Individual Organizational Reflective. The crux of these categories was the engagement of individuals in a reflective process of inquiry about the organization. This reflection was accomplished without formal exposure to the group, or organizational processes. The computer-based strategy provided the medium to generate this reflection. Individual Organizational Congruence Reflective describes an individual level impact of the application of the strategy. This category emerged as the individual determination of similarity in organizational assessments. Individual Organizational Reflective is the second major category describing an individual level impact to application of the computer-based strategy. This category depicts generation of individual attributions, or realizations, as a result of explicit examination of self with respect to the organization. The thrust of this category is the resulting individual discoveries and explicit organizational insight generated from application of the strategy. The important point about these discoveries is their generation at the individual level, without exposure to formal organizational processes. This category demonstrated the capability of the strategy to generate new knowledge for individuals without exposure to group or organizational processes. The generation of this knowledge occurred outside the organizational defenses in the organization.

Two major organizational level categories emerged from application of the strategy. These categories were Generated Organizational Reflection, Emergent Learning Process Environment, and Generation of Implied Action. The major thrust of these categories, collectively, was the strategy generation of a context

capable of supporting and stimulating reflective practice at the organizational level. The organizational level, for data purposes, was considered to begin at the point individuals were exposed to the formal organizational process. In effect, the group discussions conducted in Phase IV. The data for organizational level categories emerged through participant perspectives generated during final process interviews and the group interviews.

Generated Organizational Reflection is representative of the emergence of organizational reflective practice as a result of application of the strategy. Emergent Learning Process Environment is descriptive of the environment generated through application of the strategy at the organizational level. Collectively, these categories are indicative of the strategy capability for generation of a process of inquiry at the organizational level.

Data analysis at the strategy level generated three major categories. These categories were Local Strategy Application Outcome Reflective, Organizational Profile Reflective, and Strategy Design Reflective. In essence, the strategy design incorporated the ability to cause the strategy to become self-reflective. This self-reflective process was generated through the participants at both the individual and organizational levels. Additionally, the self-reflective nature of the strategy demonstrated reflective practice directed toward to the local application as well as the extension of the application beyond that local level context. The strategy level categories emerged from the design for participatory feedback as an integral part of the strategy design. The Local Strategy Application Outcome Reflective

category describes the individual and organizational level reflective process which generated strategy feedback specific to the local context of the application. This feedback was directed at the nature of outcomes and expectations for the strategy at the local level. On the other hand, the Organizational Profile Reflective category describes individual and organizational reflection about the nature of the organizational profile generated from interviews conducted in Phase I of the research. In essence, this subcategory demonstrates the strategy ability to impose a check on the validity of the profile content, as attributed by the participants. This category also recognized the static nature of the organizational profile and assessments of the profile in relation to the dynamic nature of organizational conditions. Therefore, the strategy demonstrated the ability to determine the initial and continuous applicability of the organizational profile in relation to changing organizational conditions. Finally, the Strategy Design Reflective category is descriptive of individual and group reflection on the strategy, ranging beyond the specific local level application. This was indicative of the design generating reflective practice directed at redesign and projection beyond the local level research application.

The research findings generate implications beyond the narrow organizational context in which the strategy was applied. These implications are proposed as reasonable extrapolations from translatable contexts of the research. Therefore, the research findings are extended not only to the response to the research questions, but also to the broader domains of organizational and

managerial knowledge. However, prior to extending the research findings, the response to research questions will be developed in light of the findings.

Response to the Research Questions

The research was undertaken to address three research questions through the application of the computer-based strategy. The overarching research question focused on the ability of the computer-based strategy to facilitate Organizational Learning Process. The corresponding research questions which guided the effort were:

1) **Does the application of the strategy generate organizational learning process at the individual level?**

2) **Does the application of the strategy generate organizational learning process at the organizational level?**

3) **Does the participatory approach generate reframing of the strategy as a result of the application?**

In returning to these questions, the basis for their response rests within the research findings generated from data analysis at each application level, including: individual, organizational, and strategy levels. The categories, subcategories, properties, and dimensions emerging from the data serve as a description of the process generated through the application at each level of analysis. These descriptions provide the basis for not only reflecting of the research questions, but also suggesting further implications. In effect, the research questions reach beyond the local application, providing insight about the form of the OLP, in addition to the ability of the strategy to generate the process. These implications

range beyond the narrow domain of application for the research, suggesting the relevance of OLP to the management of organizations and organizational learning theory. This is not intended to minimize the importance of first understanding the process in light of the local application and research questions. On the contrary, it is this understanding of the application at the local level which permits suggestion of further implications for OLP and the strategy.

Strategy Generation of OLP at the Individual Level

The categories generated at the individual level of analysis suggest the capability of the computer-based strategy to generate OLP at the individual level. The research findings generated a tentative framework for understanding the form of the process generated through the application. The tentative framework begins to articulate the form of reflective inquiry the strategy is capable of generating. In essence, the strategy application suggests the generation of OLP through the form of reflective inquiry generated at the individual level.

The individual level for the strategy application centered on the results of participant exposure to the strategy in Phases I through IV. This was prior to formal exposure to the organization at the group level. The individual level exposure generated a process of organizational inquiry developed through the computer-based medium. Thus, the organizational defenses suggested by Argyris and Schön (1978) were bypassed through the application of the strategy at the individual level. In essence, the individual participants were exposed to organizational level perspectives indirectly, without the ability, or limited ability, of

organizational defenses to emerge to influence the process of inquiry. Therefore, the categories and subcategories generated from data analysis at the individual level characterize this emergent process of inquiry.

The application of the computer-based strategy at the at the individual level generated two major categories; Individual Organizational Congruence Reflective and Individual Organizational Reflective. The crux of these categories was the engagement of individuals in reflective inquiry about the organization, without formal exposure to the group, or organizational processes. The computer-based strategy provided the medium for this reflection. Organizational Learning Process was developed as a process of inquiry at the individual level. In development of a perspective for OLP, there were several points of integration from the literature, including: (1) the importance of a process focus, as opposed to specific outcomes, to the development of the organizational learning system, (2) the necessity to make individual and organizational interpretations and differences explicit through representation, (3) examination and assessment of differences in representations, and (4) development of individual and organizational implications in response to the examination. The generation of the categories describing the application of the strategy at the individual level, are a tentative beginning to articulate a framework descriptive of the process of inquiry produced by the strategy. The findings indicated the form of the inquiry was directed at establishment of congruence determination. This congruence was directed at determining perceived relations between the individual, the group, and the organization. Additionally, the strategy

demonstrated the capability to generate new organizational knowledge and make explicit, for assessment, tacit organizational knowledge.

The Individual Organizational Congruence Reflective category describes an individual level impact of the application of the strategy. This category involved the individual determination of similarity in organizational assessments generated from the application of the computer-based strategy. Additionally, the process of inquiry introduced the development of the perceived congruence and necessary distinctions in the relations of the individual, group, and organization.

Individual Organizational Reflective is the second major category describing an individual level impact to application of the computer-based strategy. This category depicts generation of individual attributions, or realizations, as a result of explicit examination of self with respect to the organization. The thrust of this category is the resulting individual discoveries and explicit organizational insight generated from application of the strategy. The important point about these discoveries is their generation at the individual level, without exposure to formal organizational processes. This category, and supporting subcategories, is indicative of the strategy ability to generate OLP at the individual level.

Strategy Generation of OLP at the Organizational Level

The computer-based strategy capability to generate OLP at the organizational level was suggested by the categories developed through the application. The organizational level analysis was directed to the impact of the strategy at the group level, after the joint discussion conducted during Research

Phase V. The results of analysis support the suggestion that the strategy generated a process of organizational inquiry, beyond the individual level. This process was generated through the application of the computer-based strategy at the organizational level. The categories which emerged at the organizational level provide a foundation for beginning to specify a descriptive framework for the process of organizational inquiry generated by the strategy. At the organizational level, the process of inquiry, developed through the strategy application, was evident through the emergence of organizational reflection and the learning process environment which developed.

The two major categories which emerged from the data analysis at the organizational level support the capability of the strategy to generate OLP. The Generated Organizational Reflection category demonstrated the capability of the strategy to engage the organization in non-routine inquiry. The result of this inquiry process was the explicit development of both generative, or new organizational knowledge not previously shared among participants, and non-generative, or knowledge which may have been shared, but was not necessarily explicit. In addition, the process of inquiry generated was capable of producing influence on individual perspectives of the organization through exposure to the group level inquiry facilitated by the application of the strategy.

The second major category of organizational level analysis, Emergent Learning Process Environment, further supports the strategy capability to facilitate the process of inquiry at the organizational level. The strategy created a

structured non-routine context for the organizational learning process to develop. This structured context was recognized and described by the participants in terms of facilitative ability for the process of inquiry to be generated. In addition, this category suggested two additional areas indicative of the learning process environment emerging from application of the strategy. First, there was a recognition of organizational defenses emerging from the organizational level application of the strategy. This is supportive of Argyris and Schön's (1978) concept of organizational defenses characteristic of a limited organizational learning system. The application of the strategy suggested the emergence of these defenses at the organizational level. Second, the strategy application at the organizational level generated the recognition of action implied by the inquiry process. It is important that the inquiry process generated only implied action. Therefore, the process stopped short of generating action necessary to suggest the occurrence of organizational learning. This suggests the organizational learning process being preparatory, or a necessary condition to generate organizational learning. However, the inquiry process itself did not generate action as a sufficient condition for the occurrence of organizational learning. Therefore, the strategy demonstrated the capability, at the organizational level, for generating an inquiry process implying action. However, although the strategy might have developed implied action, it falls short of generating action. In is important to note that the generation of action is considered a necessary element for organizational learning but not organizational learning process.

Strategy Reframing Capability

The research findings from analysis of data at the strategy level demonstrated the capability of the strategy to generate participatory directions for reframing. The strategy level data was generated through the process interviews conducted with the participants. These interviews generated participatory input concerning the strategy. The results of data analysis at the strategy level suggested the strategy does identify redesign implications and introduces the potential for reframing. However, it is important that the identification of the reframing direction was not indicative of a design capability to accomplish the directed reframing. A closer examination of the strategy level categories suggests the reframing capability of the strategy.

In essence, the categories emerging from the strategy level analysis suggest understanding the reframing capability in terms of the local application and generation of design direction beyond the local application. At the local level, the strategy generated reflection as to the direction of research outcome. This was recognized as emerging from the strategy level data analysis as the Local Strategy Application Outcome Reflective category. This category suggested, that although the research project had a clearly designed end, from the organizational perspective this was not necessarily an appropriate end, or outcome, for the project. Therefore, the strategy was able to facilitate feedback from participants concerning the project direction, beyond the predesigned strategy application. This was accomplished through the application, as participants generated outcome

reflection during interviews. Also, at the local level, the strategy generated reflection concerning the organizational profile constructed during Phase II. Therefore, the strategy demonstrated the capability to provide a validity check, through participants, for the representation (organizational profile) generated by the researcher during Phase II. Although the local level content was not modified as a result of the reflection, it did demonstrate the strategy ability to actively ensure, through design, the appropriateness of the organizational profile.

The strategy level findings also suggested the capability of the strategy to produce generative reflection concerning the strategy design and implications for redesign. This was demonstrated through the categories which emerged at the strategy level. In essence, this reflective capability was indicative of participatory suggestion for redesign of the strategy and potential modifications in the application. With respect to strategy redesign and modification, there are two major points of clarification. First, although the strategy created a mechanism for the reflections concerning design and application to be generated, it did not allow for development or incorporation of modifications or adjustments in the design as the project was ongoing. In this sense, the strategy was a static design, and not amenable to dynamic modification through the application. However, in two instances the computer program was modified based on reflective input of participants. These modifications, although minor in nature, were suggestive of the strategy ability to generate participatory redesign, although on a very limited basis. These modifications are highlighted in Appendix 7, Computer Program

Modifications. Second, the strategy also did not include provisions for review or incorporation of redesign developed through the application. Although the strategy facilitated development of suggestion for redesign, the design itself did not include mechanisms to either: (1) facilitate review, either through a participatory effort or singularly by the researcher, or (2) accomplish redesign of the strategy as a step, process, or phase in the strategy. Therefore, just as the action was implied through the strategy, without necessary incorporation, the strategy implied redesign without forcing that redesign to occur. Although accomplishment of suggested redesign and modification appears to be a logical extension of the self-reflective generative capability of the strategy, that was beyond the scope of the research effort. However, in response to the strategy level research question, the strategy did demonstrate the capability to suggest reframing as a result of the application.

Local Research Implications

The research findings suggested several implications for the local organization and individual participants. Each implication emerged as a result of the organizational participation in application of the strategy. In addition, the local level impacts are supported by the research findings. The implications of the research at the local level include: (1) Individual participant exposure to an expanded perspective of the organization, (2) the development of the individual perspective in relation to the larger organizational perspective, (3) the generation of explicit organizational knowledge, at both the individual and organizational levels, (4) the generation of suggested action at the individual, group, and

organizational levels, with the potential for local level benefit, and (5) the organizational engagement in a non-routine reflective practice. Each of these local level implications are developed in detail below.

Individual Exposure to Explicit Multiple Organizational Perspectives

Through application of the strategy, participants were exposed to multiple perspectives of the organization. These perspectives were implicit prior to the development of the organizational profile as an explicit representation of the individually held perspectives of the organization. The organizational profile developed during Phase II of the research arrayed multiple individual perspectives of the organization. These perspectives, represented through the organizational profile, went beyond the individual participant generated input utilized in forming the profile. Exposure to these perspectives was accomplished during both the individual and group phases of the application. Additionally, the strategy forced a reflective process for the assessment of the profile. In essence, the strategy permitted the explicit development and exposure to multiple organizational perspectives, beyond the individual level.

The research findings support the explicit exposure of individual participants to the larger scope of perspectives generated through the application. In particular, the subcategories indicative of influencing, confirming, and the generation of new knowledge recognize the results of the exposure. However, the exposure did not presume that perspectives would necessarily be modified or expanded as a result of the exposure. On the contrary, exposure simply created

the opportunity to influence individual perspectives. This is not intended to minimize the potential impact of perspective exposure. Instead, the implication of the research for the local level was the exposure and the creation of potential for modification and action, at both the individual and organizational levels, as a result of the exposure and subsequent process of inquiry. Therefore, a research implication at the local level was the exposure of individuals to the wider array of multiple perspectives made explicit through the application of the strategy.

The exposure to multiple perspectives at the individual and organizational levels generated the potential for expansion of perspectives, potential action, and confirmation of previously held implicit perspectives. However, this potential was not indicative of action being taken at either the organizational or individual levels. Therefore, the local implication for the strategy application was confined to the recognition and suggestion for potential action.

Establishment of Individual Relation to the Organization and Group

The application of the strategy generated individual knowledge concerning the relative relation between the individual, group, and organization. The confidential assessment of the organizational profile, and subsequent exploration of those assessments, created the opportunity for participants to establish the perceived relation between themselves, the other participants, and the organization. In this respect the individuals were able to develop a perception of congruence suggested by the explicit patterns of response to the organizational profile and subsequent discoveries about the patterns. It is important to note, that

the strategy only generated the representation suggestive of congruence. The actual determination of congruity rested entirely with the participant's reflections concerning congruence in organizational profile assessments.

The research findings support the establishment of individual determinations concerning relation to the organization through the application of the strategy. Specifically, at the individual level, the category and subcategories describing the determination of perceived congruence support the development of individual attributions concerning the relation to both the organization and group. Additionally, at the organizational level, the category of organizational reflection also recognized the determination of apparent congruence within the group.

The development of distinctions between perspectives held by individuals, the group, and the organization suggested several implications for the local level. First, individual participants were provided the opportunity to establish divergence: (1) between themselves and the organization, (2) within the group, and (3) within the organization as a whole. Although this identified potential divergence and may have suggested action, the strategy did not incorporate the mechanisms to develop the potential action. Instead, the strategy stopped at the explicit development and suggestion of potential incongruence. Therefore, the strategy did not provide for specific determination of the source of incongruence, development of action to address the incongruence, or agreement to accept the incongruence. The strategy simply provided for the exposure of apparent incongruence and a platform for examining that apparent incongruence at the

organizational level. However, this potential was not indicative of action being taken at either the organizational or individual levels.

Development of Explicit Organizational Knowledge

At the local level, the application of the strategy produced explicit organizational knowledge. The development of this knowledge occurred through the process of inquiry at the organizational level. The explicit nature of the knowledge was developed through the public exposure of the knowledge for assimilation beyond the individual level. Description of the knowledge as explicit does not necessarily indicate that the knowledge was not previously held within the organization. The knowledge may very well have been in existence in an implicit state and at various levels in the organization, ranging from individual to organizational. However, the strategy represented the knowledge in an explicit manner. Furthermore, the knowledge was also exposed for private (individual) and public (group) testing. The importance at the local level was the making of the knowledge explicit and testable within the context generated by the strategy.

The research findings support the explicit exposure of knowledge as a result of the application. In particular, the category and subcategories indicative of generated organizational reflection recognize the making of knowledge explicit. However, the explicit representation of the knowledge only created the potential for influence of individual or organizational perspectives. Therefore, the implication for the research at the local level was the realization of explicit knowledge, accessible for testing at the individual and organizational levels.

Generation of Suggested Action

The application of the strategy generated suggested action at the individual, group, and organizational levels. This development of suggested action was demonstrated by the emergence of subcategories at each level of analysis. At the individual level, the strategy produced Generative Individual Reflection. This subcategory was significant in the implication of action identified at the individual level. Additionally, the organizational level subcategory Generation of Implied Action identified potential action as a result of the strategy. These actions were developed from the organizational level strategy application. Finally, the strategy level revealed the suggestion for action in the subcategory concerning outcomes of the strategy application. In essence, at each level of analysis, the strategy identified potential action to be taken.

Although the strategy developed potential action from all levels, it did not necessitate, or incorporate mechanisms to facilitate realization of implied actions. The strategy simply identified the potential for action and created the opportunity for action. Thus the strategy only created the possibility for action, not the realization of action.

Engagement in Non-routine Organizational Self-reflection

A major implication of the strategy, at the local level, was the engagement of the organization in a non-routine structured approach to generate an organizational process of inquiry. Through the application of the strategy, the organization was capable of entering into a process that was neither familiar nor

necessarily subject to the same organizational and individual constraint imposed by routine organizational structures and practices. In essence, the strategy introduced a potential for generating a new process within the familiar organizational contextual environment. Although the strategy was new to the organization, it was executed within the familiar contextual factors, including; culture, structures, and environment.

The research findings supported the characterization of the strategy as a non-routine reflective practice at both individual and organizational levels. The strategy was recognized as engaging the participants and organization in reflection that was not was recognized as occurring within the current organizational practices. This was not to suggest that the organization or individuals lack any form of reflective practice. On the contrary, the suggestion is simply that they engaged in the strategy which generated non-routine reflection.

Research Implications for the Management of Organizations

The research findings suggest several implications for the management of organizations. The development of these implications go beyond the local application of the research, offering extension to other organizations and the practice of management in organizations. The implications of the research for management of organizations include: (1) introduction of a method to identify organizational incongruities, (2) an approach to make explicit and test organizational assumptions informing action and decision at multiple organizational levels, (3) identification of a process to develop organizational congruity in critical

aspects of the organization, (4) suggestion of a design for a temporary structure to facilitate development of an organizational learning process of inquiry, and (5) provided a framework for assessment of organizational process of inquiry. In essence, these implications suggest use of the research by practicing managers in understanding the design, operation, and maintenance of organizational learning processes in an organization. Each of these implications for management are discussed below.

Identification of Organizational Incongruities

The strategy potential for discovery of organizational incongruity has wide ranging implications for management of organizations. Incongruities, identified through the application, are capable of being discovered in three areas. First, the incongruity in determination of the basic interpretation of fundamental organizational aspects essential to internal integration. For example, the determination of top priorities of the organization. The strategy proposes the mechanics to develop disparities in the assessment of these fundamental organizational characteristics. In addition, this introduces the potential for reduction of ambiguity concerning the most basic aspects of an organization, expected to be *'shared'* among members of the organization. Second, the strategy also introduces the opportunity to foster individual development through the discovery of individual incongruities with the organization. This permits individuals to determine the nature of their relation to the organization, and narrow the focus on areas of apparent incongruity, with the potential for individuals to

focus energy on addressing the sources of incongruity. Third, the strategy provides a method to explicitly develop the degree of apparent congruity at the group or organizational level. The term apparent is used to recognize that the source of incongruity may be the result of factors other than the symptomatic sources of apparent incongruity within the organization. However, the research introduces a structured method to generate an initial indication of incongruity.

The research findings at the individual and organizational levels of analysis supported the capability of the strategy to generate this apparent level of congruity. At the individual level, participants engaged in reflective process capable of indicating the level of apparent congruence between the individual and organization, and also within the organization. The strategy also suggested the capability for inquiry, at individual and organizational levels, concerning the source of incongruity.

The ability of methods to establish the degree of organizational congruence is an important strategy implication for practicing managers. However, the identification of apparent congruity, or incongruity, is only a partial fulfillment of the potential managerial implications for the strategy. The strategy proposes the temporary structure to move beyond the identification of incongruity to further develop and address the incongruity. Thus, a major implication of the strategy is moving beyond the identification of incongruity to develop a structured method to address the incongruities. However, exposure of incongruities and addressing

them through inquiry does not necessarily ensure responsive action or their resolution by individuals or the organization.

A Process to Develop Organizational Congruity

The computer-based strategy offers a design for generating a process of inquiry to address apparent inconsistencies, or incongruities in the organization. Explicit generation of apparent organizational incongruity is a potential benefit for practicing managers. However, the broader implication of the strategy is the introduction of the methods to generate the process of inquiry to address the apparent incongruities. This is realized through the strategy approach for explicit development and testing of organizational assumptions upon which the incongruities rest. These assumptions are subject to multiple interpretations within the organization. The strategy provides the design for installing temporary structures for inquiry and explicitly testing of operating assumptions of the organization. In this sense, the temporary structure can be employed within the existing contextual environment of the organization. Therefore, the strategy can be linked to the existing structures and processes of an organization.

The research findings support the strategy capability to act as a process to support development of organizational congruity. This was exemplified by the influence of perspectives generated through the process. Additionally, the generative capabilities of producing new knowledge at the individual and organizational levels suggests the capability to develop congruity within the organization. However, the inquiry process stops short of action necessary to

move toward congruity. In this respect, the data suggests that the strategy is capable of generating new knowledge for individuals and influencing ambiguities in organizational perspectives and interpretations. However, the strategy did not incorporate methods to generate those suggested actions.

The potential for increased integration and organizational congruity has a broad range of implications for the management or organizations. First, the potential for decreased ambiguity and increased understanding of assumptions informing actions and decisions in the organization can be developed. The strategy offers a specific approach for not only drawing out assumptions, through the formation of explicit representations of assumptions, buy also provides a structured approach for inquiry into the nature of the representation. Second, individual and organizational perspectives informing action and decision in the organization can be influenced through the process of exposure, assessment, and inquiry. This presents the potential for a broadened perspective for individual decision and action in organizational matters, as well as increased understanding of multiple perspectives informing action and decision. Finally, the process of inquiry has the ability to imply organizational modifications based on discovery of inconsistency between theory-in-use and espoused theory operating in the organization. The strategy only suggests, or implies possible actions to be taken in response to the process of inquiry. However, the strategy did not include mechanisms to incorporate the suggested action. This recognizes the limited

nature of the strategy with respect to generating OLP and stopping short of attempting to generate responsive action indicative of organizational learning.

Design for Temporary Structure to Facilitate OLP

The design for application of the strategy provided a temporary structure to permit generation of organizational learning process within an organization. This structure was installed within the existing organizational structure. The concept of temporary structure was based on the limited nature of the application. Since the application was designed and undertaken as a project, the scope and depth, as well as the duration, were limited. This implied the temporary nature of the strategy application. In essence, the project had a structured set of predesigned activities and tasks to be accomplished. Upon the completion of the task and activities the project was considered completed.

The installation of temporary structure to facilitate organizational learning process has several implications for the management of organizations. First, introduction of temporary structure provides an opportunity to begin development of OLP: (1) within, and in concert with, the current organizational structure operating in an organization, (2) the potential for introduction as a limited effort to be deployed at any level in the organization, and (3) with a specified level of resources dedicated to the effort. Second, the implication of the temporary structure as a transitional approach to develop and design permanent structures to sustain the initial development of OLP. Since the temporary structured application has a definite end, there is the opportunity to design more permanent

structures to sustain the development of OLP within the organization. Additionally, the development of organizational learning processes may be extended to structures already in existence, create new structures, or modify existing structures. The key is the understanding of the temporary structure as an entry to create generative modification to existing organizational structures and processes. Finally, the implications for use of the temporary structure design as a method to begin transition of the organizational learning system. This suggests the temporary structure as a catalyst for generating the OLP necessary to begin movement toward more advanced organizational learning systems. The focus on temporary structure and process development permits the transition to begin within the current organizational structure and processes in place in the organization. Therefore, the transition can be developed without a potentially overwhelming commitment of resources and high level of initial organizational change required to begin transitional activity. This is important for practicing managers, since transition addresses existing organizations instead of theoretical design or models of organizations requiring 'radical' change.

The temporary structure applied within an existing organizational structure also has potentially negative implications for management practice. There are three areas that should be of concern for implementation of the temporary structure in an organization. The first concern is the inherent organizational risk associated with application of the strategy. This risk occurs for individuals as well as the organization. These risks were recognized through the data analysis in the

form of emergent organizational defenses. In essence, even though the application is confidentially designed, it carries a risk to participating individuals. This not only must be a consideration for candor generated through the structure, but also the potential negative impact to participating individuals beyond the bounds of the application. In addition, the organization assumes the risk of explicit discovery of inconsistencies and possible identification of unresolvable issues within the current organizational structure and learning system. The second concern is the ability of the temporary structure to operate within the current organizational structure. The temporary structure may not be amenable to the contextual organizational factors necessary to support the emergence of OLP resulting from the implementation of the temporary structure. Thus, the result may be the inability of the application to overcome strong organizational defenses through temporary structure imposed within the existing organizational structure and contextual factors. The final concern for management practice addresses the focus on process development as opposed to issue, or problem, focus. Since the process focus is difficult to grasp, or measure, the focus of organizations is more easily directed to the apparent outcomes of applications. Particularly, outcomes from projects or activities seen as temporary in organizations. Therefore, the development of effective process may be difficult to project as expected outcome from a short duration project. This has the potential to reduce the project to a series of easily identifiable outcomes which are: (1) easy to measure and may be of varying significance within the organization, and (2) can be predesigned prior

to initiation of the project. Additionally, failure to take a process approach may limit the ability of the temporary structure to implement sustainable process, or generate more permanent structures to support sustainment of processes.

The concerns surrounding deployment of the strategy for the practice of management in organizations are not presented to minimize the potential benefit of the approach. On the contrary, the concerns are presented as items for consideration in attempting to apply the strategy, or portions of the strategy, at local levels of an organization. The awareness of these concerns may further inform local level application design and tailoring.

A Framework for Organizational Processes of Inquiry

The research findings at the individual and organizational levels imply a framework for design, assessment, development, or transition of organizational processes of inquiry. Organizational processes of inquiry are accomplished to some degree within organizations. These processes may be implicit or explicit and operate through formal or informal organizational structures and processes. The research categories and subcategories, along with supporting properties and dimensions, imply a framework for examining these existing organizational processes of inquiry with respect to their ability as generative sources of organizational learning process. This suggests that the framework may provide insight into the current processes from the perspective of organizational learning. Therefore, the framework might suggest modification to existing practices or structures, without being formally deployed in an organization.

Research Implications for Organizational Learning Theory

There are several implications for organizational learning based on the research findings. These implications extend beyond the local application findings and suggest understanding of findings with respect to the larger domain of organizational learning. The implications of the research for organizational learning theory include: (1) enhanced understanding of the processes of inquiry recognized as essential to organizational learning, (2) introduction of a distinct methodological approach for investigation of organizational learning phenomenon through application, (3) development of empirical support of Argyris and Schön's (1978) concept of organizational defenses operating in organizations, (4) suggestion of understanding organizational learning process as an individual level phenomenon, and (5) movement to articulate the relation between organizational processes of inquiry and organizational learning. These implications suggest extension of the research findings beyond the narrow scope of the limited intervention. Each of these implications for organizational learning are discussed below.

Increased Understanding the Organizational Learning Process of Inquiry

The research extended the organizational learning domain through the development of an organizational learning process of inquiry. This process of inquiry incorporated several related concepts from the organizational learning literature, including: organizational dialectic (Argyris and Schön, 1978), surfacing and testing mental models (Senge, 1990), and interpretation process (Daft and

Weick 1984). Although each of these concepts has a specific orientation to the process of inquiry supporting organizational learning, their integration allowed a further convergence in the fragmented organizational learning literature. Additionally, the research extended the concept through research designed to further understanding of the phenomenon through application in an organizational setting.

The research findings resulted in several important implications for understanding organizational learning processes of inquiry. First, the research suggested a tentative framework for understanding the process of inquiry at both the individual and organizational levels. This tentative framework has started the task of describing the form of the process generated through structured organizational inquiry at both the individual and organizational levels. The framework is exploratory and only provides an initial step toward fuller explanation of the process within the organizational learning theoretical framework. However, this first step is an important step since it provides a detailed account of the process for further exploration, elaboration, and framework development.

A second important implication of the research, with respect to the organizational learning process of inquiry, was the suggestion for process development. This suggests an approach to understanding organizational learning process through the attempt to develop that process. Therefore, the organizational learning process was developmental, researched as a self-reflective process-in-action. The process was self-reflective with respect to the ongoing reflective

practice designed to generate understanding of the process. Additionally, the process is characterized as a process-in-action because the focus of the research was the generation of the process which was also the phenomenon under investigation. Therefore, the process of organizational inquiry was used to facilitate understanding of the process in addition to developing implications generated as a result of the process.

Methodology for Investigation of Organizational Learning Phenomena

This research generated a particular methodology unique to the investigation of the organizational learning process phenomenon. The methodology was based primarily on the participatory action research framework (Wythe 1990). However, the PAR framework was modified and articulated specifically to support the research objectives. Therefore, a unique approach to the investigation of organizational learning phenomenon was developed within the PAR framework. The distinctions from PAR were developed, particularly with respect to: (1) the initiation of a predesigned application as a temporary organizational structure, (2) the nature and expectations of participation, (3) the focus on process development as opposed to problem resolution, and (4) the co-construction of the research context.

The research methodology was developed for application of the predesigned strategy as a participatory effort within an existing organization. The approach did not retrospectively fit organizational decisions, processes, or actions into predetermined structures, models, or theoretical frameworks. On the contrary, the

OLP descriptive framework was generated from the participative reflection of organizational participants concerning the strategy and form of the process being generated through the application of the strategy. Therefore, the methodology was generative of: (1) the phenomenon under investigation, and (2) the description of that phenomenon.

The methodological approach developed for the research application has several implications for research of the organizational learning phenomenon. First, a participatory approach to study of the organizational learning phenomenon has been suggested. Since the organizational learning phenomenon is fragmented, the utilization of different approaches is necessary to avoid unnecessarily limiting the development of the phenomenon understanding through restrictive methodological assumptions. Second, the process approach to understanding the phenomenon suggest a departure from more traditionally based participatory approaches focusing on outcome generation or problem resolution. The implication for study of organizational learning process is the installation of temporary structures and designs to accomplish generative process development within existing organizational structures. This suggest a wide latitude for participatory designs, ranging from initiation of new organizational structures to modifications to existing programs, projects, or activities as the source for participatory research efforts. Since the effort is directed to process generation, an entirely different spectrum of research project focus is created. The research projects are not restrictively bound to a narrow focus on specific problems or

situations. Therefore, research outcomes are not constrained by a predetermined criterion of 'success' being apparent resolution of a problem/issue. In essence, the implications for the research methodology suggest the opportunity to engage in useful variants of accepted forms of participatory research. In effect, the methodology becomes a flexible research tool, to be developed and modified to the research application and organizational context within which the research is to be generated, utilized, and projected beyond.

Empirical Support for the Concept of Organizational Defenses

The research findings supported Argyris and Schön's (1978) concept of organizational defenses as barriers to effective processes of inquiry supporting organizational learning. This support was evidenced through the recognition of organizational defenses emerging during the application of the strategy at the organizational level. In addition, the research also suggests that the computer-based strategy was capable of developing a generative environment for organizational learning process. This environment emerged, at both the individual and organizational levels, in the presence of recognized organizational defenses.

The emergence of organizational defenses and the strategy management of those defenses suggests two implications for research of the organizational learning phenomenon. First, the design of research must take into account the probable emergence of organizational defenses. Thus, the design of research must include mechanisms to address and attempt to overcome the organizational defenses. Second, organizational defenses are potentially harmful to participants

and the organization. Therefore, the design of research must also generate confidence in matters of confidentiality and attempt to minimize negative consequences at the individual and organizational levels. The environment supported by the research design must be non-threatening to support effective OLP. The design of a non-threatening environment not only serves to protect the individual participants from potentially harmful repercussions, but also supports candor in addressing sources of organizational incongruity. Therefore, while the effective research design protects the individual participants and organization, it also generates data more representative of explicit assumptions operating in the organization. In essence, effective design engenders trust in the research design and researcher ability to maintain a high level of confidentiality.

Organizational Learning Process at the Individual Level

The research suggested the necessity to develop the nature of organizational learning processes of inquiry at the individual level. The individual level was particularly important since organizational learning process at this level, without exposure to a larger segment of the organization, has not been adequately addressed. Instead, there is a convergence in organizational learning literature concerning the distinction necessary between *'individual'* and *'organizational'* learning. Additionally, there is an acceptance that organizational learning occurs through individuals as agents of the organization. However, the research generated the necessity to begin to articulate the potential for emergence of organizational learning processes potentially operating at the individual level. This

stems from the research suggesting that OLP, as facilitated through the strategy, emerged at the individual level. Additionally, the emergence of OLP occurred without formal exposure to the routine organizational processes which would typically be the focus of analysis for generating organizational learning, or action. Therefore, the traditional organizational defenses emergent in formal organizational processes were bypassed, at the individual level, by the computer-based environment.

The suggestion of organizational learning process as an individual level phenomenon has major implications for the study and development of organizational learning. First, the concept of individual organizational learning needs further definition, development, and investigation. However, the emergence of OLP at the individual level suggests that the extension of an individual level focus for organizational learning is an area in need of additional research. Second, the emergence of OLP at the individual level introduces an approach to overcoming organizational defenses. Instead of targeting this approach to the organizational level, the suggestion is to increase to focus organizational learning efforts directed at the individual level. This suggests research design development at the individual level with the potential to bypass traditional organizational defenses through computer-based mediums. Finally, understanding and development of organizational learning processes at the individual level suggests a spectrum of new approaches and strategies to develop environments conducive to generating organizational level inquiry at the individual level. Additionally, this

suggests the potential for transitional strategies for organizational learning focused on development of process of inquiry ranging from the individual to organizational levels.

The Relation Between OLP and Organizational Learning

The research established the concept of OLP and the strategy ability to generate OLP at both the individual and organizational levels. However, the relation between generation of the organizational learning process of inquiry and the development of organizational learning was not directly addressed by the research. The research implied that while the OLP generated suggested action, it did not include provision for explicit determination and accomplishment of action. In this respect, the OLP generated by the strategy was might be considered a necessary condition for organizational learning to occur, but without development of associated action, not a sufficient condition to constitute organizational learning. In effect, this implies a relation between OLP and organizational learning which has not been explored.

There are two research implications for the *OLP - organizational learning* relationship. First, the relation needs to be formally articulated, specifically concentrating on the relation of process to action at both individual and organizational levels. Second, investigation of the relationship should be completed to more fully understand the nature of the relation. Although the research suggested the OLP as a contributing and necessary process for

organizational learning to occur, this suggestion is tentative and currently lacks sufficient research foundation for support.

Directions for Future Research

The research generated important findings with respect to OLP at the individual and organizational levels. However, also emerging from the research were several areas in need of further development or investigation. These areas range from the suggestion of specific research activities focused on the computer-based strategy to broader research implications for OLP, organizational learning, and organizations.

Future Research Directions for the Computer-Based Strategy

There are several research implications for further development of the computer-based strategy. First, the research included several design modifications identified through the participatory process of strategy reframing. Several potential modifications were generated, including modifications to strategy design, application procedures, and the computer program. Review and incorporation of these changes would complete the self-generative development cycle of the strategy. Second, the strategy can be further enhanced by addition of the necessary steps to include a formal phase for action generation and accomplishment of action as an integral component of the application. This desire for strategy action generation emerged during the research application. The extension of the strategy to include the capability for action generation is a

potential extension toward generation of organizational learning. This extension would also permit investigation of the organizational learning production capability of the OLP generated through the strategy. Third, the strategy application can, based on research findings, be streamlined. The objective of this effort should be reduction in cycle time for the application and ability to rapidly deploy the strategy in multiple organizational settings with a spectrum of expected results. Therefore, coupled with action generation, the strategy can have short duration impact with minimal resource investment. Fourth, the strategy was designed to be self-reflective, providing for its own modification through the participatory feedback concerning strategy design and application. A future challenge for the strategy is to facilitate redesign as the strategy is being executed. Therefore, the redesign activity would be accomplished in a real time fashion, not after conclusion of the application. Finally, a primary direction for strategy development is the incorporation of a higher level of participatory involvement in the deployment of the strategy in organizational settings. The objective of this direction is the further development of the participatory nature of the strategy with respect to control over the strategy design/redesign and implementation in the organizational setting. This would facilitate less dependence on the researcher, and greater organizational control for management of theoretical design as well as local application.

A longer term future research direction for the strategy is the development of the strategy as an organizational method for transition to more advanced forms of organizational learning systems. This transitional capability, through the

application of the strategy, would find it necessary to make further developments in the basic strategy. There are two inherent directions for research based on the transitional capability for the strategy: First, future research must address the issue of temporary structure for organizational learning process. The objective of this research direction must be the development of the strategy as a generative method capable of installing sustainable organizational learning processes able to transition to permanent organizational structures and processes. Therefore, OLP research might find a path for modification of routine, permanent structures operating within the organization. Second, future research is necessary for the strategy to be developed as a design offering practicing managers a usable set of tools and methods to design, diagnose, transition, operate, or maintain high performance organizational learning systems and processes. Thus, the strategy would become a tool capable of being deployed by practicing managers and not be: (1) dependent of a researcher to direct the application of the strategy, (2) offer potential for substantial local level impact, and (3) maintain an orientation to further understanding of the processes generated within theoretical as well as practical domains.

Future Areas of Investigation Suggested by the Research

Several areas in need of additional investigation emerged as a result of the research. Although this listing is not complete, it includes the major opportunities to further investigation of OLP left unanswered by the research. Each area

presents research opportunities for further extension of the research as well as new directions for related research.

The relation of organizational learning process of inquiry and the organizational learning phenomena presents an area which emerged for future investigation. Although the research addressed the OLP within the organizational learning context, the relation of the two phenomena was not considered. This presents an important direction for research. Specifically, the extension of OLP as a process to generate organizational learning was implied by the research but not within the scope of investigation.

Research directed at a fuller understanding of the OLP generated through the strategy application is a significant area for future research efforts. The research findings generated an exploratory and tentative framework for understanding the OLP at the individual and organizational levels. However, the framework is tentative; based on a single organizational context, generated by a single researcher, and not examined beyond the narrow scope of the research effort. Therefore, this tentative nature of the framework suggest further investigation for confirmation and possible extension of the framework. Additionally, the framework would benefit by investigation based on different forms of methodological inquiry. In essence, the research application has produced tentative findings in need of additional research to support and extend those research findings.

The research application involved introduction of a temporary organizational structure and a set of activities designed to generate OLP. Additional research is needed to find methods for transition of temporary organizational learning structures and processes to routine processes and permanent organizational structures. Thus, the OLP developed would have the capability of being permanently embedded in the organizational structures in existence, or new structures generated to accomplish the organizational learning processes. In essence, this research direction would develop the sustainability of the temporary structures and processes introduced into the organization to facilitate OLP.

A final area for future research is the development of the OLP as part of the organizational learning system currently in place in an organization. This requires understanding the organizational learning system and installing the OLP directly into the operating learning system. This implies bypassing temporary structures and processes and directing development within existing learning system structures and organizational defenses. This research would be promising with respect to direct installation instead of transitional strategies. This suggests the possibility for more direct impact at reduced levels of resources necessary to install the OLP. Instead of development outside the organizational learning system, the OLP would be mapped directly into the existing system.

Summary

The research results provided a foundation for development of: (1) the responses to the research questions, (2) local organizational implications, (3)

implications for the management of organizations, and (4) implications for organizational learning theory. Additionally, the research generated directions for future research.

The categories which emerged from the research application established the capability of the computer-based strategy to generate OLP at the individual and organizational levels. At the individual level the strategy engaged the participants in the process of organizational inquiry which generated reflection about congruence in the organization as well as reflection about the organization. This was accomplished in the absence of barriers, or organizational defenses, operating to inhibit effective organizational learning. At the organizational level, the process of inquiry, developed through the strategy application, was evident through the emergence of organizational reflection and the learning process environment which developed. The organizational level inquiry was recognized as generating organizational defenses, which were absent from the individual level application. Additionally, the strategy demonstrated the ability to provide the participatory feedback necessary for reframing the strategy. Although the strategy generated OLP, it was not designed to generate action or organizational learning. However, the strategy, at both the individual and organizational levels, identified potential actions for the organization. Likewise, the strategy identified potential areas for redesign and modification in procedures, strategy design, and facilitation, but did not incorporate the areas for redesign/modification.

The strategy generated several implications for the local organization. Among these implications were: (1) Individual participant exposure to an expanded perspective of the organization, (2) the development of the individual perspective in relation to the larger organizational perspective, (3) the generation of explicit organizational knowledge, at both the individual and organizational levels, (4) the generation of suggested action at the individual, group, and organizational levels, with the potential for local level benefit, and (5) the organizational engagement in a non-routine reflective practice. The local level implications demonstrated the strategy capability for providing local level benefit while also studying the OLP phenomenon. However, the strategy application did not generate demonstrable action at individual, group, or organizational level. Therefore, while the opportunity for organizational learning may have been created, the action necessary to realize organizational learning was not produced.

There were several implications for the management of organizations identified through the research. In essence, these implications suggested use of the research by practicing managers in understanding the design, operation, and maintenance of organizational learning processes in an organization. First, the strategy presented a method, and the supporting procedures, for identifying sources of organizational incongruity. Additionally, the strategy also provided a mechanisms for developing organizational congruity through the design of the organizational level applications. Second, the strategy identified a temporary structure for generation of OLP. This temporary structure was presented as a

method to develop OLP outside the organizational structure which may be inhibiting full realization of processes of inquiry supportive of enhanced organizational learning. Finally, the research findings at the individual and organizational levels imply a framework for design, assessment, development, or transition of organizational processes of inquiry. This provided practicing managers with a basis for utilization of the research within organizations for understanding or development of processes of inquiry.

The research generated several implications for organizational learning theory. These implications included: (1) an enhanced understanding of the processes of inquiry recognized as essential to organizational learning, (2) the introduction of a distinct methodological approach for investigation of organizational learning phenomenon through application, (3) the development of empirical support for Argyris and Schön's (1978) concept of *organizational defenses*, (4) suggestion of understand organizational learning process as a individual level phenomenon, and (5) beginning to further articulate the relation between organizational processes of inquiry and organizational learning. Although the research made contributions to further understanding of the organizational learning phenomenon, there were several areas identified for further investigation or development. First, the strategy requires further development and application to refine the exploratory framework for OLP as well as the strategy. Second, future research is necessary for the strategy to be developed as a design offering practicing managers a usable set of tools and methods to design, diagnose, transition, operate, or maintain high

performance organizational learning systems and processes. Additionally, other areas suggested for additional research included: (1) investigation of OLP in relation to organizational learning, (2) a more complete understanding of the OLP phenomenon coupled with further exploration, testing, and development of the tentative framework, (3) the development of methods to implement sustainable processes and structures supporting OLP in organizations, and (4) the development of OLP within the organizational learning system operating in organizations. In essence, the research identified several promising areas of potential future research.

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APPENDIX 1

ORGANIZATIONAL PROFILE INTERVIEW

ORGANIZATIONAL PROFILE INTERVIEW QUESTIONS

Instructions: This interview will be used to develop perspectives of the _____ Health System. Your responses are anonymous and will be integrated with those of other participants. I have planned to tape record this session to aid field notes and ensure that all of your responses are accurately captured. Tapes will be secured and will not be identified to you by name.

This interview consist of a set of 8 questions. Please remember that the organization the questions are directed at is the _____ Health System. The first four questions are related. For clarity, this diagram (attached) shows the relationship of the items in the first four questions.

1. We might say that the ***"core mission"*** of the _____ Health System is the reason the system exists. It defines the function of the system and serves to distinguish the _____ Health System from other similar organizations. How would you characterize the important elements of the core mission for the _____ Health System?

2. To fulfill the core mission there are certain ***"objectives"*** which must be accomplished. Objectives define what the system is setting out to accomplish. Objectives do not necessarily need to be written down, they may be formal or informal. What are the objectives of the _____ Health System?

3. To fulfill the core mission the organization produces ***specific products*** and/or provides ***services***. Products and services are the specific outputs of the organization which support accomplishment of the core mission you identified. What are the specific products or services of the _____ Health System?

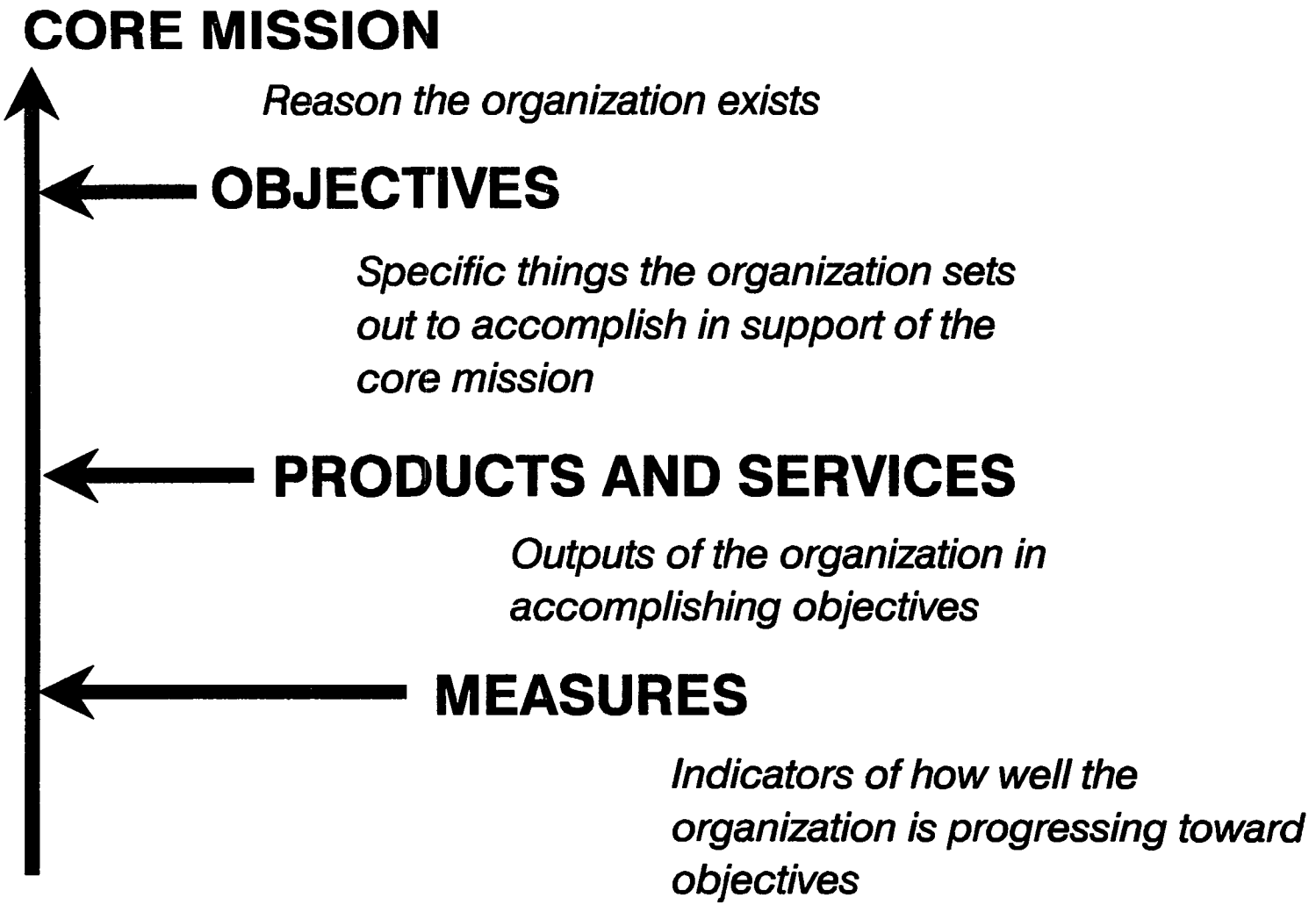
4. ***Measures*** are indicators of how well the _____ Health System is performing in accomplishment of the core mission and objectives. They reflect how we know how well we are doing. Measures do not necessarily need to be numbers or written down. What are the measures for the _____ Health System that serve to indicate how well the organization is performing?

5. In the _____ Health System ***issues*** arise which can have an impact on fulfilling the core mission and accomplishing objectives. These issues might be identified by formal or informal means. In the _____ Health System, how are issues affecting the core mission or objectives identified?

6. What time length would you assign to "short term" for the _____ Health System? What are the ***top three priorities*** currently facing the _____ Health System in the ***short term***?

7 What time length would you assign to "long term" for the _____ Health System? What are the ***top three priorities*** facing the _____ Health System in the ***long term***?

8. Each organization has characteristics or qualities which distinguish it as unique and set it apart from other organizations. What ***distinguishes*** the _____ Health System?



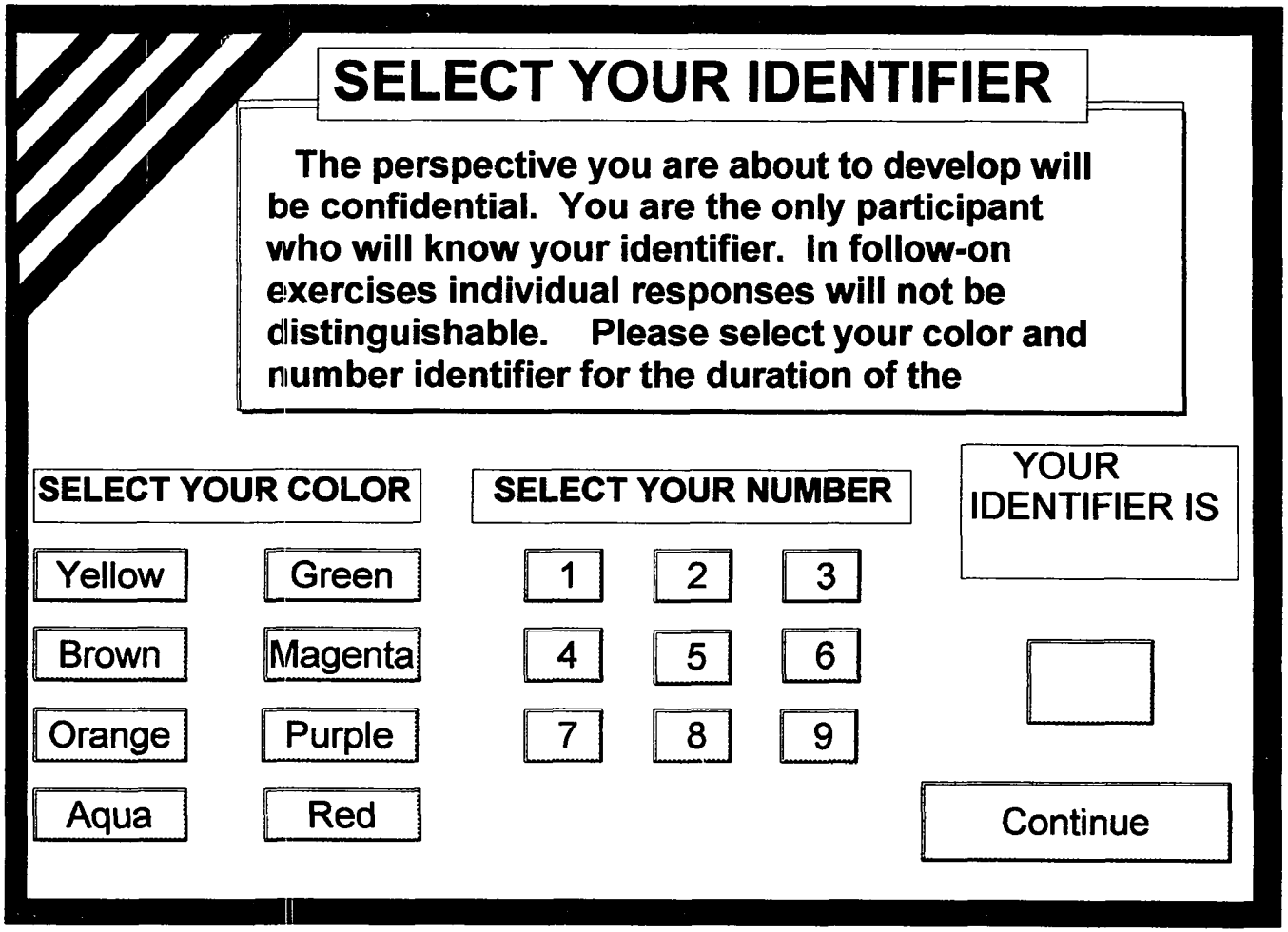
Appendix 1 diagram. The relation between the first four questions in the organizational profile interview.

APPENDIX 2

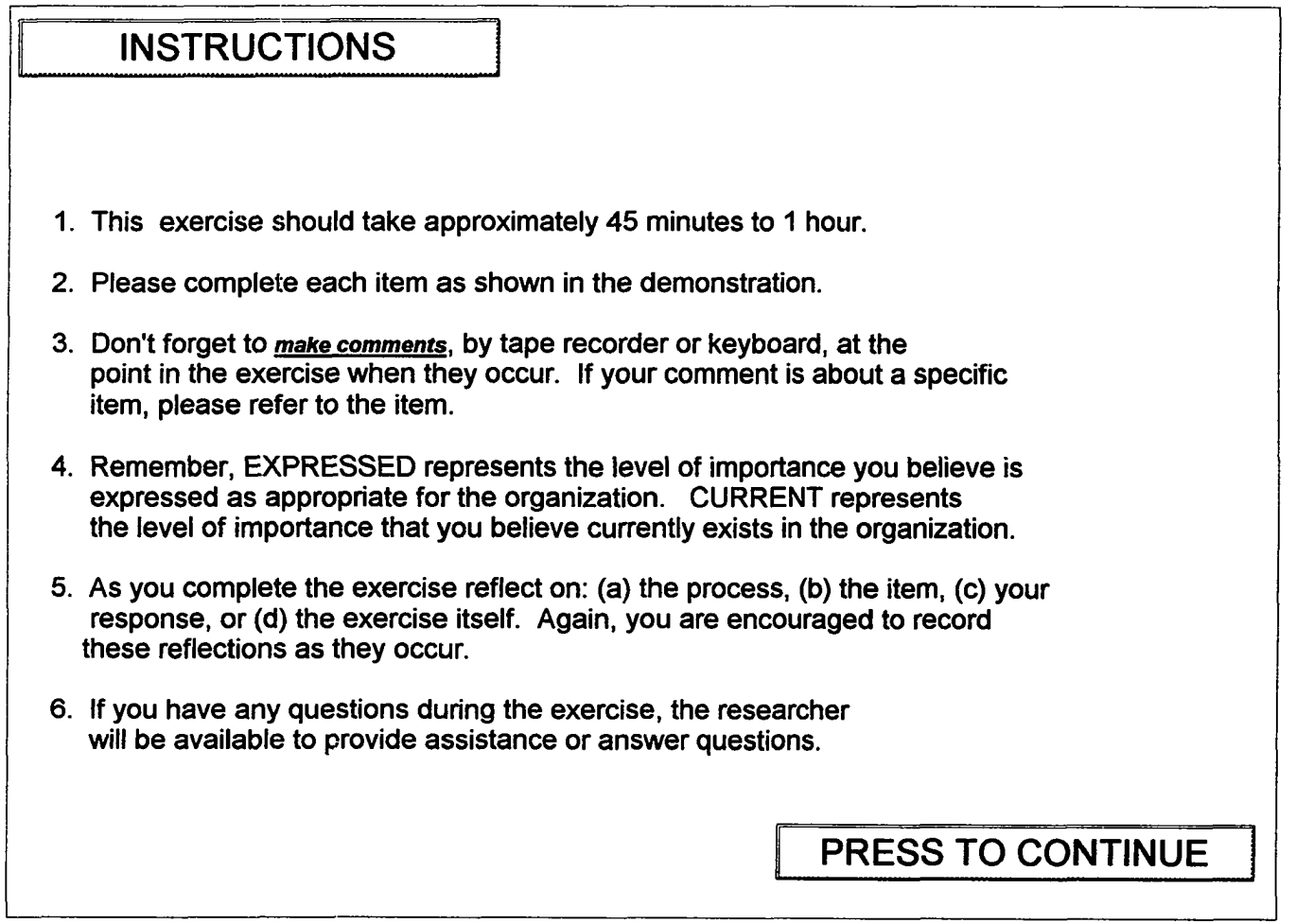
COMPUTER-BASED EXERCISE 1

The following appendix diagrams are representative of the computer program screens used for the first computer exercise: **The Perspectives Development Exercise**. The screens appear in the order they were encountered by the participants. The caption at the bottom of each screen gives a short description of the function and purpose of the screen.

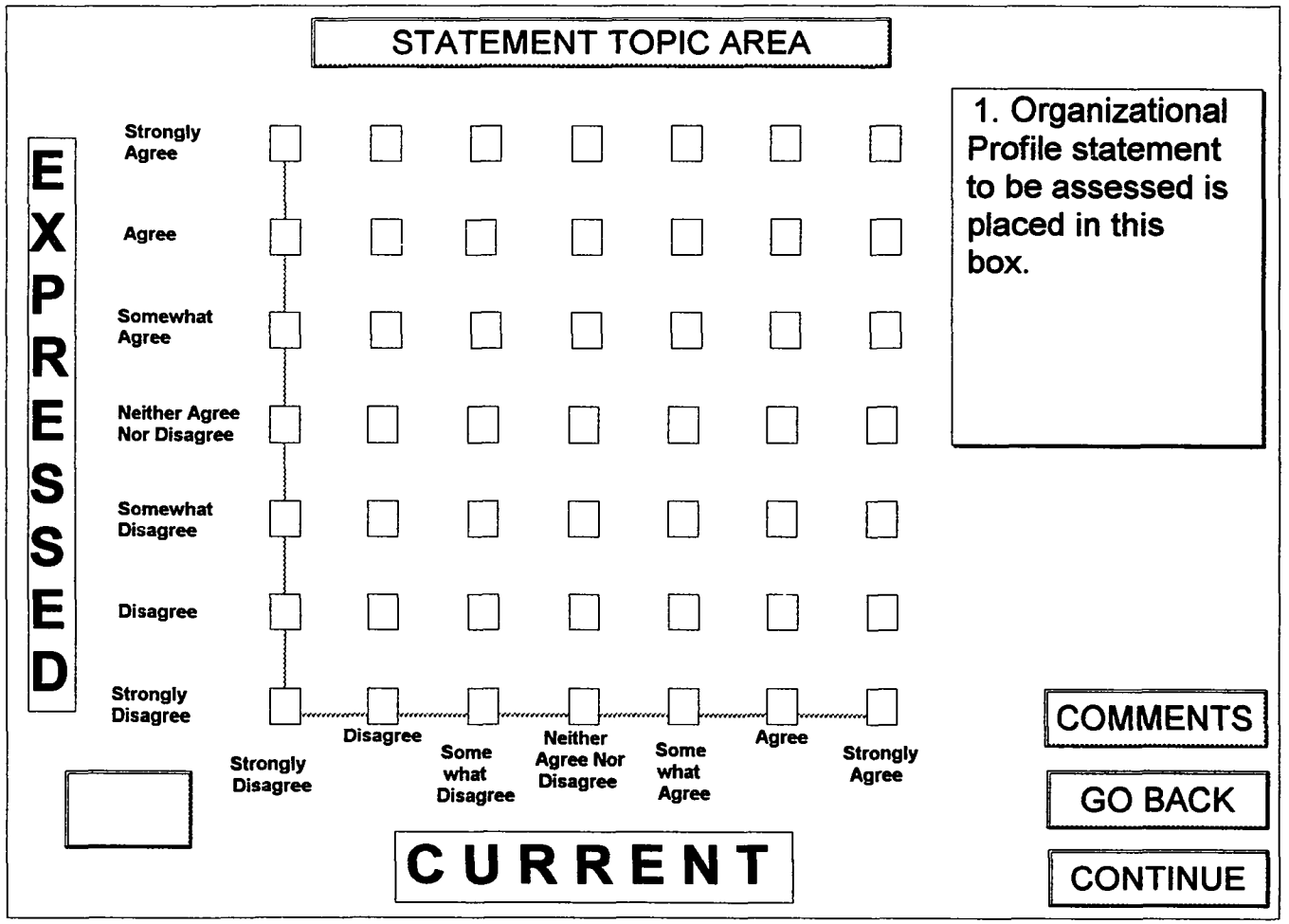
Appendix 2 Computer Screen 1 - Introduction screen for the Perspectives Development Exercise.



Appendix 2 Computer Screen 2. This screen was used to allow participants to select an identifier (color and number) for the computer-based exercise.

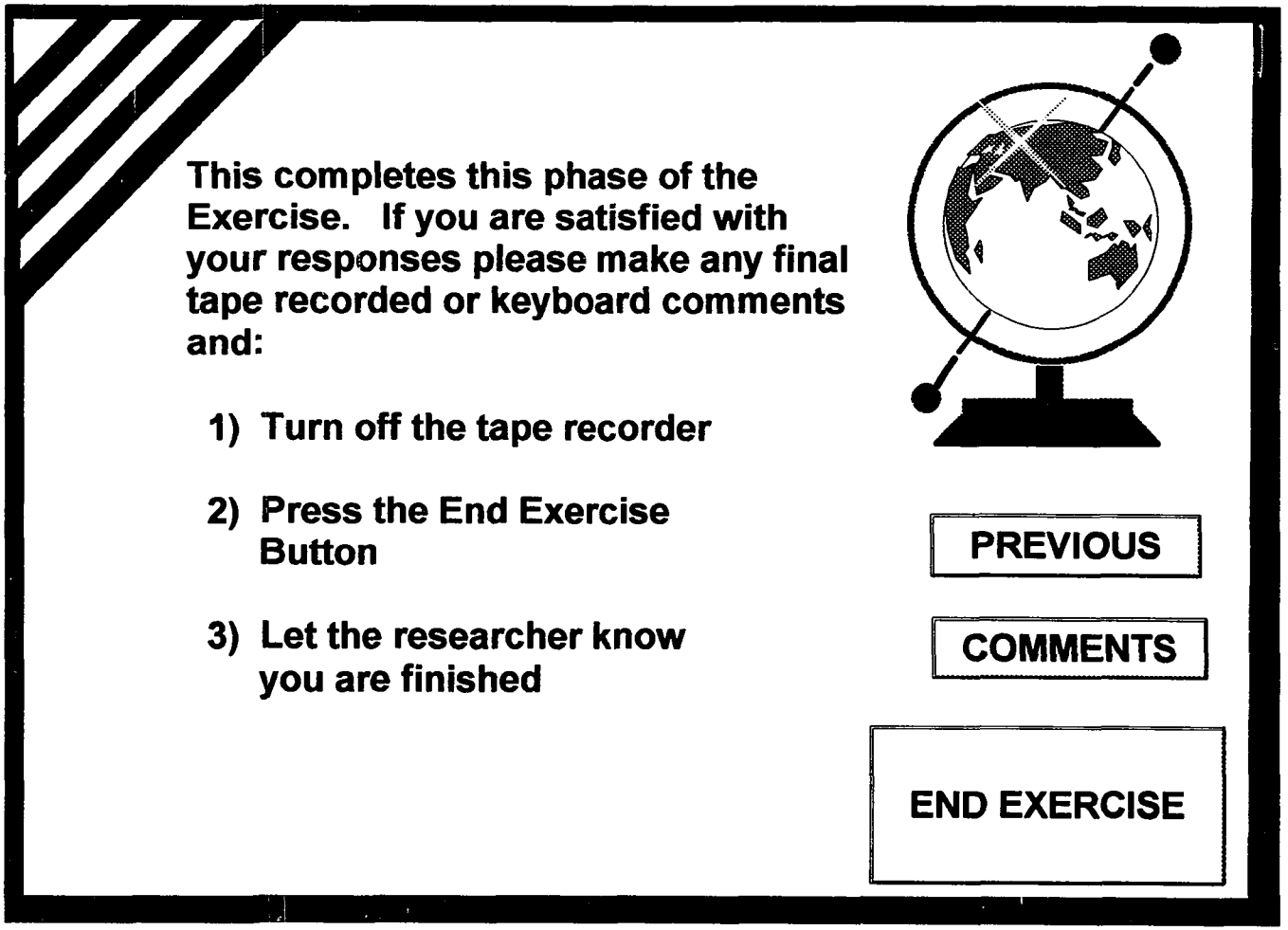


Appendix 2 Computer Screen 3. This screen provided written instructions for participants.



Appendix 2 Computer Screen 4. This screen was used to allow participants to assess the organizational profile statements. Each profile statement had an individual screen generated for the exercise.

Appendix 2 Computer Screen 5. This screen was used to collect the keyboard comments made by participants during the exercise. The comments screen could be accessed at any point in the exercise.



Appendix 2 Computer Screen 6. This screen signaled the end of the exercise for participants.

APPENDIX 3

PROCESS INTERVIEW 1

FIRST PROCESS INTERVIEW QUESTIONS
Conducted at the conclusion of computer-based exercise 1

Instructions: This interview is designed for you to assess: (1) the content of perspectives generated, (2) the instruments and procedures used, and (3) the exercise to this point. All responses are confidential and will not be identified to you. To facilitate answering questions, this summary of perspective statements from the exercise is provided. To aid field notes the session will be tape recorded.

Content of Perspectives Generated

Thus far in the exercise a perspective of the organization has been developed from the interview of participants, and you have completed an assessment of that perspective. The following four questions concern the content of the perspective you just assessed.

1. What was different about the perspectives of the computer exercise than what you provided as initial input?

2. Where there any surprises in the content of the different perspectives? What were the surprises?

3. Were there any particular statements that needed additional explanation or clarification to be assessed? Can you think of any specific items?

4. Is there anything you would add to the perspectives which have been generated? Something that has been left out?

Instruments/Procedures Assessment

The following questions are about the initial interview questions and the computer application you just completed. For reference, this list of interview questions is provided.

The interview questions were designed to establish an explicit perspective of the organization.

5. Did the questions cause you to think about items you don't ordinarily think about for the organization?

6. What comments do you have about the interview questions or procedures?

7. What would you change modify in the interview questions or procedures?

The computer application was designed to confidentially expose you to other perspectives of the organization. Also, to allow you to assess those perspectives with respect to the importance EXPRESSED in the organization and the importance CURRENTLY exercised in the organization.

8. To what degree was the computer application effective in representing perspectives and allowing you to assess those perspectives?

9. What comments do you have about the computer application or procedures?

10. If you could make modifications in the computer application, what would you change?

Process Assessment

These questions are designed to gather your comments about the exercise.

11. What was the impact on your perspective as a result of being exposed to other perspectives? How did it change?

12. Were there changes in your thinking about initial interview questions as a result of the computer application? Can you think of any specific differences?

13. Has the exercise caused you to reflect about things you do not routinely or explicitly think or reflect about? Can you give some specific examples?

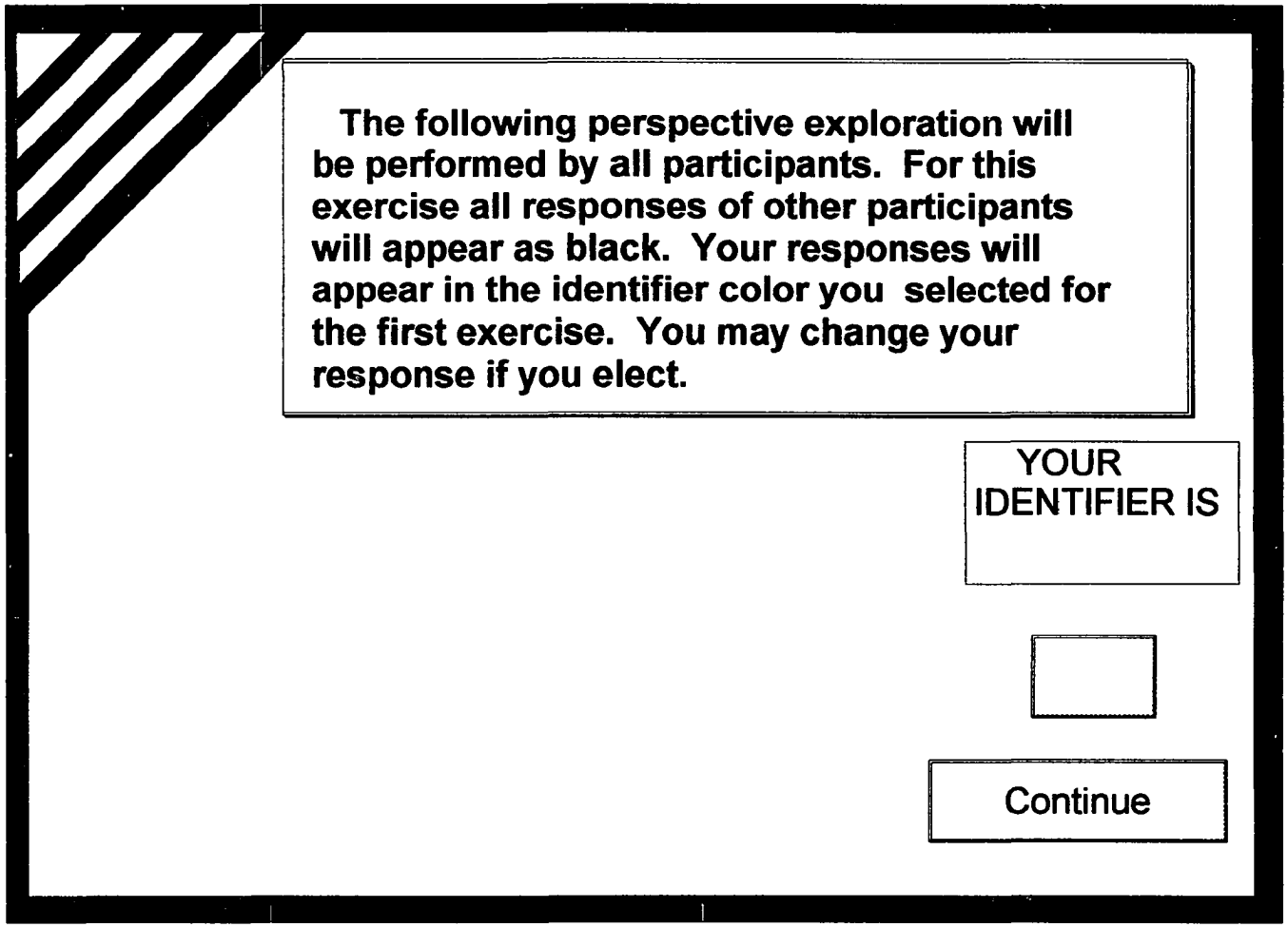
14. Since the exercise started what has changed in your thinking, actions, or decisions with respect to the organization?

APPENDIX 4

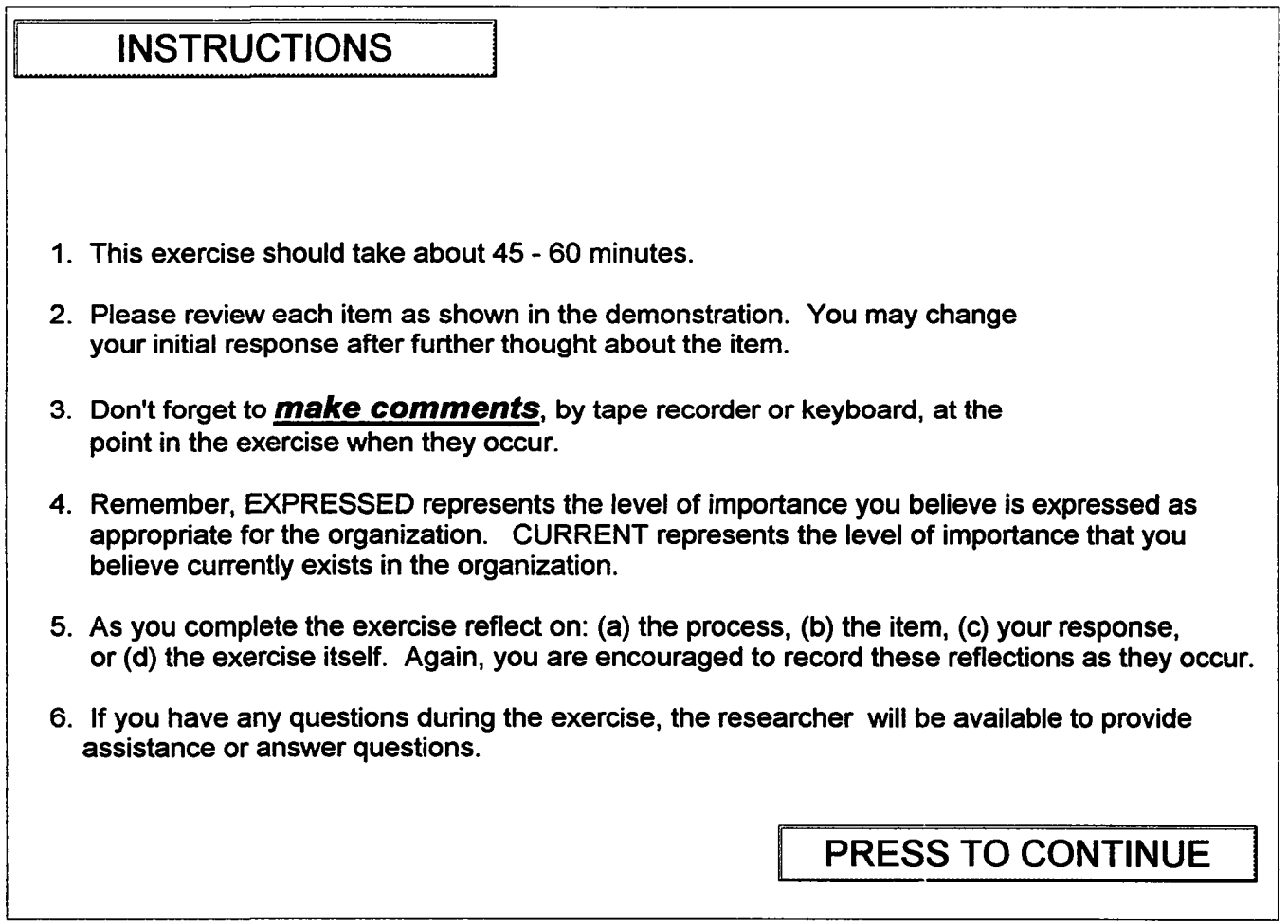
COMPUTER-BASED EXERCISE 2

The following appendix diagrams are representative of the computer program screens used for the second computer exercise: **The Perspectives Exploration Exercise**. The screens appear in the order they were encountered by the participants. The caption at the bottom of each screen gives a short description of the function and purpose of the screen.

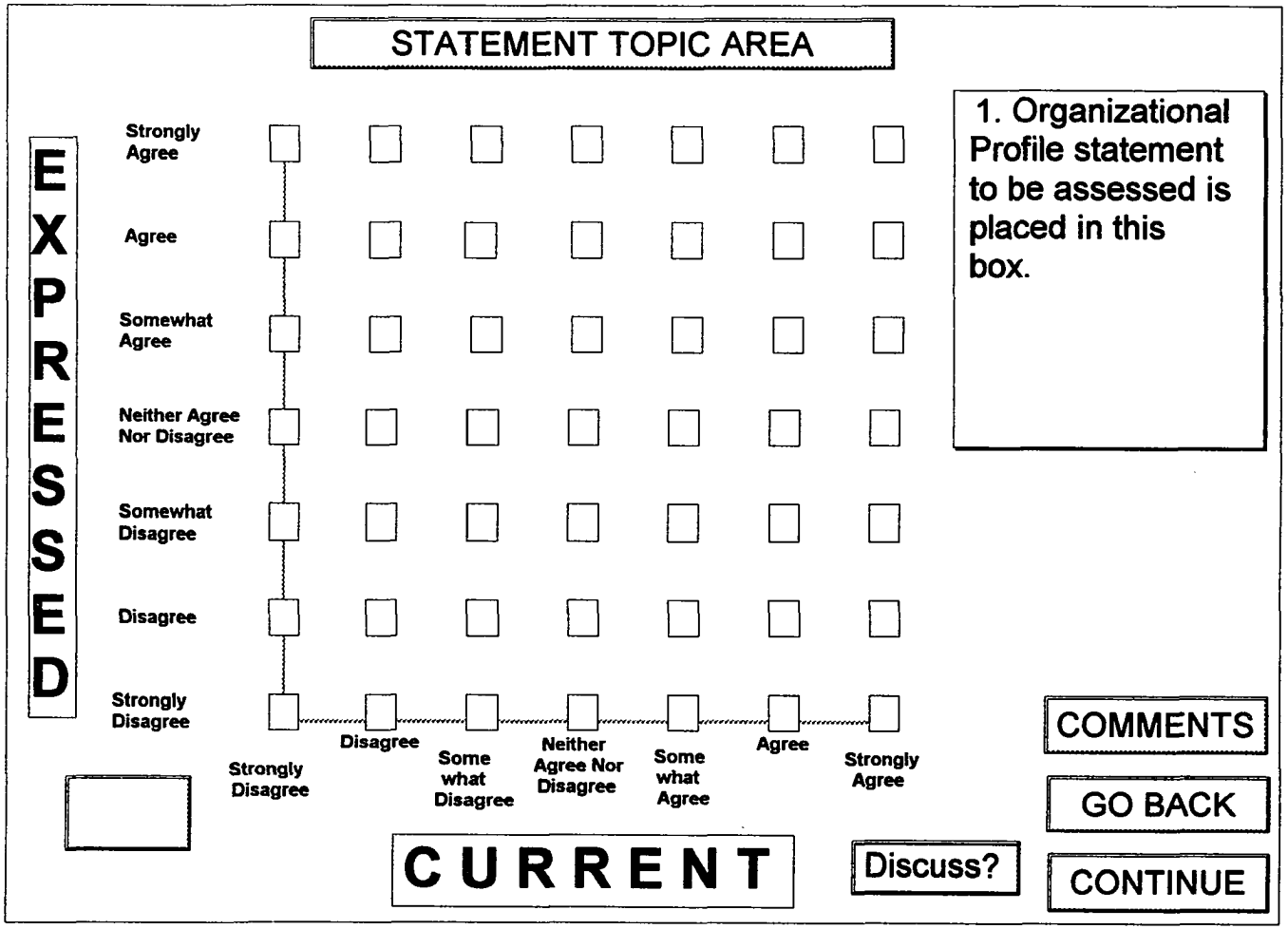
Appendix 4 Computer Screen 1 - Introduction screen for the Perspectives Exploration Exercise.



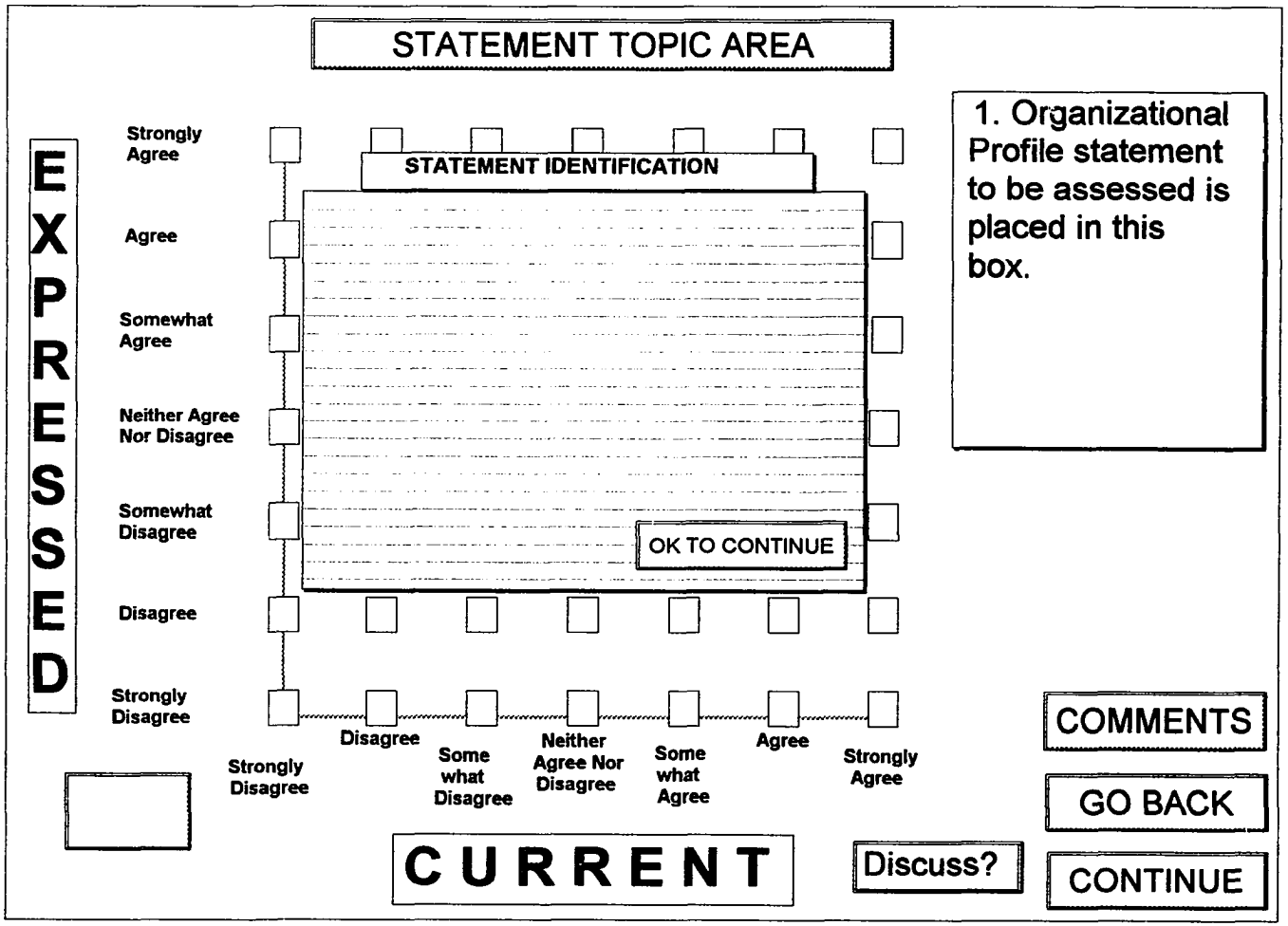
Appendix 4 Computer Screen 2. This screen was used to remind participants of the identifier (color and number) they had selected for use during the computer-based exercises.



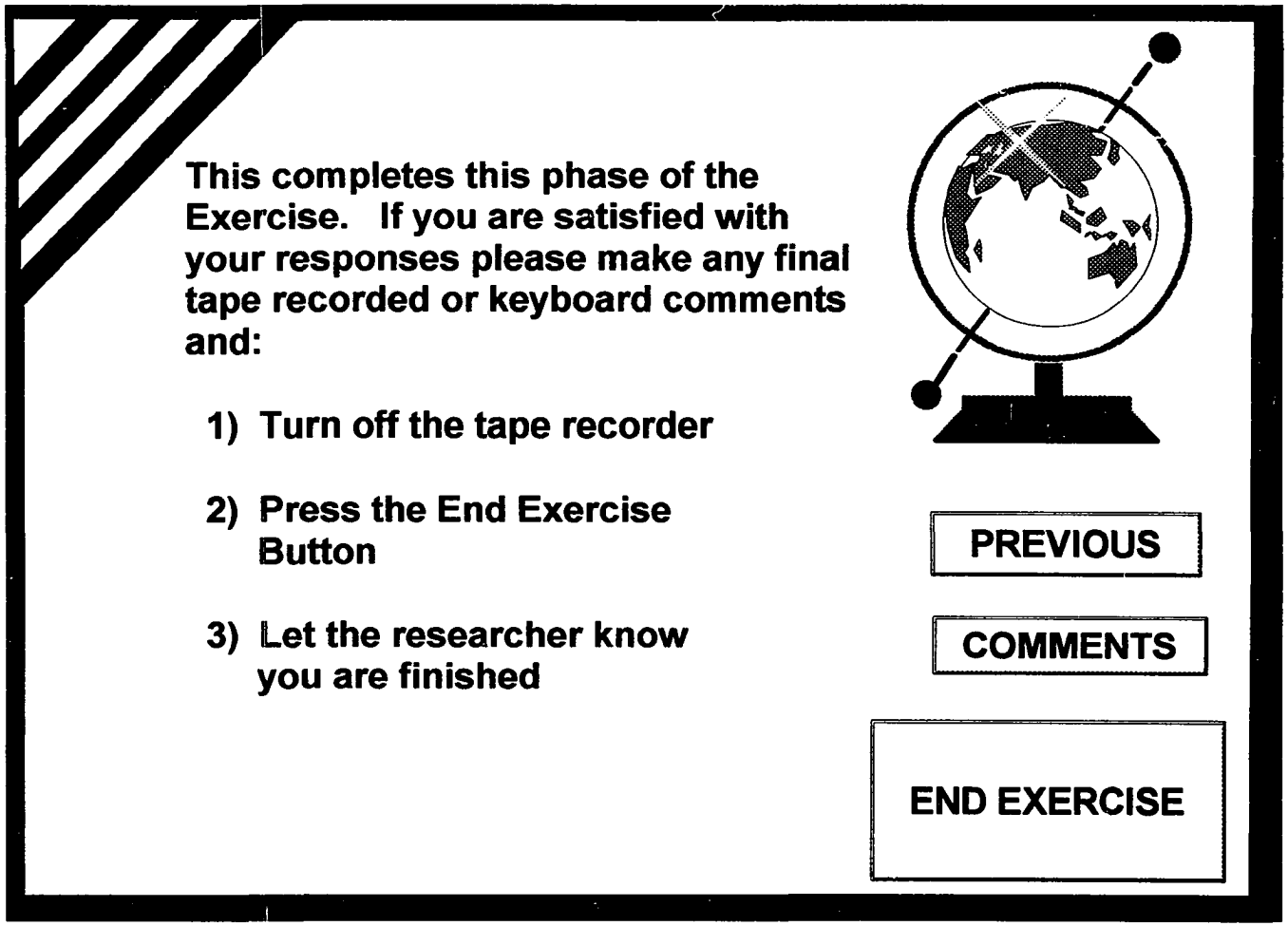
Appendix 4 Computer Screen 3. This screen provided written instructions for participants.



Appendix 4 Computer Screen 4. This screen was used to allow participants to examine assessments of the organizational profile statements generated during the first computer exercise. All responses from the participating group were displayed for the assessment. One profile statement was displayed for each screen. Additionally, participants could identify the desire to discuss the statement in the joint discussion by highlighting the 'Discuss' indicator.



Appendix 4 Computer Screen 5. This screen demonstrates the comment 'box' used to collect the keyboard comments made by participants during the second computer exercise. Each profile statement had a separate comments 'box' assigned. The comments 'box' could be accessed at any point during the assessment of the profile statement.



Appendix 4 Computer Screen 6. This screen signaled the end of the exercise for participants.

APPENDIX 5

COMPUTER EXERCISE
QUANTITATIVE DATA SUMMARY

This appendix includes the results of quantitative data analysis for each group. The quantitative data is presented for each question of the organizational profile. The summary data includes the following data for both the initial and final assessments (Computer-based Exercise 1 and 2, respectively): Mean Distance from Midpoint or the Mean Euclidean Distance (MED), Average Expressed Value (AVG EXP), Average Current Value (AVG CUR), Range of Expressed Value (RGE EXP), and Range of Current Value (RGE CUR). Due to individual and organizational confidentiality concerns, the organizational profile statements evaluated are not included.

GROUP 1										
	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL
QUES #	MED	MED	AVG EXP	AVG EXP	AVG CUR	AVG CUR	RGE EXP	RGE EXP	RGE CUR	RGE CUR
1	0.42	0.04	7	7	6.63	6.63	0	0	1	1
2	0.82	0.3	6.5	6.5	6.38	6.38	2	2	2	2
3	0.6	0	6.88	7	6.38	6.5	1	0	2	1
4	0.62	0.2	6.88	7	6.5	6.38	1	0	2	2
5	0.81	0.16	6.5	6.75	5.75	5.75	2	1	2	2
6	0.84	0.32	6.38	6.63	5.5	5.63	2	2	1	1
7	0.73	0.28	6.13	6.13	5.75	5.75	2	2	1	1
8	0.62	0.14	6.63	6.75	5.75	5.88	2	1	1	1
9	0.31	0.12	6.88	7	6.88	6.88	1	0	1	1
10	0.61	0.32	6.25	6.25	5.75	5.75	2	2	1	1
11	0.51	0.24	6.75	6.75	6	6	1	1	2	2
12	0.5	0.34	7	7	6.63	6.63	0	0	2	2
13	0.8	0.06	6.5	6.5	6	6.25	2	1	2	1
14	0.61	0.02	6.5	6.5	6.63	6.63	1	1	1	1
15	2.01	0.68	5.75	6.38	4.88	4.75	5	3	4	4
16	0.56	0.06	6.75	6.75	5.63	5.63	1	1	1	1
17	0.73	0.5	6.13	6.25	6.13	6.13	2	2	2	2
18	0.71	0.22	6.63	6.63	6	6	1	1	2	2
19	0.71	0.42	6.38	6.5	6.13	6.13	2	2	2	2
20	0.66	0.22	6.75	6.75	5.75	5.88	1	1	2	2
21	0.63	0.16	6.63	6.63	5.88	5.88	1	1	2	2
22	0.92	0.3	6.5	6.63	5.5	5.63	2	1	3	3
23	0.73	0.18	6.5	6.5	5.5	5.75	1	1	2	2
24	0.97	2.08	6.25	6.25	5.88	5.75	4	4	3	3
25	1.11	0.14	6.25	6.25	5.63	5.63	2	2	3	2
26	0.8	0.96	6.13	6	5.13	5.13	2	2	3	3
27	0.79	0.88	6.13	6.13	4.88	4.88	2	2	3	3
28	0.59	0.06	6.63	6.63	5.38	5.38	1	1	1	1
29	0.6	0.04	6.63	6.63	6.38	6.38	1	1	1	1
30	1.04	0.36	6.13	6	4.88	4.88	2	2	4	1
31	0.7	0.16	6.25	6.25	5.5	5.38	2	2	1	1

GROUP 1										
	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL
QUES #	MED	MED	AVG EXP	AVG EXP	AVG CUR	AVG CUR	RGE EXP	RGE EXP	RGE CUR	RGE CUR
32	1.77	3.26	5.25	5.25	4.25	4	6	6	5	5
33	0.87	0.34	6.13	6.25	5.75	5.88	2	2	1	1
34	0.89	0.26	6.38	6.13	5.75	5.63	2	2	2	2
35	0.89	0.28	6.13	6.13	5.38	5.38	2	2	2	2
36	0.43	0.14	6.75	6.75	6.13	6.13	1	1	1	1
37	1.06	0.56	6	6	5.25	5.25	2	2	3	3
38	1.24	0.84	6.13	6.13	5.5	5.5	2	2	4	4
39	1.06	0.54	6.38	6.38	5	5.13	1	1	4	3
40	0.97	0.18	6	6.38	6.13	6.38	3	2	3	1
41	1.86	3.1	4.25	3.75	3.75	3.5	6	5	5	5
42	1.3	0.54	4.25	4.25	4.13	4.25	6	1	5	2
43	1.09	0.62	6	6.13	4.5	4.5	2	2	3	3
44	1.79	0.58	5.25	5.13	4.5	4.25	5	4	3	3
45	2.49	1.74	4.25	4	3.88	3.63	6	5	5	5
46	1.48	0.02	5.88	6.5	5.75	6.38	5	1	5	1
47	0.57	0.16	6.75	6.75	6.13	6.25	1	1	2	1
48	0.72	0.02	6.38	6.5	6.38	6.38	2	1	1	1
49	0.6	0.02	6.63	6.63	6.38	6.38	1	1	1	1
50	1.77	1.88	5.13	4.75	4.5	4.5	5	4	4	4
51	1.28	0.88	5.63	5.63	5.25	5.63	4	4	3	1
52	0.86	0.76	5.75	5.75	4.88	4.88	2	2	3	3
53	0.65	0.4	6.38	6.38	6	6	2	2	2	2
54	1.67	1.48	5.63	5.63	4.5	4.5	4	4	4	4
55	0.75	0.54	5.75	5.63	5.13	5.13	3	2	2	2
56	1.57	1.84	5.13	5	4.88	4.75	5	4	5	4
57	0.81	0.28	6.38	6.38	5.63	5.63	2	2	2	2
58	1.21	2.56	5.5	5.5	5.13	5.13	5	5	3	3
59	1	0.72	6.13	6.25	5.25	5.25	3	3	2	2
60	1.12	0.82	6.38	6.38	5.5	5.5	2	2	4	4
61	0.51	0.06	6.5	6.5	5.88	5.88	1	1	1	1
62	0.69	0.52	6	6.13	6	6.13	2	2	2	2

GROUP 1										
	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL
QUES #	MED	MED	AVG EXP	AVG EXP	AVG CUR	AVG CUR	RGE EXP	RGE EXP	RGE CUR	RGE CUR
63	0.88	0.26	5.75	6	5.63	5.63	3	2	1	1
64	1.74	3.28	4.75	5.13	4.5	4.88	5	5	4	4
65	0.69	0.26	6.63	6.63	6.5	6.5	2	2	1	1
66	0.82	0.48	6	6	5	4.88	2	2	3	3
67	0.79	0.44	6.63	6.75	6.5	6.75	2	2	2	1
68	0.75	1.54	6.88	6.88	5.88	5.88	1	1	4	4
69	1.19	1.92	6.5	6.63	5.63	5.63	2	1	5	5
70	0.48	0.64	6.13	6.13	6	6	2	2	2	2
71	2.29	4.1	3.63	3.5	3.5	3.75	6	6	6	6
72	0.42	0.04	7	7	6.63	6.63	0	0	1	1
73	0.73	0.62	6.63	6.63	6	6	1	1	3	3
74	1.29	0.14	6	6.5	6	6.38	5	1	4	2
75	0.73	0.16	6.5	6.63	5.88	6	2	1	2	2
76	1.19	2.48	6	6	5.5	5.5	5	5	2	2
77	0.7	0	6.75	7	6.38	6.5	2	0	2	1
78	0.57	0.06	6.75	6.75	6.5	6.5	1	1	1	1
79	0.86	0.16	6.5	6.63	5.88	6	2	1	2	2
80	1.03	1.62	6	5.88	6.13	6.13	4	4	2	2
81	0.64	0.16	6.5	6.5	5.88	6	1	1	2	2
82	0.73	0.2	6.25	6.38	5.75	5.75	2	1	2	2
83	0.48	0.12	6.88	6.88	6.63	6.63	1	1	1	1
84	0.6	0.02	6.63	6.63	6.38	6.38	1	1	1	1
85	0.57	0.06	6.75	6.75	6.5	6.5	1	1	1	1
86	1.31	3.96	5.38	5.13	5.13	5	5	5	5	5
87	0.42	0.04	7	7	6.63	6.63	0	0	1	1
88	0.48	0.12	6.88	6.88	6.63	6.63	1	1	1	1
89	0.57	0.06	6.5	6.5	5.75	5.75	1	1	1	1
90	0.63	0.06	6.63	6.63	6.13	6.25	1	1	2	1
91	0.87	0.3	6.13	6.13	5.38	5.38	2	2	2	2
92	1.08	1.2	5.88	5.75	5	4.88	2	1	5	4
93	1.41	0.04	6.25	6.63	5.5	6.38	4	1	6	1

GROUP 1										
	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL
QUES #	MED	MED	AVG EXP	AVG EXP	AVG CUR	AVG CUR	RGE EXP	RGE EXP	RGE CUR	RGE CUR
94	0.49	0.08	6.88	6.88	6.38	6.38	1	1	1	1
95	0.54	0.12	6.75	6.75	6.63	6.63	1	1	1	1
96	1.03	0.68	5.63	5.75	4.75	5	3	2	3	3
97	1.01	0.56	6	6	4.75	5	2	2	3	2
98	0.82	0.18	6.38	6.63	5.5	5.5	2	1	2	2
99	0.99	0.78	6.25	6.5	5.38	5.38	2	1	4	4
100	0.66	0.1	6.38	6.38	5.75	5.88	2	1	1	1
101	0.55	0.12	6	5.88	5.63	5.63	2	1	1	1
102	0.66	0.16	6.25	6.25	5.25	5.25	2	2	1	1
103	0.86	1.34	6.63	6.63	5.88	5.88	1	1	4	4
104	2.13	3.46	4	4	3.38	3.75	5	5	5	5
105	0.86	1.14	6	6	5.63	5.63	3	3	3	3
106	0.84	0.68	6	6	5.63	5.63	2	2	3	3
107	1.08	0.1	6	6	4.88	5	2	2	3	2
108	0.51	0.06	6.88	6.88	6.5	6.5	1	1	1	1
109	1.03	0.74	5.88	5.75	5.5	5.38	2	2	4	3
110	0.73	0.88	5.88	5.88	5.5	5.5	1	1	3	3
111	0.65	0.24	6.5	6.38	6.13	6	1	1	2	2
112	0.66	0.52	6.13	6.13	5.75	5.75	2	2	2	2
113	0.74	0.58	5.88	5.88	6.13	6.13	2	2	2	2
114	0.59	0.06	5.63	5.63	5.63	5.63	1	1	1	1
115	0.84	0.06	6.38	6.38	6.13	6.38	2	1	2	1
116	0.55	0.68	5.88	5.88	6.13	6.13	2	2	2	2
117	0.27	0.26	5.88	5.88	5.88	5.88	1	1	1	1
118	1.48	0.34	5.25	5.88	5.25	6	4	1	5	2
119	0.63	0.72	6.13	6.13	6	6	2	2	2	2

GROUP 2										
	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL
QUES #	MED	MED	AVG EXP	AVG EXP	AVG CUR	AVG CUR	RGE EXP	RGE EXP	RGE CUR	RGE CUR
1	1.11	0.24	6.56	6.33	5.44	5.67	1	1	4	2
2	1.44	0.52	6.56	6.56	4.33	4.56	1	1	5	3
3	1.76	0.4	6.89	7	5.78	6.67	1	0	6	2
4	1.42	1.38	6.67	7	5.11	5.22	2	2	5	4
5	1.39	0.52	6.11	6.11	4.56	4.89	2	2	3	3
6	1.23	0.28	6.33	6.78	6.11	6.22	3	1	2	2
7	2.33	3.08	5.11	5.33	5.33	5.11	5	4	5	3
8	0.86	0.22	6.33	6.33	6	6	2	2	2	0
9	2.06	0.78	4	3.67	5.56	5.89	5	5	4	2
10	1.48	0.24	5.78	5.56	4.56	4.56	3	3	3	3
11	1.17	0.96	6.33	6.33	5.22	5.22	2	1	4	4
12	1.47	0.9	6.33	6.22	4.78	4.67	1	1	5	4
13	1.45	0.68	5.67	5.78	5.11	5	3	1	4	3
14	1.14	0.58	5.78	6	5.44	5.33	3	3	1	1
15	1.56	0.52	6.22	6.22	4.56	4.33	2	2	5	3
16	1.6	0.68	5.56	5.11	4.44	4.33	3	2	5	4
17	1.69	1.08	6.11	6.11	5	5.44	2	2	6	4
18	1.23	0.66	6.11	6	5.33	5.67	3	3	4	1
19	1.69	2.54	5.89	6	5.11	5.22	4	4	5	5
20	0.92	0.08	6.33	6.44	5.89	6.22	2	1	3	1
21	1.8	1.36	5.11	4.89	5.89	5.89	5	5	2	2
22	1.54	1.04	5.78	5.89	4.67	4.78	4	3	3	3
23	1.35	0.2	5.78	5.67	5.11	5.44	4	1	5	2
24	0.66	0.04	6.67	6.67	6.33	6.33	1	1	1	1
25	1.41	1.06	6.56	6.56	5.22	5.67	2	2	4	2
26	0.79	0.02	6.56	6.67	6.56	6.56	2	1	1	1
27	1.14	0.6	5.67	5.67	5.33	5.44	3	3	2	2
28	0.82	0.26	6.67	6.67	5.89	6	1	1	2	2
29	1.46	0.38	6.11	6.22	5.78	6.22	2	2	3	2
30	1.69	1.34	5.67	6.11	5.22	5.67	4	2	4	4
31	1.22	1.36	5.89	5.89	5.33	5.33	2	2	4	4

GROUP 2										
	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL
QUES #	MED	MED	AVG EXP	AVG EXP	AVG CUR	AVG CUR	RGE EXP	RGE EXP	RGE CUR	RGE CUR
32	1.14	2.96	6	6	6.22	6.22	5	5	2	2
33	0.34	0.12	6.78	6.78	7	7	1	1	0	0
34	1.48	1.1	5.44	5.44	4.67	4.67	4	4	4	4
35	1.9	0.74	5.33	5.56	3.89	4.11	4	3	4	4
36	1.19	0.26	6.11	6.11	5.22	5.22	3	2	3	1
37	1.43	1.58	5.22	5.22	4.67	4.44	4	4	4	4
38	1.32	0.54	5.78	6.22	5.89	6	4	2	3	2
39	1.21	0.26	6	5.89	5.11	5.22	2	2	4	2
40	1.77	0.78	6	6.33	6	6.33	4	2	4	3
41	1.7	0.78	5.33	5.89	5.22	5.56	4	3	3	2
42	1.64	1.24	5.11	5.67	5.22	5.33	4	3	4	4
43	1.81	1.16	3.33	3	2.89	2.78	6	4	3	2
44	0.78	0.54	5.67	5.67	5.78	5.78	2	2	2	2
45	1.46	0.7	5	4.78	4.56	4.44	4	3	3	3
46	1.48	1.6	4.56	4.56	5	5	4	4	3	3
47	1.25	1.14	5	5	4.67	4.67	3	3	3	3
48	1.48	0.74	5.33	5.33	4.22	4.22	4	4	3	2
49	1.46	2.4	5.56	5.56	4.89	4.89	3	3	5	5
50	1.19	1.12	5.22	5.33	4.89	4.89	3	3	3	3
51	2.36	2.56	5.22	4.89	5.22	5.33	5	5	5	5
52	1.24	1.32	5.11	4.78	4.89	4.89	3	3	4	3
53	1.61	1.6	4.67	4.56	4.44	4.33	4	4	4	4
54	0.98	1.4	5.44	5.44	5	5	1	1	4	4
55	1.38	1.26	5	4.78	4.67	4.56	3	2	4	4
56	1.54	0.86	5.33	5.33	5.89	6	4	4	3	2
57	2.01	0.76	4.11	4.11	4.44	4.67	4	4	5	3
58	2.04	1.08	5.56	5.78	4.78	4.67	5	3	5	4
59	1.21	1.44	5.22	5.11	5.33	5.33	5	4	2	2
60	1.79	3.88	5.33	5.67	5.44	5.78	5	5	4	4
61	1.31	1.08	5.89	5.78	5	5	2	2	4	4
62	1.95	1.16	5	5	4.11	4.11	4	4	4	4

GROUP 2										
	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL
QUES #	MED	MED	AVG EXP	AVG EXP	AVG CUR	AVG CUR	RGE EXP	RGE EXP	RGE CUR	RGE CUR
63	1.39	1.42	3.44	3.44	3.89	3.89	3	3	4	4
64	1.5	1.64	4.78	4.56	4.33	4.33	5	4	4	4
65	0.64	0.1	6.67	6.67	6.67	6.67	1	1	1	1
66	0.89	0.68	6.22	6.33	6.67	6.78	3	3	1	1
67	1.19	1.1	6.22	6.22	6.22	6.22	3	3	3	3
68	1.39	0.28	5.11	5.22	5.33	5.11	3	2	4	2
69	0.81	0.14	5.56	5.67	5.44	5.33	2	2	1	1
70	1.17	0.5	5.89	5.67	4.89	4.78	2	2	3	3
71	1.13	1.4	6.22	6.22	6.11	6.22	3	3	4	3
72	1.03	0.2	6.22	6.22	4.78	4.78	2	1	3	2
73	0.9	0.26	6.44	6.44	6.67	6.78	2	2	1	1
74	1.26	0.46	5.56	5.56	5	5	3	3	2	2
75	1.16	0.78	6.11	6.11	5.78	6	2	2	3	2
76	1.81	1.82	4.33	4.22	4.22	4.44	4	4	4	4
77	1.44	1.92	4.44	4.22	4.44	4.44	4	4	3	3
78	1.23	0.2	4.67	4.56	4.56	4.56	2	1	4	2
79	1.77	1.24	4.78	3.89	4.67	4.33	5	3	4	3
80	0.99	0.86	5.78	5.89	5.89	6	3	2	3	2
81	1.7	0.84	3.89	3.33	4.67	4.22	4	2	5	4
82	1.28	0.04	5.11	4.89	3.89	4	3	2	2	2
83	1.06	0.78	5.67	6	5.56	6	3	2	3	2
84	1.03	0.38	6.11	5.89	5.22	5.33	2	2	3	2
85	1.39	0.88	5.33	5.44	5.22	5.33	4	2	3	3
86	1.09	0.54	6.11	6	6.11	6.22	2	2	3	2
87	0.78	0.3	6	5.89	5.56	5.44	2	1	3	2
88	1.73	1.14	5.78	5.67	5.67	5.56	4	4	3	3
89	1.48	0.98	5.56	5.44	4.89	5	4	4	4	4
90	1.05	0.16	6.22	6.33	6	6.44	2	2	3	1
91	1.37	0.74	6	6.22	5.22	5.78	3	3	3	2
92	1.59	0.4	5.56	5.56	4.67	5.33	4	3	4	1
93	1.59	2.16	3.89	3.89	3.67	3.78	4	3	4	4

GROUP 2										
	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL
QUES #	MED	MED	AVG EXP	AVG EXP	AVG CUR	AVG CUR	RGE EXP	RGE EXP	RGE CUR	RGE CUR
94	1.5	0.72	4.78	4.78	4.11	4.44	3	3	3	2
95	1.11	1.32	5.78	5.78	5.67	5.78	3	3	3	3
96	1.57	2.06	5.33	5.33	5.11	5.11	4	4	4	4
97	1.58	1.38	5.33	5.44	5.11	5.22	4	4	4	4
98	1	0.28	4.44	4.56	4.22	4.33	3	2	2	1
99	1.66	1.94	5.89	6.11	5.11	5.33	3	2	5	5
100	1.33	0.3	5.33	5.67	5.44	5.78	3	1	4	2
101	1.33	0.5	5.89	5.78	5.33	5.44	2	2	4	3
102	0.97	0.46	6.33	6.33	5.56	5.56	2	2	3	3
103	1.03	1.78	6.22	6.11	6	6	3	3	3	3
104	1.85	0.62	4.78	4.89	4	4.11	6	3	5	2
105	1.64	1.3	5.44	5.33	5	5.11	3	2	5	4
106	1.57	0.48	5.11	5.11	4.56	4.78	2	2	4	3
107	1.25	0.96	5.11	5.11	5	5.11	3	3	3	2
108	1.69	1.08	4.89	4.78	4.78	4.56	4	3	5	4
109	1.3	2.3	5.78	5.78	5.67	5.67	4	4	4	3
110	1.43	0.54	4.33	4.56	4.78	4.56	5	2	3	2
111	0.89	0.34	5.67	5.67	5.67	5.89	1	1	4	2
112	0.86	0.46	5.56	5.56	5.44	5.44	2	2	2	2
113	1.24	0.36	6	6.22	5.67	5.78	3	1	3	2
114	0.8	0.02	6.44	6.56	6.44	6.33	2	1	1	1
115	0.93	0.78	6	6	5.89	5.89	2	2	2	2
116	1.39	0.76	4.89	4.67	4.22	4	2	2	4	4
117	1.58	0.6	5.33	5.11	4.33	4.11	3	3	5	3

APPENDIX 6

PROCESS INTERVIEW 2

SECOND PROCESS INTERVIEW QUESTIONS
Conducted at the conclusion of the second computer application

Instructions: This interview is designed for you to assess: (1) the content of perspectives generated, (2) the instruments and procedures used, and (3) the exercise to this point. All responses are confidential and will not be identified to you. To aid field notes the session will be tape recorded.

Content of Perspectives Generated

The following three questions relate to the content of the exercise.

1. Is there anything that you would add to the perspective? Something which has been left out?

2. Where there any surprises in the responses of other participants to the perspective statements? What were the surprises? Why was that a surprise?

3. Were there any particular items that needed additional explanation or clarification to understand differences in assessments?

Instruments/Procedures Assessment

The following questions are about the second computer application you just completed.

The computer application was designed to confidentially expose you to your assessment of other perspectives of the organization in relation to the assessments of other participants. Also, to allow you to explore those perspectives with respect to the importance EXPRESSED in the organization and the importance the organization CURRENTLY provides for the perspective.

4. To what degree was the second computer application effective in allowing you to examine your assessment in relation to assessments of other participants?

5. What comments do you have about the second computer application or procedures?

6. If you could make modifications in the second computer application, what would you change?

Process Assessment

These questions are designed to gather your comments about the exercise.

7. What was the impact of examining your assessment in relation to the other participants' assessments? Did any of your assessments change as a result of being exposed to other perspectives? How did they change?

8. If you were asked the initial interview questions again, would there be any changes or additions to your responses as a result of being exposed to the other perspectives and assessments of those perspectives? Can you think of any changes?

9. Has the exercise caused you to reflect about things you do not routinely or explicitly think or reflect about in the organization? Can you give some specific examples?

10. What are the implications of the process for you personally?

11. What are the implications of the process for the organization?

12. Have you thought about the application outside the research application?

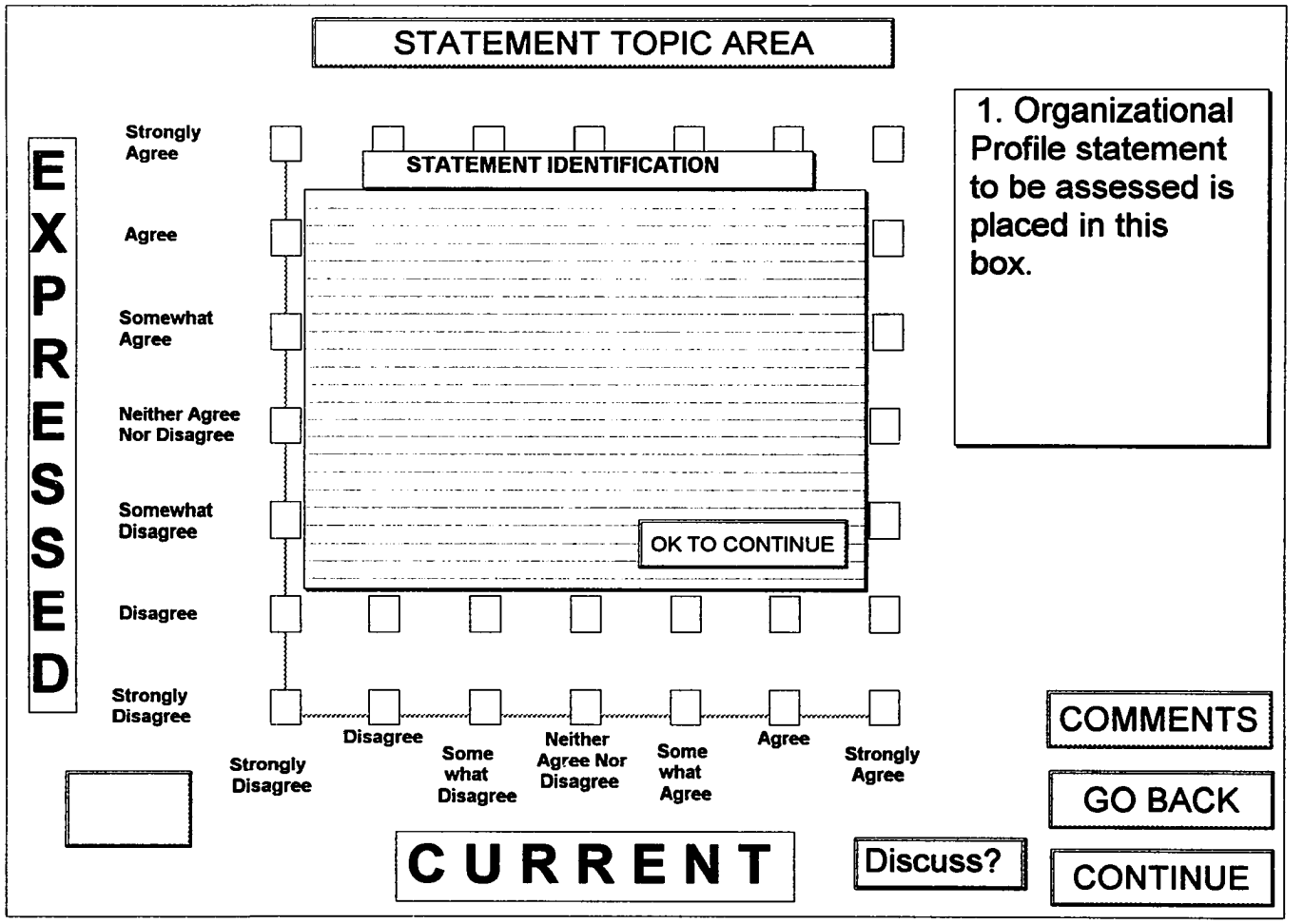
13. Have you had any conversations or discussions about the research with other participants or members of the organization?

14. Since the exercise started what has changed in your thinking, actions, or decisions about the organization?

APPENDIX 7

COMPUTER PROGRAM MODIFICATIONS

The computer screen representation on the following page shows the program modifications made as a result of feedback during the process interviews. The changes include: (1) a modification in the comments format, and (2) the addition of a 'button' for participants to identify, during the computer exercise, their desire to discuss a particular statement in the group session.



Appendix 7 Computer Screen. This screen demonstrates the modifications made for the second computer exercise. A comment 'box' used to collect the keyboard comments was added to correspond to each profile statement. Additionally, the *'Discuss'* indicator was added to allow participants to indicate a desire to discuss the statement in the joint discussion session.

APPENDIX 8

GROUP INTERVIEW

GROUP INTERVIEW QUESTIONS

Instructions: This interview is designed for the participants to jointly to assess the research effort. Specific areas of assessment include: (1) the content of perspectives generated, (2) the instruments and procedures used, and (3) the exercise. To aid field notes the session will be tape recorded.

Content of Perspectives Generated

1. What comments do you have about the content of perspectives generated?

2. If we conducted the exercise again, starting with the initial interview, would the perspective generated be the same? What might be different?

3. Where there any surprises in the perspectives, or assessments of the perspectives, generated through the exercise? What were the surprises?

4. Were there any particular items that could not be resolved, or still needed additional explanation or clarification, to understand differences in assessments?

Instruments/Procedures Assessment

The following questions are about the instruments and procedures used for the Exercise

5. What comments do you have about the initial interview procedures or questions?

6. What comments do you have about the first computer application? The second computer application?

7. What comments do you have about the Joint Discussion Session?

Process Assessment

These questions are designed to gather group comments about the exercise.

8. What was the impact of the exercise? Did any of your personal perspectives change as a result of the exercise? How did they change? Can you think of any specific instances?

9. How would you describe the role of participants?

10. How would you describe the role of the researcher?

11. Did the Exercise cause individuals and the group to reflect upon things that are not routinely or explicitly thought about? Can you think of any specific examples?

12. Since the exercise started what has changed in your thinking, actions, or decisions about the organization? Can you think of any specific examples?

13. What implications does this exercise have for you individually or for the organization?

APPENDIX 9

PROCESS INTERVIEW 3

THIRD PROCESS INTERVIEW QUESTIONS
Conducted after the group interviews

Instructions: This interview is designed for you to assess: (1) the content of perspectives generated, (2) the instruments and procedures used, and (3) the exercise to this point. All responses are confidential and will not be identified to you. To aid field notes the session will be tape recorded.

Content of Perspectives Generated

The following three questions relate to the content of the exercise.

1. What comments would you make about the content of perspectives generated during the exercise?

2. Where there any surprises in the joint session exploration of the perspectives? What were the surprises?

3. Were there any particular items that could not be resolved or still needed additional explanation or clarification to understand differences in assessments?

Instruments/Procedures Assessment

The following questions are about the Joint Exploration Session in which you recently participated.

The Joint Exploration Session was designed to jointly examine assessments of perspectives generated from the two computer applications.

4. To what degree was the Joint Exploration Session effective in allowing participants to examine the results of the computer applications?

5. What comments do you have about the Joint Exploration Session or procedures?

6. What comments do you have about the Group Interview Session?

7. If you could make modifications in the Joint Exploration Session, what would you change?

8. If you could make modifications to the Group Interview Session, what would you modify?

9. If you could make modifications in the exercise, what would you modify?

Process Assessment

These questions are designed to gather your comments about the exercise.

10. What was the impact of jointly examining assessments with other participants? Did any of your personal assessments change as a result of being exposed to discussion with other participants? How did they change? Can you think of any specific instances?

11. If you were asked the initial interview questions again, do you think there would be any changes, deletions, or additions to your responses? Can you think of any specific changes?

12. Did the Joint Exploration Session cause the group to reflect about things that are not routinely or explicitly thought about or reflected upon in the organization? The Group Interview? Can you think of any specific examples?

13. Since the exercise started what has changed in your thinking, actions, or decisions about the organization?

14. What are the implications of this exercise for you personally? For the organization?

BIOGRAPHICAL STATEMENT

Charles B. Keating was born in Willimantic, Connecticut on August 20, 1957. His educational background includes a B.S. degree in General Engineering from The United States Military Academy, West Point, N.Y. (1979) and a M.A. degree in Management and Supervision from Central Michigan University, Mount Pleasant, MI (1984). Upon completion of undergraduate studies he was commissioned as an officer in the United States Army where he served in several command and staff positions and completed initial graduate studies. After leaving military service, he held numerous supervisory and management positions in Quality Engineering Management.