The Grounded Theory Review: An international journal

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Contents

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Submissions:

All papers submitted are peer reviewed and comments provided back to the authors. Papers accepted for publication will be good examples or practical applications of grounded theory and classic grounded theory methodology.

Comments on papers published are also welcomed, will be shared with the authors and may be published in subsequent issues of the Review. Submissions should be forwarded as Word documents to Judith Holton at Judith@groundedtheoryreview.com

Publisher's Note

Sociology Press is pleased to publish The Grounded Theory Review. Our primary goal in publishing this journal is to provide a forum for classic grounded theory scholarship. To this end, we will focus our efforts on:

- publishing good examples of the grounded theories being developed in a wide range of disciplines
- publishing papers on classic grounded theory methodology
- creating a world-wide network of grounded theory researchers and scholars
- providing a forum for sharing perspectives and enabling novice grounded theorists to publish their work
- promoting dialogue between authors and readers of the journal

— Barney G. Glaser, Ph.D., Hon. Ph.D.

Editor's Comments

It is my privilege to serve as Editor-in-Chief and present this new issue of The Grounded Theory Review. I am delighted to introduce our international panel of peer review editors who will work with me to ensure that all papers submitted are promptly reviewed with comments provided back to the authors. All are experienced grounded theorists who will also contribute their own work to the journal from time to time.

This issue includes Dr. Glaser's paper on Remodelling Grounded Theory, first published earlier this year in **FQS — Forum Qualitative Sozialforschung / Forum: Qualitative Social Research** (May 2004), vol.5, no.2.

This issue includes grounded theories from the fields of organizational behaviour, nursing and education. All three theories have general implications beyond their substantive fields. Antoinette McCallin's theory of pluralistic dialoguing, while developed from her research with health professionals working in multidisciplinary teams, has general implications for knowledge workers in any field where the ability to communicate, understand diverse perspectives and collaborate have become essential skills. Alvita Nathaniel's grounded theory of moral reckoning in nursing also has broad applicability anywhere professionals face situational binds that disrupt the otherwise benign flow of their daily routines. Maria de Hoyos Guajardo developed her grounded theory of solutioning from her research with undergraduates in a mathematical problem-solving course but, again, the general implications of her theory can be applied to creative problem solving in general.

Finally, despite the explanatory power of grounded theory, many practitioners still welcome the guidance of strategies that take theory into practice. Odis Simmons' and Toni Gregory's paper on grounded action offers just such a practical application for instituting sustainable social and organisational change. This paper was also published earlier in **FQS - Forum Qualitative Sozialforschung / Forum: Qualitative Social Research** (September 2003), vol.4, no.3.

— Judith Holton

The Grounded Theory Review (2004) vol. 4, no. 1

Remodeling Grounded Theory

By Barney G. Glaser Ph.D., Hon. Ph.D. with the assistance of Judith Holton

Abstract

This paper outlines my concerns with Qualitative Data Analysis' (QDA) numerous remodelings of Grounded Theory (GT) and the subsequent eroding impact. I cite several examples of the erosion and summarize essential elements of classic GT methodology. It is hoped that the article will clarify my concerns with the continuing enthusiasm but misunderstood embrace of GT by QDA methodologists and serve as a preliminary guide to novice researchers who wish to explore the fundamental principles of GT.

Introduction

The difference between the particularistic, routine, normative data we all garner in our everyday lives and scientific data is that the latter is produced by a methodology. This is what makes it scientific. This may sound trite, but it is just the beginning of many complex issues. Whatever methodology may be chosen to make an ensuing research scientific has many implicit and explicit problems. It implies a certain type of data collection, the pacing and timing for data collection, a type of analysis and a specific type of research product.

In the case of qualitative data, the explicit goal is description. The clear issue articulated in much of the literature regarding qualitative data analysis (QDA) methodology is the accuracy, truth, trustworthiness or objectivity of the data. This worrisome accuracy of the data focuses on its subjectivity, its interpretative nature, its plausibility, the data voice and its constructivism. Achieving accuracy is always worrisome with a QDA methodology.

These are a few of the problems of description. Other QDA problems include pacing of data collection, the volume of data, the procedure and rigor of data analysis, generalizability of the unit findings, the framing of the ensuing analysis and the product. These issues and others are debated at length in the qualitative research literature. Worrisome accuracy of qualitative data description continually concerns qualitative researchers and their audiences. I have addressed these problems at length in "The Grounded Theory Perspective: Conceptualization Contrasted with Description" (Glaser, 2001).

In this paper I will take up the conceptual perspective of classic Grounded Theory (GT). (In some of the research literature, classic GT methodology has

also been termed Glaserian GT although I personally prefer the term "classic" as recognition of the methodology's origins.) The conceptual nature of classic GT renders it abstract of time, place and people. While grounded in data, the conceptual hypotheses of GT do not entail the problems of accuracy that plague QDA methods.

The mixing of QDA and GT methodologies has the effect of downgrading and eroding the GT goal of conceptual theory. The result is a default remodeling of classic GT into just another QDA method with all its descriptive baggage. Given the ascending focus on QDA by sheer dint of the number of researchers engaged in qualitative analysis labeled as GT, the apparent merger between the two methodologies results in default remodeling to QDA canons and techniques. Conceptual requirements of GT methodology are easily lost in QDA problems of accuracy, type data, constructivism, participant voice, data collection rigor according to positivistic representative requirements, however couched in a flexibility of approach (see Lowe, 1997). The result is a blocking of classic GT methodology and the loss of its power to transcend the strictures of worrisome accuracy – the prime concern of QDA methods to produce conceptual theory that explains fundamental social patterns within the substantive focus of inquiry.

I will address some, but not all, of the myriad of remodeling blocks to classic GT analysis brought on by lacing it with QDA descriptive methodological requirements. My goal is to alleviate the bane on good GT analysis brought on by those QDA senior researchers open to no other method, especially the GT method. I hope to relieve GT of the excessive scientism brought on it by those worried about accuracy and what is "real" data when creating a scientific product. I hope to give explanatory strength to those Ph.D. dissertation level students to stand their GT grounds when struggling in the face of the misapplied QDA critique by their seniors and supervisors.

I wish to remind people, yet again, that classic GT is simply a set of integrated conceptual hypotheses systematically generated to produce an inductive theory about a substantive area. Classic GT is a highly structured but eminently flexible methodology. Its data collection and analysis procedures are explicit and the pacing of these procedures is, at once, simultaneous, sequential, subsequent, scheduled and serendipitous, forming an integrated methodological "whole" that enables the emergence of conceptual theory as distinct from the thematic analysis characteristic of QDA research. I have detailed these matters in my books "Theoretical Sensitivity" (Glaser, 1978), "Basics of Grounded Theory Analysis" (Glaser, 1992), "Doing Grounded Theory" (Glaser, 1998a), and "The Grounded Theory Perspective" (Glaser, 2001). Over the years since the initial publication of "Discovery of Grounded Theory" (Glaser & Strauss, 1967), the transcendent nature of GT as a general research methodology has been subsumed by the fervent adoption of GT terminology and selective application

of discrete aspects of GT methodology into the realm of QDA research methodology. This multi-method cherry picking approach, while obviously acceptable to QDA, is not compatible with the requirements of GT methodology.

Currently it appears to be very popular in QDA research substantive and methodological papers to label QDA as GT for the rhetorical legitimating effect and then to critique its various strategies as somewhat less than possible or effective; then further, to sanctify the mix of methods as one method. Classic GT is not what these "adopted QDA" usages would call GT. These researchers do not realize that while often using the same type of qualitative data, the GT and QDA methods are sufficiently at odds with each other as to be incapable of integration. Each method stands alone as quite legitimate. The reader is to keep in mind that this paper is about GT and how to extract it from this remodeling. It does not condemn QDA in any way. QDA methods are quite worthy, respectable and acceptable. As I have said above, the choice of methodology to render research representations about qualitative data as scientific is the researcher's choice. But there is a difference between received concepts, problems and frameworks imposed on data by QDA methods and GT's focus on the generation and emergence of concepts, problems and theoretical codes. The choice of methodology should not be confused, lumped or used piece-meal if GT is involved. To do so is to erode the conceptual power of GT.

As such, GT procedures and ideas are used to legitimate and buttress routine QDA methodology. Considering the inundation, overwhelming and overload of QDA dictums, "words" and assumed requirements on GT methodology, the reader will see that it is hard to both assimilate and withstand this avalanche on GT methodology. The assault is so strong and well meaning that many—particularly novice researchers—do not know, nor realize, that GT is being remodeled by default.

The view of this paper is that the researcher who has to achieve a GT product to move on with his or her career and skill development is often blocked by the confusion created through this inappropriate mixing of methods and the attendant QDA requirements thus imposed. Undoing the blocks to GT by this default remodeling will not be an easy task given the overwhelming confusion that has resulted and seems destined to continue to grow.

I will deal with as many of the blocks as I see relevant but certainly not all. If I repeat, it will be from different vantagepoints to undo QDA remodeling in the service of advancing the GT perspective. I will hit hard that GT deals with the data, as it is, not what QDA wishes it to be or, more formally, what QDA preconceives to be accurate and to be forcefully conceptualized. This requires honesty about taking all data as it comes, figuring it out and then its conceptualization. I have written at length on "all is data" and on forcing in "Doing Grounded Theory" (Glaser, 1998a).

As I deal with this escalating remodeling of GT to QDA requirements, my hope is to free GT up to be as originally envisioned. In "Theoretical Sensitivity" I wrote: "*The goal of grounded theory is to generate a conceptual theory that accounts for a pattern of behavior which is relevant and problematic for those involved. The goal is not voluminous description, nor clever verification.*" (Glaser, 1978, p.93)

QDA Blocking of GT

This paper has a simple message. GT is a straightforward methodology. It is a comprehensive, integrated and highly structured, yet eminently flexible process that takes a researcher from the first day in the field to a finished written theory. Following the full suite of GT procedures based on the constant comparative method, results in a smooth uninterrupted emergent analysis and the generation of a substantive or formal theory. When GT procedures are laced with the exhaustive, abundant requirements of QDA methodology, GT becomes distorted, wasting large amounts of precious research time and derailing the knowledge—hence grounding—of GT as to what is really going on. The intertwining of GT with preconceived conjecture, preconceptions, forced concepts and organization, logical connections and before-the-fact professional interest defaults GT to a remodeling of GT methodology to the status of a mixed methods QDA methodology. This leads to multiple blocks on conceptual GT.

The word "analysis" is a catchall word for what to do with data. It is "scientized" up, down and sideways in QDA methodologies catching up GT analysis in its wake. QDA leads to particularistic analysis based on discrete experiences while blocking the abstract idea of conceptualizing latent patterns upon which GT is based. When GT becomes laced with QDA requirements, it is hard to follow to the point of confusion. Theory development is confused with QDA description thereby blocking GT generation of conceptual theory.

GT has clear, extensive procedures. When brought into QDA, GT abstraction is neglected in favor of accuracy of description—the dominant concern of QDA methodology—and GT acquires the QDA problem of worrisome accuracy—an irrelevant concern in GT. To repeat, GT methodology is a straightforward approach to theory generation. To spend time worrying about its place in QDA methods and science is just fancy, legitimating talk, but the result is the defaulting of GT to the confusion of QDA analysis.

Creswell in his book "Qualitative Inquiry and Research Design" (1998) lumps GT into comparisons with phenomenology, ethnography, case study and biographical life history. The result of the lumping is a cursory default remodeling of GT to a "kind" of QDA. This lumping of GT with other QDA methods prevents GT from standing alone as a transcending general research methodology. The

criteria of Creswell's continuum organize methods according to when theory is used in research, varying from before the study begins to post-study. By study, he means data collection and structuring questions. This is a very weak gradation for discerning the difference among QDA methods and GT methodology. Creswell clearly does not discern the difference between generating theory from data collection and generating theory that applies to the data once collected. Both come during and after data collection, but are very differently sourced. The result is a lumping and confusion of GT with QDA.

Creswell (1998, p.86) says:

> *"At the most extreme end of the continuum, toward the 'after' end, I place grounded theory. Strauss and Corbin (1990) are clear that one collects and analyzes data before using theory in a grounded theory study. This explains, for example, the women's sexually abuse study by Morrow and Smith (1995) in which they generate the theory through data collection, pose it at the end, and eschew prescribing a theory at the beginning of the study. In my own studies, I have refrained from advancing a theory at the beginning of my grounded theory research, generated the theory through data collection and analysis, posed the theory as a logic diagram and introduced contending and contrasting theory with the model I generate at the end of my study (Creswell & Brown 1992, Creswell and Urbom 1997)."*

Creswell may be stating a fundamental tenant of GT—begin with no preconceived theory and then generate one during the analysis (unless he meant applying an extant theory). As a distinguishing item of GT, however, it is barely a beginning, leaving the reader with no knowledge of how generating is done, because the assumption is that it is done by routine QDA. Contrasting the generated theory with extant other theories to prove, improve or disprove one or the other neglects or ignores constantly comparing the theories for category and property generation. This contrasting with other theories also prevents modifying the GT generated theory using the other theory as a kind of data. Both constant comparing and modifying are two vital tenants of GT.

GT may or may not be mentioned in a QDA methodological discussion, but its procedures frequently are. As such, constant comparative analysis, problem emergence, theoretical sampling, theoretical saturation, conceptual emergence, memoing, sorting, etc. become laced with QDA requirements thereby defaulting their rigorous use to a QDA burden. This virtual subversion of GT results in complex confusion of an otherwise simple methodology for novice researchers. The researcher is blocked and no longer freed by the power and autonomy offered by GT to arrive at new emergent, generated theory. The ability to be

honest about what exactly is the data is consequently distorted by the unattainable quest for QDA accuracy. For example, Kathryn MAY unwittingly erodes the GT methodology in QDA fashion when describing the cognitive processes inherent in data analysis.

> *"Doing qualitative research is not a passive endeavor. Despite current perceptions and student's prayers, theory does not magically emerge from data. Nor is it true that, if only one is patient enough, insight wondrously enlightens the researcher. Rather, data analysis is a process that requires astute questioning, a relentless search for answers, active observation, and accurate recall. It is a process of piecing together data, of making the invisible obvious, of recognizing the significant from the insignificant, of linking seemingly unrelated facts logically, of fitting categories one with another, and of attributing consequences to antecedents. It is a process of conjecture and verification, of correction and modification, of suggestion and defense. It is a creative process of organizing data so that the analytic scheme will appear obvious." (May, 1994, p.10)*

Dr May engages in descriptive capture in QDA fashion and attacks the main tenant of GT, that theory can emerge. She is lost in accurate fact research, which is moot for GT. She prefers to force the data, making it obey her framework. She does not acknowledge the constant comparative method by which theory emerges from all data. Again, GT is defaulted to routine QDA.

Similarly, this Ph.D. student—in her e-mail cry to me for help—wanted to do a GT dissertation but was caught up in QDA and descriptive capture.

> *"I need some guidance. I'm on wrong track—I don't care about the main concerns of clinical social workers in private practice. I care about the main concerns of anyone attempting to contextualize practice. Maybe the issue is that I'm interested in an activity regardless of the actor. If I ask these questions I have no doubt that main concerns will emerge as well as attempts to continually resolve them. This I care about." (E-mail correspondence, Jan 2002)*

She is caught by the QDA approach to force the data for a professional concern. She wants to use GT procedures in service of a QDA forcing approach, which defaults GT. GT, does not work that way, but the prevalence of QDA would have her think that way. Later, under my guidance, she let the main concern emerge and did an amazingly good dissertation on binary deconstruction between social worker and client.

The GT problem and core variable must emerge and it will. I have seen it hundreds of times. Later, when the GT's main concern emerges and is explained in a generated theory, it will have relevance for professional concerns. Starting before emergence with the professional interest problem is very likely to result in research with little or no relevance in GT—just routine QDA description with "as if" importance.

Here is a good example of extensive lacing of GT by QDA needs. The confusion of QDA requirements and GT procedures, in this example, makes it hard to follow and clearly erodes GT by default remodeling.

> *"Comprehension is achieved in grounded theory by using tape-recorded, unstructured interviews and by observing participants in their daily lives. However, the assumption of symbolic interactionism that underlie grounded theory set the stage for examining process, for identifying stages and phases in the participant's experience. Symbolic interaction purports that meaning is socially constructed, negotiated and changes over time. Therefore the interview process seeks to elicit a participant's story, and this story is told sequentially as the events being reported unfold. Comprehension is reached when the researcher has interviewed enough to gain in-depth understanding." (Morse, 1986, p.39)*

In fact, GT does not require tape-recorded data. Field notes are preferable. GT uses all types of interviews and, as the study proceeds, the best interview style emerges. It is not underlined by symbolic interaction, nor constructed data. GT uses "all as data," of which these are just one kind of data. GT does not preconceive the theoretical code of process. There are over 18 theoretical coding families of which process is only one. In GT, its relevance must emerge; it is not presumed. Interviews lead to many theoretical codes. Participant stories are moot. Patterns are sought and conceptualized. GT does not search for description of particularistic accounts. All data are constantly compared to generate concepts.

Morse continues her description of GT:

> *"Synthesis is facilitated by adequacy of the data and the processes of analysis. During this phase the researcher is able to create a generalized story and to determine points of departure, of variation in this story. The process of analysis begins with line-by-line analysis to identify first level codes. Second-level codes are used to identify significant portions of the text and compile these excerpts into categories. Writing memos is key to recording insight and facilitates, at an early stage, the development of theory." (Morse, 19994, page 39)*

It is, indeed, hard to recognize GT procedures in this quote by Morse. "Adequacy of data" and a "generalized story" smack of worrisome accuracy and descriptive capture, which are pure QDA concerns. They do not relate to GT procedures. GT fractures the story in the service of conceptualization. Her approach to line-by-line analysis is a bare reference to the constant comparative process, but that is all. Her references to first level, second level codes, portions of text and compiling excerpts into categories are far from the constant comparative method designed to generate conceptual categories and their properties from the outset of data collection and analysis. Writing memos in GT has to do with immediate recording of generated theoretical conceptual ideas grounded in data, not the mystical—perhaps conjectural—insights to which Morse refers to.

Morse continues with her description of GT:

> *"As synthesis is gained and the variation in the data becomes evident, grounded theorists sample according to the theoretical needs of the study. If a negative case is identified, the researcher, theoretically, must sample for more negative cases until saturation is reached when synthesis is attained." (Morse, 1994, page 39)*

Again, finding GT procedures in this description is hard. There is always variation in the data. GT is concerned with generating a multivariate conceptual theory—not data variation for QDA. In GT, seeking negative cases is not a procedure. This is more likely to be preconceived forcing. GT seeks comparative incidents by theoretical sampling. The purpose in sampling is to generate categories and their properties. The GT researcher does not know in advance what will be found. Incidents sampled may be similar or different, positive or negative. Morse's reference to saturation does not imply conceptual saturation; rather, it anticipates simple redundancy without conceptual analysis.

Morse continues:

> *"Theorizing follows from the processes of theoretical sampling. Typologies are constructed by determining two significant characteristics and sorting participants against each characteristic on a 2x2 matrix. Diagramming is used to enhance understanding and identifying the basic social process (BSP) that accounts for most of the variation in the data." (Morse, 1994, page 39).*

Theorizing in GT is an emergent process generated by continuous cycling of the integrated processes of collecting, coding and conceptual analysis with the

results written up constantly in memos. Theoretical sampling is just one source of grounding during the constant comparative method. Preconceiving theoretical codes such as typologies or basic social processes (BSPs) is not GT. In GT, relevant theoretical codes emerge in conceptual memo sorting and could be "whatever." While the fourfold property space is a good tool, when emergent, for conceptualizing types (see Glaser & Strauss, "Awareness of Dying," 1965), it is not for placing or sorting participants, a priori, nor for counting them. This is strictly routine, preconceived QDA descriptive capture, not GT.

Morse finishes:

"As with the methods previously discussed, recontextualization is determined by the level of abstraction attained in the model development. Whereas substantive theory is context bound, formal theory is more abstract and may be applicable to many settings or other experiences." (Morse, 1994, page 34). This statement is totally wrong for GT, but it addresses the usual QDA quandary of trying to generalize a description of a unit. In contrast, GT substantive theory always has general implications and can easily be applied to other substantive areas by the constant comparative method of modifying theory. For example, by comparing incidents and modifying the substantive theory of milkmen who engage in cultivating housewives for profit and recreation, a GT of cultivation can apply easily to doctors cultivating clients to build a practice, thereby expanding the original substantive theory to include cultivating down instead of cultivating up the social scale. Formal theory is generated by many such diverse area comparisons done in a concerted way to generate a formal theory of cultivating for recreation, profit, client building, help, donations etc.

Context must emerge as a relevant category or as a theoretical code like all other categories in a GT. It cannot be assumed as relevant in advance. As one applies substantive theory elsewhere or generates formal theory, context—when relevant—will emerge.

These quotes clearly lump GT into the multi-method QDA camp with the result being default remodeling by erosion of classic GT methodology. Nowhere does MORSE refer to the GT procedures of delimiting at each phase of generating, of theoretical completeness, conceptual saturation, core variable analysis, open to selective coding, memo banks, analytic rules, theoretical sorting, memo piles writing up, reworking and resorting, emergent problem, interchangeability of indices and theoretical (not substantive) coding. The effect of such default remodeling is a great loss of essential GT procedures blocked by the imposition of QDA worrisome accuracy requirements.

GT requires following its rigorous procedures to generate a theory that fits, works, is relevant and readily modifiable. When it is adopted, co-opted, and

corrupted by QDA research, a close look at the work often shows that the QDA researcher is tinkering with the GT method. He or she brings it into a QDA research design to comply with the strictures and professional expectations of the dominant paradigm. Getting some kind of product with a few concepts rescues the QDA research, since the QDA description alone does not suffice. Then, the GT label is used to legitimate the QDA research.

GT stands alone as a conceptual theory generating methodology. It is a general methodology. It can use any data, but obviously the favorite data, to date, is qualitative data. Ergo GT is drawn into the QDA multi-method world and eroded by consequence, however unwittingly. This revealing of method muddling (see Baker, Wuest, & Stern, 1992) of procedures does a tinkering rescue job, but the result is that GT is default remodeled. GT becomes considered, wrongly, as an interpretative method, a symbolic interaction method, a constructionist method, a qualitative method, a describing method, a producer of worrisome facts, a memoing method, an interview or field method and so forth. It is clear that this tinkering by QDA researchers indicates they are too derailed by QDA to learn systematic GT procedures. At best, a few GT procedures are borrowed out of context.

These above authors are typical of many trying to place GT somewhere in the QDA camp. First they lace it with some QDA requirements and ideas, which they then use to lump GT into QDA multi-method thought. Lumping GT in as a QDA methodology simply does not apply and, indeed, blocks good GT while the default remodeling of GT into another QDA rages on. Lumping erodes GT. In the remainder of this article, I will try to show how GT stands alone on its own, as a conceptualizing methodology. My goal will be to bring out the classic GT perspective on how GT analysis is done—to lay this method bare—and in the bargain to show how QDA blocks, as I have said, GT generation and product proof.

Grounded Theory Procedures

When not laced and lumped with QDA requirements, GT procedures are fairly simple. The blocking problems come with the method mixing. I have already written in detail much about GT procedures in “Discovery of Grounded Theory” (Glaser & Strauss, 1967), “Theoretical Sensitivity” (Glaser, 1978), “Doing Grounded Theory” (Glaser, 1998a), “Basics of Grounded Theory Analysis (Glaser, 1992), “More Grounded Theory Methodology” (Glaser, 1994), and “The Grounded Theory Perspective” (Glaser, 2001), all by Sociology Press. I have also published many examples of a “good” GT analysis—”Examples of Grounded Theory” (Glaser, 1993), “Grounded Theory 1984 to 1994” (Glaser, 1995), “Gerund Grounded Theory” (Glaser, 1998b)—and have given many references in my books.

The GT product is simple. It is not a factual description. It is a set of carefully grounded concepts organized around a core category and integrated into hypotheses. The generated theory explains the preponderance of behavior in a substantive area with the prime mover of this behavior surfacing as the main concern of the primary participants. I have said over and over that GT is not findings, not accurate facts and not description. It is just straightforward conceptualization integrated into theory—a set of plausible, grounded hypotheses. It is just that—no more—and it is readily modifiable as new data come from whatever source—literature, new data, collegial comments, etc. The constant comparative method weaves the new data into the sub-conceptualization. What is important is to use the complete package of GT procedures as an integrated methodological whole.

The following is a summary of the essential elements of GT methodology: Bear in mind, when reading this summary, that the goal of GT is conceptual theory abstract of time, place and people. The goal of GT is NOT the QDA quest for accurate description.

Theoretical sensitivity

The ability to generate concepts from data and to relate them according to normal models of theory in general, and theory development in sociology in particular, is the essence of theoretical sensitivity. Generating a theory from data means that most hypotheses and concepts not only come from the data, but are systematically worked out in relation to the data during the course of the research. A researcher requires two essential characteristics for the development of theoretical sensitivity. First, he or she must have the personal and temperamental bent to maintain analytic distance, tolerate confusion and regression while remaining open, trusting to preconscious processing and to conceptual emergence. Second, he/she must have the ability to develop theoretical insight into the area of research combined with the ability to make something of these insights. He/she must have the ability to conceptualize and organize, make abstract connections, visualize and think multivariately. The first step in gaining theoretical sensitivity is to enter the research setting with as few predetermined ideas as possible—especially logically deducted, a prior hypotheses. The research problem and its delimitation are discovered. The pre-framework efforts of QDA block this theoretical sensitivity.

Getting started

A good GT analysis starts right off with regular daily data collecting, coding and analysis. The start is not blocked by a preconceived problem, a methods chapter or a literature review. The focus and flow is immediately into conceptualization

using the constant comparative method. The best way to do GT is to just do it. It cannot fail as the social psychological world of structure, culture, social interaction, social organization etc. goes on irrespective. There always is a main concern and there always is a prime mover. As an open, generative and emergent methodology, GT provides an honest approach to the data that lets the natural organization of substantive life emerge. The GT researcher listens to participants venting issues rather than encouraging them to talk about a subject of little interest. The mandate is to remain open to what is actually happening and not to start filtering data through pre-conceived hypotheses and biases to listen and observe and thereby discover the main concern of the participants in the field and how they resolve this concern. The forcing, preconceived notions of an initial professional problem, or an extant theory and framework are suspended in the service of seeing what will emerge conceptually by constant comparative analysis. When QDA requires this preconception, GT is rendered non-emergent through coding and memoing as the researcher tries to follow a non-emergent problem.

All is data

GT stands alone as a conceptual theory generating methodology. It can use any data, but obviously the favorite data to date is qualitative. While interviews are the most popular, GT works with any data—"all is data"—not just one specific data. It is up to the GT researcher to figure out what data they are getting. The data may be baseline, vague, interpreted or proper-line. The data is not to be discounted as "not objective," as "subjective," "obvious," "constructed," etc, as we fine in QDA critiques. There is always a perception of a perception as the conceptual level rises. We are all stuck with a "human" view of what is going on and hazy concepts and descriptions about it. GT procedures sharpen the generated concepts systematically.

Use of the literature

It is critical in GT methodology to avoid unduly influencing the pre-conceptualization of the research through extensive reading in the substantive area and the forcing of extant theoretical overlays on the collection and analysis of data. To undertake an extensive review of literature before the emergence of a core category violates the basic premise of GT—that being, the theory emerges from the data not from extant theory. It also runs the risk of clouding the researcher's ability to remain open to the emergence of a completely new core category that has not figured prominently in the research to date thereby thwarting the theoretical sensitivity. Practically, it may well result in the researcher spending valuable time on an area of literature that proves to be of little significance to the resultant GT. Instead, GT methodology treats the

literature as another source of data to be integrated into the constant comparative analysis process once the core category, its properties and related categories have emerged and the basic conceptual development is well underway. The pre study literature review of QDA is a waste of time and a derailing of relevance for the GT Study.

Theoretical coding

The conceptualization of data through coding is the foundation of GT development. Incidents articulated in the data are analyzed and coded, using the constant comparative method, to generate initially substantive, and later theoretical, categories. The essential relationship between data and theory is a conceptual code. The code conceptualizes the underlying pattern of a set of empirical indicators within the data. Coding gets the analyst off the empirical level by fracturing the data, then conceptually grouping it into codes that then become the theory that explains what is happening in the data. A code gives the researcher a condensed, abstract view with scope of the data that includes otherwise seemingly disparate phenomenon. Substantive codes conceptualize the empirical substance of the area of research. Theoretical codes conceptualize how the substantive codes may relate to each other as hypotheses to be integrated into the theory. Theoretical codes give integrative scope, broad pictures and a new perspective. They help the analyst maintain the conceptual level in writing about concepts and their interrelations.

Open coding

It is in the beginning with open coding—and a minimum of preconception—that the analyst is most tested *as to his trust in himself*, in the grounded method and in the skill to use the method and as to the ability to generate codes and find relevance. The process begins with line-by-line open coding of the data to identify substantive codes emergent within the data. The analyst begins by coding the data in every way possible—"running the data open." From the start, the analyst asks a set of questions of the data—*"What is this data a study of?" "What category does this incident indicate?" "What is actually happening in the data?" "What is the main concern being faced by the participants?"* and *"What accounts for the continual resolving of this concern?"* These questions keep the analyst theoretically sensitive and transcending when analyzing, collecting and coding the data. They force him/her to focus on patterns among incidents that yield codes and to rise conceptually above detailed description of incidents. The analyst codes for as many categories as fit successive, different incidents, while coding into as many categories as possible. New categories emerge and new incidents fit into existing categories.

Open coding allows the analyst to see the direction in which to take the study by theoretical sampling before he/she has become selective and focused on a particular problem. Thus, when he/she does begin to focus, he/she is sure of relevance. The researcher begins to see the kind of categories that can handle the data theoretically, so that he/she knows how to code all data, ensuring the emergent theory fits and works. Open coding allows the analyst the full range of theoretical sensitivity as it allows to take chances on trying to generate codes that may fit and work.

Line by line coding forces the analyst to verify and saturate categories and minimizes the missing an important category and ensures the grounding of categories the data beyond impressionism. The result is a rich, dense theory with the feeling that nothing has been left out. It also corrects the forcing of "pet" themes and ideas, unless they have emergent fit. The analyst must do his/her own coding. Coding constantly stimulates ideas. The preplanned coding efforts of routine QDA to suit the preconceived professional problem easily remodel GT by stifling its approach.

Theoretical sampling

Theoretical sampling is the process of data collection for generating theory whereby the analyst jointly collects, codes and analyses the data and decides what data to collect next and where to find them, in order to develop the theory as it emerges. The process of data collection is controlled by the emerging theory, whether substantive or formal. Beyond the decisions concerning initial collection of data, further collection cannot be planned in advance of the emerging theory. Only as the researcher discovers codes and tries to saturate them by looking for comparison groups, does both (1) what codes and their properties and (2) where to collect data on them emerge. By identifying emerging gaps in the theory, the analyst will be guided as to next sources of data collection and interview style. The basic question in theoretical sampling is what groups or subgroups does one turn to next in data collection—and for what theoretical purpose? The possibilities of multiple comparisons are infinite and so groups must be chosen according to theoretical criteria. The criteria—of theoretical purpose and relevance—are applied in the ongoing joint collection and analysis of data associated with the generation of theory. As such, they are continually tailored to fit the data and are applied judiciously at the right point and moment in the analysis. In this way, the analyst can continually adjust the control of data collection to ensure the data's relevance to the emerging theory.

Clearly this approach to data collection done jointly with analysis is far different from the typical QDA preplanned, sequential approach to data collection and management. Imposing the QDA approach on GT would block it from the start.

Constant comparative method

The constant comparative method enables the generation of theory through systematic and explicit coding and analytic procedures. The process involves three types of comparison. Incidents are compared to incidents to establish underlying uniformity and its varying conditions. The uniformity and the conditions become generated concepts and hypotheses. Then, concepts are compared to more incidents to generate new theoretical properties of the concept and more hypotheses. The purpose is theoretical elaboration, saturation and verification of concepts, densification of concepts by developing their properties and generation of further concepts. Finally, concepts are compared to concepts. The purpose is to establish the best fit of many choices of concepts to a set of indicators, the conceptual levels between the concepts that refer to the same set of indicators and the integration into hypotheses between the concepts, which becomes the theory. Comparisons in QDA research are between far more general ideas leading to not tightly grounded categories.

Core variable

As the researcher proceeds to compare incident to incident in the data, then incidents to categories, a core category begins to emerge. This core variable, which appears to account for most of the variation around the concern or problem that is the focus of the study, becomes the focus of further selective data collection and coding efforts. It explains how the main concern is continually resolved. As the analyst develops several workable coded categories, he/she should begin early to saturate as much as possible those that seem to have explanatory power. The core variable can be any kind of theoretical code—a process, a condition, two dimensions, a consequence, a range and so forth. Its primary function is to integrate the theory and render it dense and saturated. It takes time and much coding and analysis to verify a core category through saturation, relevance and workability. The criteria for establishing the core variable within a GT are that it is central, relating to as many other categories and their properties as possible and accounting for a large portion of the variation in a pattern of behavior. The core variable reoccurs frequently in the data and comes to be seen as a stable pattern that is more and more related to other variables. It relates meaningfully and easily with other categories. It has clear and grabbing implications for formal theory. It is completely variable and has carry through in the emerging theory, enabling the analyst to get through the analyses of the processes that he/she is working on by its relevance and explanatory power. Core variable, conceptual theory is far beyond QDA description or conceptual descriptions which are unending since they are not tied down to a conceptual scheme. A reversion to QDA clearly blocks this necessary theoretical completeness.

Selective coding

Selective coding means to cease open coding and to delimit coding to only those variables that relate to the core variable in sufficiently significant ways as to produce a parsimonious theory. Selective coding begins only after the analyst is sure that he/she has discovered the core variable. QDA researchers have never figured out the exact purpose and techniques of selective coding. Often they selectively code from the start with preconceived categories.

Delimiting

Subsequent data collection and coding is thereby delimited to that which is relevant to the emergent conceptual framework. This selective data collection and analysis continues until the researcher has sufficiently elaborated and integrated the core variable, its properties and its theoretical connections to other relevant categories.

Integrating a theory around a core variable delimits the theory and thereby the research project. This delimiting occurs at two levels—the theory and the categories. First the theory solidifies, in the sense that major modifications become fewer and fewer as the analyst compares the next incidents of a category to its properties. Later modifications are mainly on the order of clarifying the logic, taking out non-relevant properties, integrating elaborating details of properties into the major outline of interrelated categories and—most important—reduction. Reduction occurs when the analyst discovers underlying uniformity in the original set of categories or their properties and then reformulates the theory with a smaller set of higher-level concepts. The second level of delimiting the theory is a reduction in the original list of categories for coding. As the theory grows, becomes reduced, and increasingly works better for ordering a mass of qualitative data, the analyst becomes committed to it. This allows the researcher to pare down the original list of categories for collecting and coding data, according to the present boundaries of the theory. The analyst now focuses on one category as the core variable and only variables related to the core variable will be included in the theory. The list of categories for coding is further delimited through theoretical saturation. Since QDA researchers focus on full description, and no core variable conceptual analysis, delimiting does not occur in QDA research. It just goes on and on - empirical tiny topics draining both researcher and audience.

Interchangeability of indicators

GT is based on a concept-indicator model of constant comparisons of incidents (indicators) to incidents (indicators) and, once a conceptual code is generated, of incidents (indicators) to emerging concept. This forces the analyst into

confronting similarities, differences and degrees in consistency of meaning between incidents (indicators), generating an underlying uniformity which in turn results in a coded category and the beginnings of properties of it. From the comparisons of further incidents (indicators) to the conceptual codes, the code is sharpened to achieve its best fit while further properties are generated until the code is verified and saturated.

Conceptual specification, not definition, is the focus of GT. The GT concept-indicator model requires concepts and their dimensions to earn their way into the theory by systematic generation of data. Changing incidents (indicators) and thereby generating new properties of a code can only go so far before the analyst discovers saturation of ideas through interchangeability of indicators. This interchangeability produces, at the same time, the transferability of the theory to other areas by linking to incidents (indicators) in other substantive or sub-substantive areas that produce the same category or properties of it. Interchangeability produces saturation of concepts and their properties, not redundancy of description as some QDA methodologists would have it (see Morse, 1995, p.147).

Pacing

Generating GT takes time. It is above all a delayed action phenomenon. Little increments of coding, analyzing and collecting data cook and mature and then blossom later into theoretical memos. Significant theoretical realizations come with growth and maturity in the data, and much of this is outside the analyst's awareness until preconscious processing becomes conscious. Thus the analyst must pace himself, exercise patience and accept nothing until something happens, as it surely does. Surviving the apparent confusion is important. This requires that the analyst takes whatever amount of quality time that is required to do the discovery process and that he/she learns to take this time in a manner consistent with the own temporal nature as an analyst—the personal pacing. Rushing or forcing the process will shut down the analyst creativity and conceptual abilities, exhausting the energy and leaving the researcher empty and the theory thin and incomplete. In QDA work researchers are paced sequentially through the program and framework, and often driven to long periods of no product and exhaustion. To overlay this QDA program on GT severely remodels GT to its deficit.

Memoing

Theory articulation is facilitated through an extensive and systematic process of memoing that parallels the data analysis process in GT. Memos are theoretical notes about the data and the conceptual connections between categories. The

writing of theoretical memos is the core stage in the process of generating theory. If the analyst skips this stage by going directly to sorting or writing up, after coding, he/she is not doing GT.

Memo writing is a continual process that leads naturally to abstraction or ideation—continually capturing the "frontier of the analyst's thinking" as he/she goes through data and codes, sorts and writes. It is essential that the analyst interrupts coding to memo ideas as they occur if he/she is to reap the subtle reward of the constant input from reading the data carefully, asking the above questions and coding accordingly. Memos help the analyst to raise the data to a conceptual level and develop the properties of each category that begin to define them operationally. Memos present hypotheses about connections between categories and/or their properties and begin to integrate these connections with clusters of other categories to generate the theory. Memos also begin to locate the emerging theory with other theories with potentially more or less relevance.

The basic goal of memoing is to develop ideas (codes) with complete freedom into a memo fund that is highly sort-able. Memo construction differs from writing detailed description. Although typically based on description, memos raise that description to the theoretical level through the conceptual rendering of the material. Thus, the original description is subsumed by the analysis. Codes conceptualize data. Memos reveal and relate by theoretically coding the properties of substantive codes—drawing and filling out analytic properties of the descriptive data.

Early on memos arise from constant comparison of indicators to indicators, then indicators to concepts. Later on memos generate new memos, reading literature generates memos, sorting and writing also generate memos—memoing is never done! Memos slow the analyst's pace, forcing to reason through and verify categories and their integration and fit, relevance and work for the theory. In this way, he/she does not prematurely conclude the final theoretical framework and core variables.

Comparative reasoning in memos—by constant comparisons—undoes preconceived notions, hypotheses, and scholarly baggage while at the same time constantly expanding and breaking the boundaries of current analyses. Memos are excellent source of directions for theoretical sampling—they point out gaps in existing analyses and possible new related directions for the emerging theory. Clearly the preconceived approach and framework of QDA research is in conflict with the freedom of memoing. The conflict is most often resolved by the preponderance of QDA research and GT loses this vital aspect.

Sorting and writing up

Throughout the constant comparative coding process, the researcher has been capturing the emergent ideation of substantive and theoretical categories in the form of memos. Once the researcher has achieved theoretical saturation of the categories, he/she proceeds to review, sort and integrate the numerous memos related to the core category, its properties and related categories. The sorted memos generate a theoretical outline, or conceptual framework, for the full articulation of the GT through an integrated set of hypotheses.

Ideational memos are the fund of GT. Theoretical sorting of the memos is the key to formulating the theory for presentation or writing. Sorting is essential—it puts the fractured data back together. With GT, the outline for writing is simply an emergent product of the sorting of memos. There are no preconceived outlines. GT generates the outline through the sorting of memos by the sorting of the categories and properties in the memos into similarities, connections and conceptual orderings. This forces patterns that become the outline.

To preconceive a theoretical outline is to risk logical elaboration. Instead, theoretical sorting forces the "nitty gritty" of making theoretically discrete discriminations as to where each idea fits in the emerging theory. Theoretical sorting is based on theoretical codes. The theoretical decision about the precise location of a particular memo—as the analyst sees similarities, connections and underlying uniformities—is based on the theoretical coding of the data that is grounding the idea.

If the analyst omits sorting, the theory will be linear, thin and less than fully integrated. Rich, multi-relation, multivariate theory is generated through sorting. Without sorting, a theory lacks the internal integration of connections among many categories. With sorting, data and ideas are theoretically ordered. Sorting is conceptual sorting, not data sorting. Sorting provides theoretical completeness. Sorting generates more memos—often on higher conceptual levels—furthering and condensing the theory. It integrates the relevant literature into the theory, sorting it with the memos.

Sorting also has a conceptual, zeroing-in capacity. The analyst soon sees where each concept fits and works, its relevance and how it will carry forward in the cumulative development of the theory. Sorting prevents over-conceptualization and pre-conceptualization, since these excesses fall away as analyst zeros in on the most parsimonious set of integrated concepts. Thus, sorting forces ideational discrimination between categories while relating them, integrating them and preventing their proliferation. The constant creativity of sorting memos prevents the use of computer sorting as used in QDA work.

Analytic rules developed during sorting

While theoretical coding establishes the relationship among variables, analytic rules guide the construction of the theory as it emerges. They guide the theoretical sorting and subsequent writing of the theory. Analytic rules detail operations, specify foci, delimit and select use of the data and concepts, act as reminders of what to do and keep track of and provide the necessary discipline for sticking to and keeping track of the central theme as the total theory is generated.

There are several fundamental analytic rules. First, sorting can start anywhere. It will force its own beginning, middle, and end for writing. The important thing is to start. Trying conceptually to locate the first memos will force the analyst to start reasoning out the integration. Once started, analyst soon learns where ideas are likely to integrate best and sorting becomes generative and fun. Start with the *core variable* and then sort all other categories and properties only as they relate to the core variable. This rule forces focus, selectivity and delimiting of the analysis. Theoretical coding helps in deciding and in figuring out the meaning of the relation of a concept to the core variable. This theoretical code should be written and sorted into the appropriate pile with the substantive code. Once sorting on the core variable begins, the constant comparisons are likely to generate many new ideas, especially on theoretical codes for integrating the theory. Stop sorting and memo! Then, sort the memo into the integration.

The analyst carries forward to subsequent sorts the use of each concept from the point of its introduction into the theory. The concept is illustrated only when it is first introduced to develop the imagery of its meaning. Thereafter, only the concept is used, not the illustration. All ideas must fit in somewhere in the outline or the *integration* must be changed or modified. This is essential for, if the analyst ignores this fitting all categories, he/she will break out of the theory too soon and necessary ideas and relations will not be used. This rule is based on the assumption that the social world is integrated and the job of the analyst is to discover it. If he/she cannot find the integration, he/she must re-sort and re-integrate the concepts to fit better. The analyst moves back and forth between outline and ideas as he/she sorts forcing underlying patterns, integrations and multivariate relations between the concepts. The process is intensely generative, yielding many theoretical coding memos to be resorted into the outline. Again it cannot be done by the simple code and retrieve of computer sorting.

Sorting forces the analyst to introduce an *idea* in one place and then establish its carry forward when it is necessary to use it again in other relations. When in doubt about a place to sort an idea, put it in that part of the outline where the first possibility of its use occurs, with a note to scrutinize and pass forward to the next possible place. Theoretical completeness implies theoretical coverage as far as the study can take the analyst. It requires that, in **cutting off** the study,

he/she explains with the fewest possible concepts and with the greatest possible scope, as much variation as possible in the behavior and problem under study. The theory thus explains sufficiently how people continually resolve their main concern with concepts that fit, work, have relevance and are saturated.

Summary

Always keep in mind that GT methodology is itself a GT that emerged from doing research on dying patients in 1967. It was discovered, not invented. It is a sure thing for researchers to cast their fate with. It was not thought up as a proffered approach to doing research based on conjectural "wisdoms" from science, positivism or naturalism. It is not a concoction based on logical "science" literature telling us how science ought to be.

GT gives the social psychological world a rhetoric—a jargon to be sure—but one backed up by systematic procedures. It is not an empty rhetoric, but unfortunately it often takes time for GT procedures to catch up to rhetoric with "grab." Part of the delayed learning is the remodeling—hence blocking—by QDA requirements, especially the accuracy quest.

One promise is that the abstraction of GT from data—generating GT—does away with the problems of QDA that are "scientized" on and on. As the GT researcher (especially a Ph.D. student) does GT analysis that produces a substantive, conceptual theory with general implications—not descriptive findings—he or she will advisably steer clear of the quicksand of the descriptive problems. QDA problems are numerous. A short list of these would include accuracy, interpretation, construction, meaning, positivistic canons and naturalistic canons of data collection and analysis of unit samples, starting with preconceived structured interviews right off, sequencing frameworks, preconceived professional problems, pet theoretical codes, etc and etc. The list is long, the idea is clear.

"Minus mentorees" should be cautious, in their aloneness, about seeking too much guidance from "one book read" mentors and the intrusive erosion that results as these mentors try to make sense of GT in their QDA context. They should seek help from people who have written a GT book.

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The time for GT to explain and be applied to "what is going on" means leaving the onslaught of QDA methodologies, which so erode it and then remodeled it. Evert GUMMESSON says it clearly in his recent paper, "Relationship marketing and the new Economy: it's time for De-Programming" (2002). What GUMMESSON says about marketing applies equally to nursing, medicine, education, social work and other practicing professions as well as academic work.

> *"Today's general textbooks perpetuate the established marketing management epic from the 1960s with the new just added as extras. It is further my contention that marketing education has taken an unfortunate direction and has crossed the fine line between education and brainwashing. The countdown of a painful—but revitalizing—process of deprogramming has to be initiated.*
>
> *What do we need in such a situation? A shrink? No, it is less sophisticated than that. All we need is systematic application of common sense, both in academe and in corporations. We need to use our observational capacity in an inductive mode and allow it to receive the true story of life, search for patterns and build theory. Yes, theory. General marketing theory that helps us put events and activities into a context. This is all within the spirit of grounded theory, wide spread in sociology but little understood by marketers. My interpretation of a recent book on the subject by Glaser (2001) is as follows: 'take the elevator from the ground floor of raw substantive data and description to the penthouse of conceptualization and general theory. And do this without paying homage to the legacy of extant theory.' In doing this, complexity, fuzziness and ambiguity are received with cheers by the researchers and not shunned as unorderly and threatening as they are by quantitative researchers. Good theory is useful for scholars and practicing managers alike." (Gummesson, 2002, 132).*

I trust that this paper demonstrates how freedom from QDA requirements will allow unfettered GT procedures to result in generated theory that fulfills Gummesson's vision.

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Pluralistic dialoguing: A theory of interdisciplinary teamworking

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Abstract

The aim of this emerging grounded theory study was to discover the main concerns of health professionals working in interdisciplinary teams, and to explain the processes team members used to continually resolve practice problems. Data collected from forty-four participants from seven disciplines in two teaching hospitals in New Zealand, included eighty hours each of interviewing and participant observation. In this paper the theory of pluralistic dialoguing is presented. It is argued that interdisciplinary work is possible when the team replaces the discipline focus with a client-focused care and thinks differently about service delivery. Thinking cooperatively requires individual team members to dialogue with colleagues, thereby deconstructing traditional ways of thinking and reconstructing new approaches to interdisciplinary practice. Although dialoguing was an informal process occurring within clinical spaces, as the effects of health reform and restructuring intensify teams also need to establish formal dialogue groups to facilitate team practice development and support team learning in the continually changing fast-paced practice context.

Introduction

Over the past decade the interdisciplinary team has received mixed reviews. While the interdisciplinary team is generally seen as a means to change professional practice and foster interprofessional collaboration (Leathard, 2003; Sullivan, 1998) it is also viewed as a means to promote clinical improvement in care and the outcomes of care, thereby improving public health and quality service provision (Lax & Galvin, 2002; Manion, Lorimer & Leander, 1996). As the care needs of clients have changed health care organisations have challenged traditional models of service delivery and endorsed the interdisciplinary team as a new model of practice that will supposedly reduce costs and improve the quality of care (Dodge, 2003). Interdisciplinary teams are usually expected to provide efficient, effective integrated care in restructuring health organisations (De Back, 1999). While team effectiveness is important (Millward & Jeffries, 2001; Schofield & Amodeo, 1999) integrating the disciplines in practice is much more challenging. This suggests that the process of teamworking has received less attention despite the fact that no one discipline

can provide integrated care for clients with multiple needs, which often crosses many disciplinary boundaries (Gillam & Irvine, 2000).

The interdisciplinary team is defined as one in which clinicians from various disciplines such as medicine, nursing, occupational therapy, physiotherapy, and social work cooperate with each other, sharing leadership, assessment, goal setting, problem-solving and decision making so that care is coordinated and client outcomes optimised. While the assumption that clinicians from different disciplines will automatically integrate care effectively is a worthy goal the reality may be somewhat different (Long, 2001; Masterton, 2002) suggesting that interdisciplinary team members may lack understanding of what is involved (O'Connell, 2001). Too often interdisciplinary teamwork seemingly evolves from trial and error learning. Indeed, Long (2001) observes that while there is longstanding general support for interdisciplinary work many variables limit implementation in less-than-ideal environments. Long though urges colleagues to concentrate on the successes.

In this paper one of the successes, some of the findings from an investigation into interdisciplinary teamwork in the acute care hospital are presented (McCallin 1999a, McCallin 1999b). The theory of pluralistic dialoguing is introduced and hopefully offers insights into interdisciplinary teamworking explaining how health professionals from different disciplines support colleagues as they put aside disciplinary differences, thinking through and learning new ways of working cooperatively for the common good of the client. Discussion begins with a brief outline of the research topic, the approach and the findings of the research. Next, the meaning of pluralistic dialoguing is presented and explored as thinking processes involving breaking stereotypical images, grappling with different mind-sets, negotiating service provision and engaging in a dialogical culture. Implications for practice are considered in the discussion and the limitations of the study are evaluated.

Refining the Research Topic

Research began with a general interest in examining nursing practice in the health reform context. Nursing practice was challenged by organisational change and wider social reform on a scale that was unprecedented in the history of health service delivery in New Zealand. However, perusal of the literature suggested that the magnitude of changes was such that reform could not help but affect all health professionals (McCallin, 2001, 2003). Scrutinising one professional group in isolation from others raised questions. Even though nursing practice was the general area of interest maybe it was unwise to view nursing as a separate entity when practice responsibilities and professional boundaries were blurring for all health professionals. But, what exactly was the research problem?

The topic was eventually refined becoming interprofessional practice. An initial literature review suggested that while there were anecdotal accounts of interprofessional work there was little published research in the area (Bishop & Scudder, 1985; Casto & Julia, 1994; Gabe et al. 1994; Leathard, 1994; Ovretveit, 1993; Petersen, 1994; Soothill et al. 1995). Existing literature emphasised power issues and problematic professional relationships (Ashley, 1976; Daniel, 1990; Davies, 1995; Hugman, 1991; Willis, 1989; Witz, 1992). Although literature heightened sensitivity to interprofessional tensions questions were raised about predetermining problems that possibly supported unsubstantiated myths and assumptions as well.

The Research Approach

Glaser's (1978, 1992, 1996) style of grounded theory was selected for the project because it supported the emergence of problems as identified by the participant group. Grounded theory is based on the belief that, as individuals within groups comprehend events personally, common patterns of behaviour are revealed (Glaser, 1998). As a group interacts together people do in fact make sense of their environment despite apparent chaos (Hutchinson, 1993). While there was a new emphasis on the development of interdisciplinary teamwork there was no research-based knowledge documenting how health professionals worked together in an increasingly complex, changing context. The method was well suited to understanding the social processes inherent in interdisciplinary teamwork in a seemingly chaotic environment.

One of the strengths of grounded theory is that it explains what is actually happening in practical life, rather than describing what should be going on. The premise was useful as issues were varied making it difficult to identify a particular problem. The method created a scientifically legitimate space whereby participants could explain their main concern and how they continually resolved that. Concepts did not have to be identified as predetermined variables, but would emerge from participant observation and interview. The goal was to present an "integrated set of hypotheses [that accounted] for much of the behaviour seen in a substantive area" (Glaser, 1998, p. 3).

Therefore, the aim of this research was to discover the main concerns of health professionals working in interdisciplinary teams, and to explain the processes team members used to continually resolve practice problems in a restructuring workplace in New Zealand. In the study the term interdisciplinary referred to people with different training and preparation (e.g. management, medicine, nursing, occupational therapy, physiotherapy, dietetics, and social work) who shared common objectives but made differing, complementary contributions to patient care (Leathard, 1994). Forty-four participants from three teams in two major acute-care teaching hospitals joined the study. In total there were eighty hours of interviewing and eighty hours of participant observation.

The Research Findings

In this research it was clear that health professionals working in interdisciplinary teams were concerned about the client service and meeting service needs. Concerns were resolved using the process of pluralistic dialoguing. This was a means for discussing differences that supported team members who were thinking through and constructing new ways of working together. It emerged as clinicians integrated multiple perspectives, which contributed to the clinical and organisational management of the client service. Pluralistic dialoguing had two complementary phases. These were rethinking professional responsibilities and reframing team responsibilities that reshaped thinking and team learning. Thus health professionals learned to think differently about meeting service needs as they broke stereotypical images and grappled with different mind-sets. Thinking continued to change as team members negotiated service provision and learned how to engage in the dialogic culture (McCallin, 1999a; McCallin 1999b).

The Meaning of Pluralistic Dialoguing

The one variable that recurred constantly in this research was communication. Participants were always talking, talking, talking. Talking is so commonplace that we tend to regard it as a ubiquitous process although it is the means by which people confirm what is happening and why (Hewitt, 1997). In this study, most team members had specialist knowledge, but in order to function cooperatively, they had to pool information, share ideas, consult and network so they could manage service needs. Clinicians talked formally and informally, collectively and casually as they moved around the clinical spaces. Clinicians agreed, disagreed, discussed, debated, explored, explained, liaised, listened, networked, negotiated, questioned, challenged, connected, and communicated. Over and over again team members were observed conversing together, propping up walls, liaising in lifts, chatting in corridors, musing at meal breaks, and discussing disciplinary differences at team meetings or in spontaneous conversations taking place as they worked together. Dialoguing, the basic social process, pervaded practice and was confirmed as the essence of successful interdisciplinary teamworking.

Pluralistic dialoguing was the means for drawing together diversity and difference as professionals from various disciplines learned how to work cooperatively with complex patients in a context where change and complexity prevailed. Discussions supported clinicians coordinating individual actions and interactions so that teamworking was possible. Clearly, pluralistic dialoguing helped clinicians redefine situations as they focused on the client and searched for shared meaning in practice. Dialoguing eased cooperation between disciplinary groups, and was the medium for channelling differences into a new form of interdisciplinary practice.

Dialoguing was possible because many participants in this study were willing to think differently about their professional work as they deconstructed traditional thinking in order to provide client-focused care. Clinicians changed thinking by breaking stereotypical images and grappling with different mind-sets. Thinking differently helped experienced practitioners to respond to restructuring, as they sought new ways of fulfilling functional responsibilities for the organisation. They also made sense of their world by reframing team responsibilities, discussing new approaches and resynthesising thinking while negotiating service provision and engaging in the dialogic culture. In this study, the client was the catalyst for cooperative work that facilitated political and cultural change in increasingly pluralistic organisations.

As health services are modernised hospitals have become pluralistic as widespread interests, conflict, and power influence the organisation (Morgan, 1997). Pluralism is a political concept, which challenges authoritarian control as it emphasises integration across diverse, powerful interest groups. Pluralism is not new in society (Drucker, 1989) yet its introduction into health service management has challenged the historical disciplinary power bases found in hierarchical hospital bureaucracies. Pluralism emphasises function and performance impacting on professional practice in the knowledge based pluralistic organisation (Drucker, 1989). While professional practitioners respect specialised knowledge, skill and expertise, today knowledge must support organisational task and function (Drucker, 1995). Effective function in the team-based organisation is promoted if people work together in small teams, which share a vision, goals, and a meaningful purpose (Zohar, 1997). Yet, this approach requires a radical new way of thinking to understand a world where meaning is paradoxical, uncertain, and complex.

Changing Thinking

The process of pluralistic dialoguing is about changing thinking. Interestingly, the thinking processes revealed in this study, rethinking professional responsibility and reframing team responsibility, mirror the dialogue process described by David Bohm (Bohm & Peat, 1987). Bohm described a dialogue process that encompasses deconstruction and resynthesis. During the deconstructive stage people let go of personal viewpoints that are compared and considered in dialogical conversations (Zohar & Marshall, 1994). All points of view are analysed for meaning and underlying assumptions so that deep understandings surface as insights are revealed (Bohm, 1994). As self-understanding, prejudice, and emotions are uncovered the flow of meaning between people begins.

Dialogue has the potential to affect collective thinking (Nichol, 1994, p. xv). As individuals redefine thoughts in conversation with others, possibilities are explored and interpretation and understanding of the whole changes (Bohm,

1994). In order to dialogue meaningfully with others clinicians had to let the usual ways of thinking go by breaking stereotypical images. Comparisons and analysis proceeded as team members grappled with different mind-sets when they examined alternative worldviews in team learning situations. Frustration lessened once clinicians realised that professional responsibilities could be realised differently if thinking changed. In this sense rethinking was an unlocking process. Clinicians had to identify the routine images first in order to find out exactly what shaped existing agreements before they were free to explore conventional thinking, and consider changing interactions and behaviour. Rethinking did not happen as a neat and tidy process but took place as clinicians discussed options for client-focused care in the changing context.

In the second stage of dialogue, resynthesis is possible. "When the rigid, tacit infrastructure is loosened, the mind begins to shift in a new order" (Bohm & Peat, 1987, p. 244). Bohm (1994) argues that dialogue moves forward again when people discover they are listening to others because they have found a common ground. As a new way of looking at the world emerges, previous ideas and experiences are blended into shared understandings. In this study, differences were diffused when clinicians centred on client-focused care. It was easier to let go of the traditional disciplinary thinking if the patient was the centre of attention when the team negotiated service provision. Likewise, after clinicians accepted that the many different approaches to client-focused care supported improved service delivery, the team was ready to engage in the dialogic culture. Thinking differently was relatively straightforward once clinicians realised that thinking outside of the square was acceptable. The stages of thinking are summarised:

Pluralistic Dialogue – Changing Thinking	
Deconstructing Thinking	**Resynthesising Thinking**
Rethinking Professional Responsibility	**Reframing Team Responsibility**
Breaking Stereotypical Images	*Negotiating Service Provision*
Grappling with Different Mind-Sets	*Engaging in the Dialogic Culture*

Breaking Stereotypical Images

Clinicians broke stereotypical images as clinicians integrated individual responsibilities for meeting service needs with the other disciplines. Thinking differently was challenging. Cultural stereotypes pervade interprofessional interactions in the health professions, and traditionally, these have blocked exploration of disciplinary differences between colleagues. Before thinking could change disciplinary contradictions and tensions had to be exposed.

That word equality is an awkward word really because it brings in all sorts of connotations about the hierarchy of systems and professionals. It's to do with stereotyping and some professions are seen to be much more superior in the sense of comparing them to others. To me, equality is really about being able to work together with mutual respect. The people identify each other's role and place within that team and respect that. ... That is what makes you equal. It is not that your responsibilities are equal or training, or skill. That is varied. But I'm just as good as they are. The trouble is there is an awful lot of historical stereotyping that goes on. I think the health system is changing incredibly fast and I don't think people's perceptions are changing at the same speed. It is probably up to us to forge the understanding.

Part of the deconstruction process was undoing existing images of the world so that the team could think about the client and focus on working together.

> *So much is about chaos. I might have a rule now but suddenly something else has come along and …… we've changed our minds! [Some people] are pedantic black and white thinkers - there is no gray in their world. You can get away with chaos until you come up against the black and white thinker. The black and white view tells her that the beds have been closed, staff have taken annual leave and she's sticking to her guns! … We should not be compromising patient care because we won't open the beds. I've rung around the other wards and had a conversation and we think we'll be able to discharge someone else. Those people are patient focused enough to understand that it is a bit gray here but we need to get patients out. Let's not make an issue of it. Let's have a conversation about it and move the others upstairs. The patients keep coming and a little group has collaborated here ...*

Conversations were critical in pluralistic dialoguing and a means to break down the stereotypical images of reality so teamworking could proceed. Sometimes a team retreated into familiar disciplinary territory.

> *For all the groups in the hospital the patient is still the strongest tie. So if ever there's an issue they don't think as an interdisciplinary team to sort it out at the team level. They go back to their disciplines and fight from that corner. That's where their strength is. And that's also their greatest weakness because they are seeing things from their own point of view rather than looking at the whole aspect.*

The impulse to resort to disciplinary defensiveness (Senge, 1990) that undermines cooperative action protects unconscious assumptions and emotions

thereby blocking thinking. Then, the interdisciplinary team struggled to cooperate, as individuals had to change their thinking first if the team was to change.

> *It's about people and how they manage change … they have been exposed to so much change … and it's the face-to-face communication and talking through the issues that is important. If people are threatened they go into siege mentality without really thinking through that there may be a better way to do things.... Politically you may not have much time to do things. Politically we have to respond quickly so we end up with emergency meetings and planning strategies. That's not a good way to manage.... The ones who are moving forward by themselves are the ones who come and talk.… We just chat. We talk about ideas and they come and bounce ideas off me and I bounce ideas off them. And then they go off and move the others forward.*

This deconstructive stage of pluralistic dialoguing was an active learning process whereby individuals challenged familiar ways of looking at the world. Freire and Shor (1987) suggest "dialogue seals the act of knowing, which is never individual, even though it has an individual dimension" (p. 4). Pluralistic dialoguing helped team members to suspend differences until they were ready to examine situations openly, honestly and talk with colleagues.

Grappling with Different Mind-Sets

In this study grappling with different mind-sets referred to the way an individual questioned familiar patterns of thinking that were out-of-step with either colleagues of the changing organisation. It was founded on a commitment to understand. Conversations were a means not only to learn, but to discuss problems and ideas.

> *There is an expectation of discussion—it's not necessarily agreement but if there's a problem, let's talk about it. … I'll start a conversation because I honestly don't know what something means.… Team members are usually very good at something so often we will have a conversation where there's this learning thing going on. And we learn from each other. So it's not just discussion. We want to understand.*

Conversation was critical to understand the whole as too often fragmented thinking has unexpected consequences if individuals think and act individually (Bohm, 1994). Some participants spoke of the disciplinary socialisation that tended to emphasise disciplinary differences. Once this was put aside, dialogue followed.

> *I see the doctor-nurse relationship as absolutely symbiotic. We need them and they need us. Our knowledge bases are totally different. We come from different perspectives but the two complement each other.... Now, the client is getting a less fragmented approach to care and everybody knows what everyone else is doing.... They are sharing and asking questions and beginning to work as a team.... If you are going to sit together everyone has to feel confident that while the professions don't necessarily agree they do have a relationship where there is potential to discuss issues without conflict.*

The struggle to explore conflicting views was seemingly impossible for some though. Bohm (1994) observes that when automatic thinking is well entrenched, thought is fixed, static, rooted in the past. Sometimes an individual had such different values and beliefs that any sort of teamworking was simply impossible.

> *I worked in a setting where I had very different beliefs and values of how a patient should be treated as opposed to the other staff ... was following my training. Going into a situation where people had different views and different attitudes—it was hard to change those attitudes especially when I was dealing with people who hadn't had much education. They had life experience but they didn't have formal education. And they hadn't learned the reason why we did things like that. The result was that I battled on and that upset me so much I had to leave because I couldn't change. I didn't want to compromise my beliefs and myself so I left the situation. I just couldn't work like that. It would have meant losing what I believed in, just to conform.*

Compromise was fraught with tension if a collective purpose was lacking. Those who struggled to think differently insisted on defending their thoroughly entrenched thought processes despite the changing context.

> *There are always some that won't see themselves as changing, or growing.... That doesn't work very well in teams.… People who adapt most might be the people who are able to listen.… Change is only possible if there's dialogue among teams so that what is possible, or not possible, is clearly spelled out. And that will probably cut some professionals out. Not necessarily just doctors but those people who are not able to recognise that they are finding it harder to change.*

While experienced clinicians were used to working through differences to improve client care there were others who had strong disciplinary allegiances, who did not appreciate that traditional adversarial interactions threatened interdisciplinary teamworking. Changing thinking was easier when the team had a common goal.

> *So, where do we start from when the world views are wide apart? Do we accept the world's really complex out there? What is the common ground in our work? We can't marry the worldviews of the disciplines. There is just no way health and commerce will come together! If you are trying to manage doctors and nurses and physios and OTs and you are coming from management, you look through management's eyes. Don't look through medical eyes, or nursing eyes! So I do think there is a common thing and it depends what the goal is. If you are trying to manage a ward, well where is management sitting there? Which perspectives are useful and which arguments do you value in the group? Do you agree on this approach? Yes, we do! OK! That's how we'll approach it! And there the compromise occurs for the discipline.*

Compromise though was not necessarily healthy as it implied powerful interactions clarifying winners and losers that thwarted the cooperative spirit (Zohar, 1997).

Negotiating Service Provision

Nonetheless, new understandings and meanings emerged as clinicians negotiated service provision, integrating individual contributions with the common purpose and the activities of the wider organisation. Negotiation of interests was consistent with Bohm's (1996) idea that resynthesis as a continual movement, backwards and forwards between people, that draws out shared ideas. In dialogue, "each person does not attempt to make common certain ideas or items of information that are already known to him. Rather, it may be said that the two people are making something in common, i.e., creating something new together" (p. 2). When every discipline focused on the client pluralistic dialoguing was dynamic.

> *The team is a two-way thing. It's like a jigsaw—a moving jigsaw. It is a moving pattern. And so a new person has got to fit in and the team is a new pattern once they come in. You've got to have that pattern working. It's not just the new person but it is the team as well. And that leaves us free for re-creation. That way everyone gets involved and it builds in itself.... People can go out from the team as individuals completely and they are entitled to do that. And we are very happy that they do that. They go out in their own right and stand as an individual. Your persona belongs to you but it gives to the team and the team gives back to it.*

Much of the negotiation in pluralistic dialoguing centred on problem solving for clients. Although Bohm (1996) questions whether dialogue is possible in bureaucratic organisations where superior-subordinate relationships prevail, clinicians questioned contradictions and confusions, seeking what Bohm (1994)

calls some coherence in an incoherent whole. In this sense negotiation was a delicate process:

> *A team that works well has a collective responsibility for the patient. I would never talk about anyone else's work. Although I might know what should be done I am not the practitioner registered to give that information. I am very careful there. I have been in the team a long time and I know how far to go and what appropriate dialogue is in relation to patients and our roles.… I leave the [discussion] to the other professionals but at the same time I have to have a good understanding of what the other team members do and what they might say.*

Talking through patient-focused care was more than persuading others to change thinking. Dialogue was important to support collective thinking. As clinicians understood each other better, collective thought became more coherent. Bohm (1996) argues that when the thinking process is shared, communication becomes explicit, as "we have to share our consciousness and to be able to think together, in order to do intelligently whatever is necessary" (p. 15). Free, open discussion involving everyone was important to work through different points of view and find a place for team agreement.

> *It's communication! If there is a team involved then you need to talk not just to the nurses who are there most of the time, but to the OTs and physios who are in and out. So that is a responsibility to try not to make too many unilateral decisions. There are certainly unilateral decisions about medication changes, which aren't a problem, but in terms of the overall aim for the person who needs to get people on board, there needs to be an opportunity for discussion. Ideally I would like to talk to people, and agree where we're going as a group and make sure that the team was happy about that.*

Engaging in the Dialogic Culture

In this study clinicians engaged in the dialogic culture when they shared ideas freely and frankly, while they consulted over the most effective means of fulfilling functional responsibility for meeting client needs. Both-and thinking underpinned dialogue and reflected the clinician's ability to think simultaneously in parts and re-look at the whole, that was always much greater than the sum of the parts. Both-and thinking is Zohar's (1997) quantum thinking that "gives us our intuitive, insightful, creative thinking, the kind of thinking with which we challenge our assumptions and change our mental models" (p. 120). When collective thinking emerged, anything was possible.

> *Everyone gets involved in the team. And the way the new person sees us all relating—that builds on itself. ... It's role modelling from every single person in the team. It's become a culture and it builds on itself.... It's our expertise and it's our manner of relating to people.... It's a very synergistic thing. I would not have the reputation I have without this team. I wouldn't know about a lot of the things I do. It builds on itself—like a snowball! The team keeps on building and we all build on each other. But it is a win-win situation.*

The team culture changed gradually as clinical experts looked beyond the familiar disciplinary boundaries to engage in a new approach to interdisciplinary practice. It was easier to change thinking when team members listened carefully to colleagues.

> *Now we work as a group and the consultants are listening and prepared to admit that they don't know what is the best type of treatment for this patient. But perhaps the physio knows? Or, perhaps the OT? Or, perhaps today it's the nurse who's doing the transferring. Ten years ago the House Surgeon would have been doing that ... the complexity and uncertainty of the work are part of the problem. At least people are aware that teamwork is complex but it's not fragile. In the past the team was too fragile for a new grad to give their opinions at a team meeting, whereas now the team is not going to fall apart if someone says something out of place.*

Acceptance of diversity created a climate whereby team members talked together as they sought a common understanding that was client focused. Dialogue certainly challenged traditional cultural patterns of domination (Freire & Shor, 1987). If thinking was to change openness and honesty were essential.

> *It's about how you create a team and what gives it meaning. A lot is to do with where the ownership lies and whether people are more willing to give things a go or not. Kiwis have more of that English reserve where you say one thing and probably think another. People do think and yet they are running counter to what they probably feel. People really aren't direct when they've got a problem or an issue. It tends to filter back through other people and is addressed in a roundabout way and that lacks honesty.... If we were being facilitative we could be open and talk honestly ... it's all about developing a culture. When new people come in, can they actually fit in with what's there?*

Sharing ideas, opinions, and thoughts frankly was very much a part of everyday teamworking. Building a team and engaging in the dialogic culture was an ongoing, dynamic activity.

> *We have been to management and team building days away … team building is a fallacy! I think you need to get to know each other and get on with each other and understand each other before you can challenge each other and be open with each other for the better. This whole business of going away together and going on hikes together is nonsense! Team building happens as the team works together day by day by day. You can't build a team by going away for two days. You build a team over three hundred and sixty-five days of the year.*

Engaging in interdisciplinary teamworking also involved a genuine desire to understand and work cooperatively with colleagues. In this study, the team person who accepted individual responsibility for the collective team outcome was highly valued.

> *Communication is what it is all about. It's someone being clear about what they do, so it's clarity of roles. The person who fits into the team talks about what they are doing with other team members being discursive, being flexible, and being a good listener. It's the person who's even in their mood, who has a sense of humour, and can keep their sights clearly focused on what we are really about. Someone who appreciates what people do. So someone who is reflective—someone who talks! When it comes down to it, it doesn't matter what they say as long as they will talk and be open and not get upset when they are challenged—that is part of learning. So, what makes a good team member? Someone who is willing to put forward their ideas, talk about it, reflect on it, focus on what the client requires the team to do for them, and listen to what others have to say.*

Thus pluralistic dialoguing was fundamental to the culture of care that is based on shared meanings. It supported Bohm's (1996) beliefs that, in dialogue, the stream of meaning flows among, between and through people and "is the 'glue' or 'cement' that holds people and societies together" (p. 6). In this study, shared meanings were the essence of pluralistic dialoguing.

Discussion

Pluralistic dialoguing did not evolve in a purist, theoretical sense. Dialogue was self-activated by highly motivated practitioners who were committed learners. The dialogue process was self-generated because individuals invested in the team and accepted an individual-collective responsibility for cooperative practice. While pluralistic dialoguing was well developed in the smaller teams studied Bohm (1996) warns that small groups are accomplished at making "cozy adjustments" (p. 13) whereby people are polite to each other as they avoid

dealing with the contentious issues. Bohm (1994) suggests also that dialogue is unlikely to happen if a group does not set out with the deliberate intent of entering into dialogue per se.

According to Bohm, dialogue begins when there is discussion about thinking processes and talk about dialogue, as conditioned social responses and reflexive thinking block the openness of thinking required. "If people who have no notion of this whole process of thought and dialogue get together it's possible that they might find a way, but chances are they would not" (p. 194). The teams studied in this research project were rather different. Although Bohm (1994) believes that dialogue works best in a dialogic seminar of thirty to forty people representing a microcosm of society, in this study the dialogical groups were teams working in a changing context. The dialogical culture was the everyday reality; it was a constantly moving construction that was not fixed in time and space.

The basic social process of pluralistic dialoguing is possibly tenuous and dependent on particular personalities in a certain context, because it emerged in practice and not from a forum separate from the usual activities of practical life. Clinicians had to dialogue in action because it was well nigh impossible to release complete teams from specialist acute-care areas for weekends of dialogical seminars. However, clinicians learned quickly how to share meaning as they worked closely together discovering common problems, which had no easy answers. Close connections in adversity foster fellowship and cooperation (Bohm, 1994). Professional and team responsibilities were explored in action. There was no other way in the acute care environment.

The focus on dialogue in action suggests that conversations may have concentrated on tasks at the expense of process-based teamworking issues, which are just as important. While organisations value efficiency and effectiveness if more than lip service is to be paid to the interdisciplinary team as a means to improve quality service provision, the organisation must also recognise that interdisciplinary teams may be changing professional culture and require learning support if team practice development is to progress. Health reform encompasses cultural change so health professionals need time, coaching and mentoring, to work through changing values, beliefs, and attitudes, as they assimilate new ways of thinking into new approaches to practice.

Limitations

While it is recognised that theoretical coding needs strengthening the main limitation of this research concerns theoretical sampling. Data was gathered from hospital teams and although the original research design included study of community teams, as well as clients and families who were the recipients of

care, the latter two groups were not interviewed or observed due to time constraints associated with doctoral research. Further research to evaluate differences, if any, working in teams in the hospital or community and more importantly, to talk to the often unrecognised team members, the lay members (clients and their caregivers) who also shape interdisciplinary teamworking is necessary.

Conclusion

In this paper it has been argued that, pluralistic dialoguing is unique in that it is a form of dialogue in action, which is created by clinicians challenged with health restructuring in acute care hospitals. Dialogue is a fluid, evolutionary process that is time-dependent and affected by constant change. Involvement in pluralistic dialoguing was always individual, as people always chose to be involved with others, or not, as the case may be. Successful team practice respected individuality, welcomed it, and integrated it into a cooperative practice that benefited clients, colleagues, and the organisation. Pluralistic dialoguing facilitated interdisciplinary teamworking.

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A Grounded Theory of Moral Reckoning in Nursing

By Alvita K. Nathaniel, DSN, APRN, BC

Abstract

Moral distress is a pervasive problem in nursing, contributing to nurses' emotional and physical health problems, loss of nurses' ethical integrity, dissatisfaction with the work of nursing, and loss of nurses from the workforce. The purpose of this research was twofold: 1) to further elucidate the experiences and consequences of professional nurses' moral distress and 2) to formulate a logical, systematic, and explanatory theory of moral distress and its consequences. METHOD: This Glaserian grounded theory study utilized volunteer and purposive sampling to recruit 21 registered nurses. Analysis of the data resulted in an original substantive theory of moral reckoning in nursing, which reaches further than the concept of moral distress, identifying a critical juncture in nurses' lives and better explaining a process that affects nurses and the health care that they deliver. Results: Moral reckoning in nursing consists of a three-stage process. After a novice period, the nurse experiences a Stage of Ease in which there is comfort in the workplace and congruence of internal and external values. Unexpectedly, a situational bind occurs in which the nurse's core beliefs come into irreconcilable conflict with social norms. This forces the nurse out of the Stage of Ease into the Stage of Resolution, in which the nurse either gives up or makes a stand. The nurse then moves into the Stage of Reflection in which beliefs, values, and actions are iteratively examined. The nurse tries to make sense of experiences through remembering, telling the story, examining conflicts, and living with the consequences. Implications: In today's complex health care system, nurses find themselves faced with morally troubling situations which if not resolved can lead to serious consequences for nurses, patients, and the health care system as a whole. This study sets the stage for further investigation on the human consequences of moral distress. Further, since moral reckoning impacts health, nurse leaders are challenged to identify opportunities to facilitate successful moral reckoning in the workplace through encouraging nurses to tell their stories, examine conflicts, and participate as partners in moral decision making.

Significance

The investigator's curiosity was initially piqued by stories about nurses' experiences with moral distress in the workplace. Moral distress is the pain or anguish affecting the mind, body, or relationships resulting from a patient care

situation in which the nurse is aware of a moral problem, acknowledges moral responsibility, and makes a moral judgment about the correct action; yet, as a result of real or perceived constraints, participates, either by act or omission, in a manner perceived by the nurse to be morally wrong (Jameton, 1984; Wilkinson, 1987-88; Nathaniel, 2003). According to extant literature, situations involving moral distress may be the most difficult problems facing nurses, resulting in unfavorable outcomes for both nurses and patients. Because of moral distress, nurses experience physical and psychological problems, sometimes for many years (Kelly, 1998; Wilkinson, 1987-88; Perkin, Young, Freier, Allen & Orr, 1997; Fenton, 1988; Davies, et al., 1996; Krishnasamy, 1999; Anderson, 1990). Reports of the number of nurses who experience moral distress vary. Redman & Fry reported that at least one-third of nurses in their study (n = 470) experienced moral distress (2000). Nearly fifty percent of nurses in another study (n = 760) reported that they had acted against their consciences in providing care to the terminally ill (Solomon, et al., 1993). Between 43 and 50 percent of nurses leave their units or leave nursing altogether after experiencing moral distress (Wilkinson, 1987-1988; Millette, 1994).

Extant literature also implies that moral distress affects the quality of nursing care when nurses distance themselves from patients, become emotionally unavailable, avoid going in patients' rooms, leave the unit, or leave nursing altogether (Viney, 1996; Davies et al., 1996; Krishnasamy, 1998; Fenton, 1988, Wilkerson, 1987-88; Corley, 1995; Millett, 1994; Redman & Fry, 2000). Between 12 and 50 percent of nurses leave nursing or change their practice site as a direct result of moral distress (Millette, 1994; Corley, 1995; Wilkinson, 1987-88). Thus, moral distress may be a factor in the present nursing shortage–a self-perpetuating downward spiral.

Method

Grounded theory is an inductive method in which theory emerges from the data. It moves from the systematic collection of data in a substantive area to the development of a multivariate conceptual theory. To allow continued discovery and flexibility of exploration, as is appropriate to grounded theory research, this study began with the following broad research question that narrowed and redirected as the research progressed: What transpires in morally laden situations in which nurses experience distress? With advice and guidance of Dr. Barney Glaser, co-originator of the grounded theory method, the phenomenon of moral distress among professional nurses was explored and a substantive theory of moral reckoning emerged. The study was conducted in accordance with the original method as described by Glaser and Strauss (1967) and subsequently refined by Glaser (1978, 1996, 1998).

This study utilized a combination of nonprobability techniques of volunteer and purposive sampling as described by Chinn (1986). The purpose of nonprobability sampling is to describe, foster understanding, and elicit meaning. Participants were initially selected because they could shed light on the phenomenon under investigation. Subsequent sampling was related to the findings that emerged in the course of the study, with the process continuing until saturation was met. The investigator aspired to interview a broadly representative cohort of nurses. Participants were recruited through various means including an advertisement published a state nurses' association newsletter, distributed to nurse leaders for sharing with others, and posted at a state nurses' convention and regional nursing research conference. In the advertisement, nurses were asked to either email or call (toll-free) the principle investigator if he/she had ever been involved in a troubling patient care situation that caused distress. Neither gender nor minority groups were excluded. The target population included all registered nurses who had ever experienced distress in relation to a moral/ethical problem in a patient care situation. All those responding to the advertisement were interviewed until saturation of categories was reached.

Participants were interviewed in an unstructured casual manner. This provided an efficient, yet meaningful mix of interview, observation, and conceptualization. Initial interviews were conducted in person or over the telephone. Face-to-face interviews were conducted in quiet, private locations close to informants' homes. When face-to-face interviews were impracticable because of distance, interviews were conducted by the telephone or through email. No interviews were conducted in participants' work settings. As recommended by Glaser (1998), interviews were neither taped nor transcribed. Brief, unobtrusive contemporaneous notes were taken to ensure that field notes were factually correct. Field notes were written immediately following the interviews—usually within one hour.

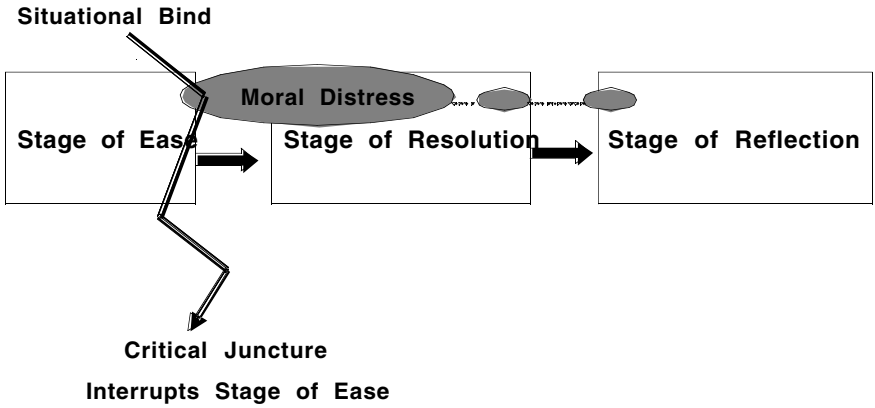
As is hallmark of the constant comparative method, analysis began with the first episode of data gathering and occurred simultaneously with other steps of the grounded theory process. Data were analyzed sentence by sentence and were then coded. The coded data were organized into concepts and further into categories, which were subsequently integrated into theory. Throughout the process, emerging ideas about concepts and processes were recorded in the form of conceptual memos. Theoretical sampling began when the investigator found categories that required more refinement or areas that need more depth. The core variable was identified when it emerged as the one to which all others related. As categories became saturated and the relationships among them became clear, the substantive Theory of Moral Reckoning in Nursing was found to effectively synthesize, organize, and transcend what was previously known about moral distress. During the final write-up, conceptual memos were organized and field notes were revisited to illustrate the newly discovered theory.

Theory

The sample consisted of 21 registered nurses. Twenty were female and 17 were married. Informants were highly educated and experienced: 2 with associate degrees, 3 with bachelor degrees, 13 masters degrees, and 3 doctorates. Nineteen participants were Caucasian, 1 was Hispanic, and 1 Native American. Eighty percent had more than 10-year's professional experience. Forty-three percent reported that they had left a position because of a morally distressing situation.

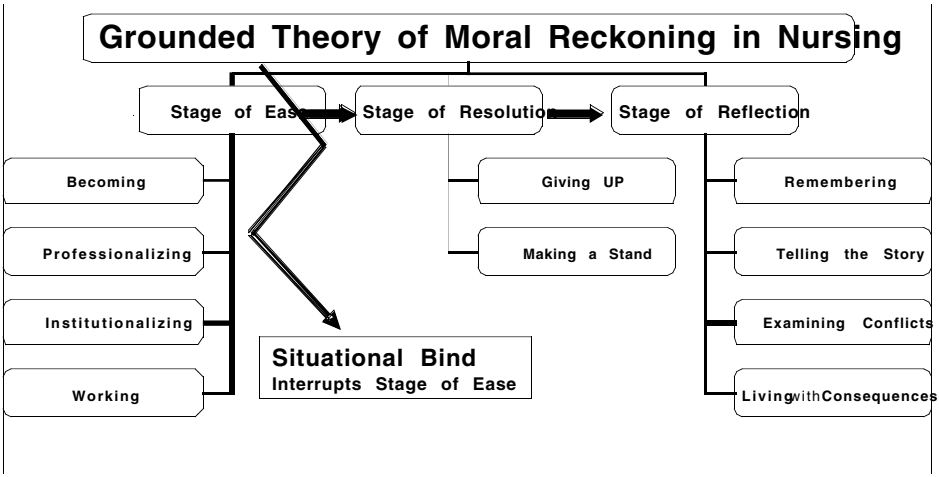
As the interviews were coded and compared, it became clear that moral distress, the original focus of the investigation, was not emerging as a major category. Specifically, the definition of moral distress in the literature is free from process connotations, includes a requirement that the nurse must participate in moral wrongdoing, and goes little further than to describe the psychological implications. The definition of moral distress also implied an adversarial relationship in which nurses are opposed by powerful wrongdoers. This definition was not supported by the data in the present study, so it constituted springboard for further investigation. As the data unfolded, new basic social psychological process of Moral Reckoning was discovered to be the core concept. Moral distress, as described in the extant literature, relates to three facets of the highly organized theory of moral reckoning as follows: Moral distress a) is triggered by a situational bind, b) overlaps a tiny portion of one stage of a larger process, and c) overlaps a larger segment of a basic social process. Figure 1 depicts the theory and its relationship to moral distress.

Figure 1. Moral distress overlaps the process of Moral Reckoning



Moral Reckoning, the core category, captures the culmination of the entire, three-stage process. It connotes a process during which nurses critically and emotionally reflect on motivations, choices, actions, and consequences of a particularly troubling patient care situation. To reckon is defined as follows: "To recount, relate, narrate, tell; to allege; to calculate, work out, decide the nature or value of; to consider, judge, or estimate by, or as the result of calculation; to consider, think, suppose, be of opinion; to speak or discourse of something; and to render or give an account (of one's conduct, etc)" (Simpson & Weiner, 1989, Vol. XIII, p. 335-336). The three distinct stages of Moral Reckoning are the Stages of Ease, the Stage of Resolution, and the Stage of Reflection. Each stage is comprised of unique properties. Figure 2, illustrates the grounded theory of moral reckoning with its stages and properties.

Figure 2. Stages and properties of Moral Reckoning



Stage of Ease

Integral to the Stage of Ease are the properties of (a) becoming, which signifies an ongoing refinement of stable core beliefs and values of the individual, (b) professionalizing, which relates to inculcation of the professional norms, (c) institutionalizing, which signifies the process of internalizing institutional social norms, and (d) working, the unique experience of the work of nursing. As is noted in the following sections, conflict between and among the conditions during a critical incident produce a situational bind.

Each person evolves a set of core beliefs and values through the process of becoming. Core beliefs evolve over time through experience and from teaching and modeling of parents, teachers, ministers, peers, and so forth. Moral integrity indicates integration and consistency of core values over time (Beauchamp &

Childress, 2001). Evidence of participants' core beliefs emerged from their stories and included such indicators as their membership in a caring profession, their sense of responsibility to relieve suffering, their commitment to uphold professional and institutional norms, and the tumult that occurred when core beliefs were challenged.

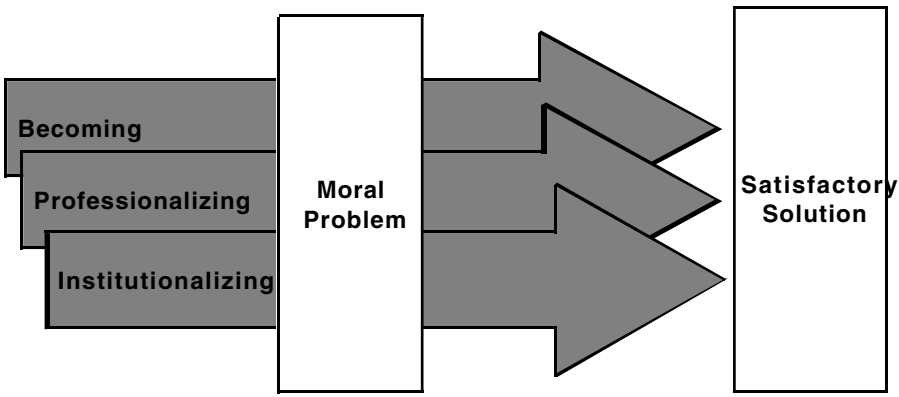
For nurses, professionalizing refers to inculcation of certain unique cultural norms learned in nursing school and early practice. Conceptual ideals that contribute to the nurse's idea of what a good nurse should be or do are considered professional norms. Nurses' professional norms complement core beliefs for the most part, so that the profession and professional norms become internalized and uniquely important to the person. Nurses learn explicitly that they have unique relationships with patients and that they are responsible to keep promises implicit in the relationship. Perceived professional norms include the following non-exclusive implicit rules: one must follow physicians' orders, complete assigned work with expert skill, and remain altruistic.

Through the process of institutionalizing, nurses are socialized within the institutional setting to a different set of implicit and explicit norms. Institutional norms are variably congruent with nurses' core beliefs and professional norms. For example, nurses learn to complete a job according to institutional standards and respect lines of authority. Assuring that the business makes a profit, following orders, handling crises without making waves, and covering are some implicit institutional norms. Speaking about her disappointment within the health care setting, one informant said, "Corporate is bigger than life itself."

Working is another condition of the first stage of Moral Reckoning. The unique work of nursing is varied, challenging, and rewarding and requires technical skill and attendance to many facets of patients' lives. Nurses work at "arm's length" (Penticuff, 1997) from patients as they attend to the most personal and private of needs. In the process, they learn tremendous amounts about patients' hopes, fears, and desires. They get to know patients who stay on their units for extended periods or return many times. Nurses hear what patients say and understand the meaning. They intimately know about suffering patients—from touch, sight, smell, and sound. Patients' interests, very clearly, become nurses' interests. Their descriptions of the work of nursing include vivid sensual descriptions and heart-wrenching stories. Doing the work of nursing includes the properties of knowing patients, witnessing suffering, accepting responsibility to care, desiring to do the work well, and knowing what to do. Held in fragile balance, the conditions of becoming, professionalizing, institutionalizing, and the work of nursing comprise the Stage of Ease. Nurses are motivated by core beliefs and values to uphold congruent professional and institutional norms during this stage. Having technical skills and feeling satisfied to practice within the boundaries of self, profession, and institution, nurses are comfortable, they

know what is expected of them and experience a sense of flow and at-homeness. One informant said, “Early in my career I was employed in the hospital setting and very conscientious about my work. I was very in-tune to the patients and their care, wanting to make sure that everything was done that was supposed to be done and that I completed all my work before the next shift came on. I loved the challenge of the medically difficult patient. I always did well in the emergencies—CPR, GI bleeds, chest pains, etc. After those first few months of new nurse jitters, I felt at ease and comfortable at my station....” The Stage of Ease is depicted in figure 3.

Figure 3 During the Stage of Ease, moral problems in the presence of compatible core values and professional and/or institutional norms lead to satisfactory solutions.



Congruent Values in the Stage of Ease

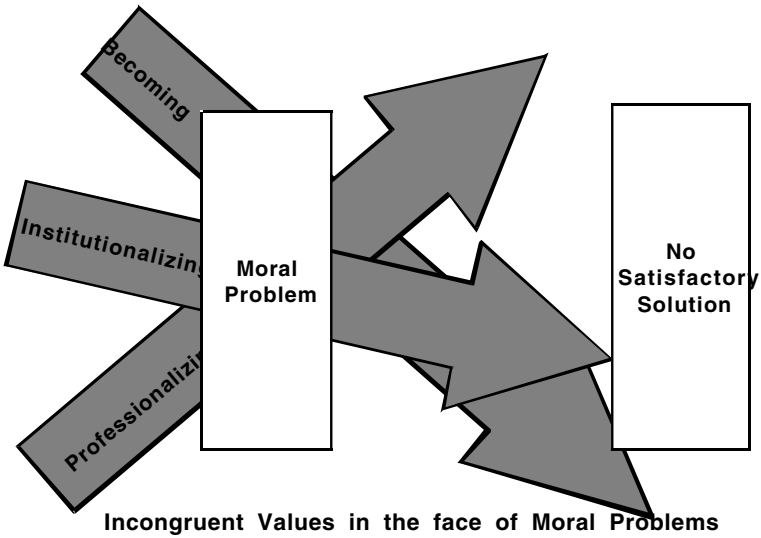
The Stage of Ease continues as long as the nurse experiences fulfillment with the work of nursing and comfort with the integration of core beliefs and professional and institutional norms. For some, a morally troubling event will challenge the integration of core beliefs with professional and institutional norms. Nurses find themselves in Situational Binds that herald a critical juncture in their professional lives.

Situational Binds

A situational bind interrupts the Stage of Ease. Situational binds involve an intricate interweaving of many factors including professional relationships, divergent values, workplace demands, and other implications with moral overtones. Situational binds vary in their complexity, context, and particulars but

are similar in terms of their immediate and long-term effects. Nurses' turmoil may meet or exceed the traditional definitions of moral distress. Situational binds compel nurses to make difficult decisions and culminate in critical junctures in their lives. As depicted in figure 4, nurses feel constricted by binds involving conflicts with ethical/moral overtones that occur between core values, and professional or institutional norms or between nurses and others. When this happens, inner dialogue guides the nurse toward critical decisions in which he or she must choose one value or belief over another. Situational binds encountered by nurses in this study included intricate combinations of demands and conflicts with both moral and practical implications. Specific types of situational binds include conflicts between a) core values and professional or institutional norms, b) participants with imbalance of power, and c) nurses' values and workplace deficiencies: all of which lead to consequences for nurses and patients. Situational binds and their resolution constitute critical junctures as nurses moves toward the processes of resolution and reflection—the remaining stages of moral reckoning.

Figure 4. During the Stage of Ease, moral problems in the presence of compatible core values and professional and/or institutional norms lead to satisfactory solutions.



Professional or institutional norms may challenge core beliefs. This is evidenced when informants reveal core beliefs as they talked about the struggle to come to terms with conflicts involving professional or institutional norms. For example, one nurse is still troubled because she believes she tortured a patient when she

followed orders. The patient was a young woman for whom the physician had ordered "nothing by mouth." Through the day, the woman begged for something to drink. Following orders, the nurse refused to give the woman fluids. The young woman died the next day and the nurse still struggles with the "harm" she feels she caused the woman. In this case, the nurse was in a bind because the actions prescribed by the profession and institution (maintaining NPO status) conflicted with the nurse's commitment to relieving suffering, which seemed to her to be the morally correct action.

Situational binds are often the result of asymmetrical power relationships during morally troubling patient care situations. Many times, nurses believe they are excluded from the ethical decision-making process. They feel strongly that they have a duty to respect patients' wishes and to affect appropriate outcomes and they are frustrated when their attempts fail. For example, several informants voiced a sense of powerlessness in situations in which physicians and family members seemed to make important life decisions that were in conflict with autonomous patients' wishes. Specific decisions included performing surgery, inserting feeding tubes, and performing resuscitation. The nurses were strongly committed to patients' rights to make autonomous decisions, yet they were not able to successfully advocate for the patients' choices. Even though they tried to intervene, they felt great distress when patients suffered.

Power imbalance is also evident when physicians do not believe what nurses tell them. This is a frequent theme. Because nurses feel a strong sense of responsibility to patients and take seriously the implicit promise to relieve their suffering, they are frustrated when they attempt to communicate patients' wishes or status to physicians who will not listen. Informants talked about instances when physicians refused to come in to see patients, refused to order emergency medication, or disbelieved the nurses' assessment of patients' deteriorating conditions. One nurse talked about her distress when a series of consultants ignored her concerns about a patient's deteriorating condition following a gunshot wound to the neck. The patient died from a simple wound because physicians ignored the nurse's appeals.

Sometimes nurses perceive themselves to be in binds when there is no frank moral wrongdoing, but rather divergent core beliefs. When decision makers have legitimate beliefs that are different from the nurse, the nurse might believe that moral wrongdoing is occurring. For example, several informants denounced physicians who they believed coerced families or patients to make decisions consistent with the physicians' personal beliefs, but conflicting with the nurses' beliefs. In these cases, even though an objective bystander would not identify moral wrongdoing, the nurses felt a great deal of distress. Paradoxically, the two types of cases in which this was most dramatic included instituting life sustaining measures and allowing patients to die.

On occasion, nurses experience distress when deficiencies in the workplace lead to patient harm. Workplace deficiencies place nurses in situational binds because they challenge nurses' core values. Specific deficiencies identified in this study included chronic staff shortage, unreasonable institutional expectations, and equipment failure. For example, nurses can be overwhelmed by overly heavy patient care assignments. This constitutes a situational bind when a nurse is truly committed to providing care that meets professional and institutional standards, yet must care for more patients than he or she believes is safe. This leads to distress when the nurse cannot meet all of his or her own and others' expectations and lingering guilt about real or potential harm to patients. One nurse tearfully recalled a morning when a visitor had a cardiac arrest on her unit. The nurse was responsible for "working the code" while no one cared for her assigned patients. Years later, she continues to be troubled about the potential harm to patients who essentially had no nurse that day and by the violation of her own values.

There are consequences that occur as the result of situational binds. During the situational bind and for some time afterwards, nurses experience profound emotions and reactive behaviors directed toward themselves or others. Participants said they were "very torn," "bothered horribly," and "incredibly sad." They talked about feelings of guilt, anger, powerlessness, conflict, depression, outrage, betrayal, and devastation. They also experienced physical manifestations such as near syncope, crying, sleeplessness, and vomiting. Reactive behaviors included fleeing the unit, going into a rage, drinking alcohol, and sacrificing self.

Nursing care subsequent to situational binds is affected in a number of ways. Following morally troubling situations, nursing care may be negatively affected, unchanged, or improved. Different than extant reports of moral distress, very few informants in this study reported that their nursing care was negatively affected. One nurse was able to perform only routine tasks at the desk and called for a replacement within a couple of hours. Another said even though she had always loved her work, after a troubling incident she resigned because she believed her care would be affected. In contrast, most nurses reported that their nursing care improved as a direct result of a situational bind. Some reported that they were compelled to make up for what they considered to be harm resulting from others' moral wrongdoing by giving more compassionate care—even to the point of sacrificing themselves. One nurse talked about feeling compassion for the patient and trying to treat him with dignity. Others said that their care improved in the long term because they were better prepared to deal with situational binds. In any case, painful feelings and realizations about harm to patients propels nurses toward the Stage of Resolution.

Stage of Resolution

Situational binds constitute crises of intolerable internal conflict and produce critical junctures in nurses' lives. In order to maintain moral integrity, something must be done immediately to rectify the situation. The move to set things right signifies the beginning of the Stage of Resolution. For most, this stage alters professional trajectory. There are two foundational choices in the Stage of Resolution: making a stand and giving up. These choices are not mutually exclusive. In fact, many nurses give up initially, regroup, and make a stand. Others make an unsuccessful stand and give up at a later time.

Some nurses resolve their distress by making a stand. All forms of making a stand include professional risk. Nurses make a stand when they initiate negotiations, refuse to follow physicians' orders, break the rules, whistle blow, and so forth. Making a stand is rarely successful in the short term, but may occasionally improve the overall situation in the long term. For example, informants made a stand when they refused to help with resuscitation of patients who had voiced their objection, to sign coerced surgical consent, and to administer potentially fatal doses of medication. Sadly, in every case, another nurse was willing to intervene and follow the questionable order.

In contrast, nurses may also resolve a situational bind by giving up. In general, nurses give up because they recognize the futility of making an overt stand. They are simply not willing to sacrifice themselves to no avail. They may also give up to protect themselves or to seek a way or find a place where they can live their ground projects with better integration of core beliefs, professional norms, and institutional norms. Specifically, giving up includes participating in an activity considered to be morally wrong, leaving the unit or resigning, or leaving the profession altogether. For example, a number of informants talked about feeling as if they have given up when, against their conscience, they administered medication in doses that they knew were likely to be lethal. This occurred almost exclusively when patients were dying. Nurses subsumed their core beliefs to institutional norms, which strongly favored following physicians' orders. They administered the medications with regret and resigned from their positions soon afterwards. Nurses do not pass through the Stage of Resolution unscathed, yet they do move forward—into the Stage of Reflection.

Stage of Reflection

The Stage of Reflection may last a lifetime during which nurses reflect and reckon their actions. In most cases, the incidents nurses recall occurred early in their careers. During the Stage of Reflection nurses raise questions about prior judgments, particular acts, and the essential self. The interrelated properties of

the Stage of Reflection include remembering, telling the story, examining conflicts, and living with consequences.

One of the more intriguing properties of the Stage of Reflection is remembering. After situational binds nurses retain vivid mental pictures. These memories evoke emotions many years later. One nurse said, “I don’t let go of it.” Nurses experience sensual memories of the incident—memories of the sights, sounds, and smells. After 15 or 20 years, informants talked about patients’ faces, exact locations of the patients’ beds, and sometimes a patient’s position in bed. Unlike their memories of other patients, nurses remember particulars about patients involved in morally troubling situations such as their names, ages, and diagnoses. For example, one nurse recalled that the patient was wrapping Christmas presents at home when she was injured. As she talked about his incident she called forth emotions as well as memories.

Nurses experience evoked emotion many years after the situational bind. Emotions that are evoked as nurses remember morally troubling situations include feelings of guilt and self-blame, lingering sadness, anger, and anxiety. Unlike descriptions of moral distress, nurses feel guilt and self-blame even when they did not actually participate in moral wrongdoing. They experience guilt related to the patient’s outcome, rather than their own participation in a troubling event. Even when they report a series of events in which they are above reproach, informants continue to blame themselves for the harm that occurred to patients. Lingering effects include anxiety attacks, crying episodes, depression, and prolonged psychiatric care.

Nurses also continue to express anger toward those they believe were responsible for causing harm to patients. Physicians, other nurses, and institution administrators are targets of anger and blame. Anger harbored over many years leads to fracturing of professional relationships. For example, talking about a physician who did not respond during an emergency, one nurse said, “I still have no use for him.”

Remembering is an iterative process with nurses continuing moral reckoning over time—telling the story as they try to make sense of it. Informants in the present study desired to tell their stories, volunteering to participate in hour-long interviews and later voicing gratitude for the chance to tell their stories. Telling their stories evoked emotions even though troubling patient situations may have occurred 15 to 20 years previously. Regardless of the interval between the incident and the telling of it—many wept as they talked about the incidents.

Remembering and telling their stories, nurses begin examining conflicts in the situations. They struggle as they examine conflicts between personal values and professional ideals. They examine their values and ask themselves questions about what actually happened, who was to blame, and how they can avoid

similar situations in the future. Thus, they move toward full-dimensional, reflective awareness of experiences, thoughts, feelings, emotions, and values.

As nurses think about their roles in what they consider past moral wrongdoing, some make practical decisions. They set limits or rules concerning future actions. They identify a point beyond which they will not go and some vow to take risks to help patients in the future.

Nurses experience living with the consequences for a prolonged period. Since they are no longer comfortable in the original workplace, nurses move from one institution to another or from one specialty area to another. They are likely to seek further education, often intending to correct the type of moral wrongs they experienced in the past. Many informants in this study attended graduate school subsequent to their morally troubling event. Few of them remain at the bedside, even though most talked about enjoying the work they were doing during the Stage of Ease.

Discussion

The current study identifies a very powerful, yet heretofore unidentified basic social process. The theory is powerful because it has fit and relevance, and it works. Congruent with Glaser (1998), concepts and categories of Moral Reckoning emerged from stories told by nurses (fit); emergent concepts relate to true issues of the nurses interviewed (relevance); the stages account for most of the variation of nurses' behavior (work); and, the theory can be constantly modified to fit and work with relevance. Thus, this theory, which is rigorously grounded in data is easily understandable and imbues trust. Moral Reckoning is a new and original theory that establishes unique connections—making familiar ideas relevant, while giving integrative scope and a new perspective. Because the theory is very broad and overarching, it provides opportunities for future research that can move in many directions.

The theory calls for programs of research that will further explore and more fully develop its categories and concepts and begin to identify causes and make comparisons and predictions. Vigorous theoretical sampling is needed to 1) allow a more thorough and useful understanding of the stages of Ease, Resolution, and Reflection and different ways that nurses might progress through them, 2) provide a better understanding of core values as they intersect with professional and institutional norms, and 3) modify the theory to include different types of nurses.

In addition, nursing ethics research is needed to shed light on what nurses understand about nursing ethics, the depth of this understanding, how their understanding of nursing ethics factors into every day decision making, and what kinds of learning leads to empowered, patient-centered, ethical decision making. Further qualitative and quantitative research is also needed to

determine the characteristics of nurses who experience moral distress and moral reckoning versus those who do not and the quality of patient care provided by each group. Correlational research is needed to identify nurses who leave and those who stay, particularly in relation to whether or not they experience moral distress and moral reckoning. In the face of the nursing shortage, this has implications for nurse recruiting and retention. If, as the present study suggests, caring and sensitive nurses leave the bedside, it is important for research to identify strategies to retain them.

Research on moral reckoning should not be limited to the profession of nursing. The Grounded Theory of Moral Reckoning in Nursing easily lends itself to development of a formal grounded theory of moral reckoning—one that is generalizable to other substantive areas. Investigators have an opportunity to use the theory with other professions and to modify it for a wide variety of populations. It is an evocative theory, which has the power to widely inform practitioners and leaders about the realities of the struggle between personal moral convictions and collective decision making.

This new theory encompasses moral distress, but reaches further—identifying a critical juncture in nurses' lives and better explaining a process that includes motivation and conflict, resolution, and subsequent reflection. Based on the life experiences of nurses, the Grounded Theory of Moral Reckoning in Nursing is a powerful new theory that has fit, work, and reliability, and is easily modifiable. It transcends, organizes, and synthesizes the extant literature on moral distress, and explains stages of a newly identified basic social process, which is also relevant to many other substantive areas. It also offers important implications for nursing practice, education, and administration and, in the face of a nursing shortage of crisis proportions, presents urgent and unique opportunities for further investigation.

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SOLUTIONING

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ABSTRACT

The theory that is presented below aims to conceptualise how a group of undergraduate students tackle non-routine mathematical problems during a problem-solving course. The aim of the course is to allow students to experience mathematics as a creative process and to reflect on their own experience. During the course, students are required to produce a written 'rubric' of their work, i.e., to document their thoughts as they occur as well as their emotions during the process. These 'rubrics' were used as the main source of data.

Students' problem-solving processes can be explained as a three-stage process that has been called 'solutioning'. This process is presented in the six sections below. The first three refer to a common area of concern that can be called 'generating knowledge'. In this way, generating knowledge also includes issues related to 'key ideas' and 'gaining understanding'. The third and the fourth sections refer to 'generating' and 'validating a solution', respectively. Finally, once solutions are generated and validated, students usually try to improve them further before presenting them as final results. Thus, the last section deals with 'improving a solution'. Although not all students go through all of the stages, it may be said that 'solutioning' considers students' main concerns as they tackle non-routine mathematical problems.

GENERATING KNOWLEDGE

An important activity in students' problem-solving process is to generate knowledge about the situation; i.e., to generate relevant data and information and to gain understanding. This is usually conducted at the start of the process, particularly if students know little or nothing about the situation. For this reason, generating knowledge and understanding seems a good place to start the discussion on students' problem solving processes. However, it must be made clear that the need to generate knowledge will continue to emerge throughout the process and that students respond to this need in ways that will be discussed in this section.

A common strategy that students use as they try to generate information and understanding is to reduce the complexity of the situation that they are dealing with. By reducing complexity, students "start at the beginning" and focus on intentionally simplified or even trivial versions of the situation. Students' aim behind reducing complexity is to start gathering the information and

understanding that will allow them to eventually move on to more sophisticated cases. Reducing complexity may help students gain access to complex situations by reducing them to simpler, more manageable ones.

> *Numbers which can be expressed as a single prime to a power may be a good place to start…*(Oscar, Liouville, p. 2)
>
> *Right, let's think about this. Start simple and work my way up…*(Hillary, Steps, p. 1)

Students generate information and gain understanding about the situation in many ways. Thus, it is hypothesised that the only limit for students as they try to generate useful information and understanding might be the one imposed by their own creativity and mathematical abilities. The following is a brief list of the types of activities that students conduct for this purpose. The list is not extensive and other activities may be included from further research:

- A common way in which students generate information and understanding is by 'specialising', i.e., by looking at particular aspects of the situation. When students specialise, they focus on isolated aspects of the situation and thus on simplified versions of the problem. For this reason, it may be said that specialising is intrinsically about reducing complexity. Most students specialise at one point or another in their processes and the choice seems to be made in a 'natural' way ("My instinct to this problem is to start from the easiest case.") However, during the course, students were specifically introduced to Mason's (1982) idea of specialising. This fact may account for the students' tendency to specialise and to label their activity in that way.

  > *I will start by specialising and using squares, since they seem more straightforward, and then progress to rectangles.* (Hannah, Cartesian Chase, p. 2)

- In order to start making sense of the situation, students sometimes 'import' ideas or information from sources other than the problem and the situation that it presents. These ideas may be relevant to the problem and in the sense that they may help students to better understand the situation and deal with it. Recalling past knowledge or experience are common ways of importing information.

  > *I know a similar problem. Diagonals of a Rectangle, which seems to be related and I think I can use my solution. (Emilio, Visible Points, p. 1)*
  >
  > *Fault line – brings to mind brick walls. In a brick wall you couldn't have such a line because the wall would be too weak. Conjecture that brick*

> *laying pattern may prove the answer. I will carry on specialising and will come back to this conjecture later.* (Kirk, Faulty Rectangles, pp. 1–2)

Students may also import information from other sources such as their notes (or any bibliographical reference, from that matter). Sharing ideas with fellow classmates may also be a way of gaining information and/or understanding. Importing requires borrowed ideas to be evaluated in terms of their relevance and applicability to the present situation. Importing can provide useful information but also presents the risk of considering irrelevant ideas that may have to be abandoned at a later time.

- Another way of generating knowledge is by taking a 'hands-on' approach and carrying out the basic operations that are relevant to the situation. For instance, in 'Faulty Rectangles' students physically constructed rectangles with pieces of domino and observed what combinations could lead to fault-free rectangles. Another example can be given in relation to 'Ins and Outs', where students conducted hands-on investigations by folding pieces of paper and observed the sequences of folds that were generated. Hands-on investigations provide students with first hand experience of the situation and may lead to gaining important knowledge and understanding.

> *Shall I try playing it? Use a chessboard and a pawn.* (Jules, Cartesian Chase, p. 1)

- A way of generating useful information and possibly understanding is by organising the data that is available. This may involve arranging available information in a convenient way so that further information becomes more evident and easier to spot. Tables of values are a common example of organising the data, but any other method for visualising the situation can also be of help.

I will use a table to search for some patterns:

(Keith, Sums of Diagonals, p. 2)

P	1	2	3	4	5	6	7
Dp(1,1)	1	4	10	20	35	56	58

If I try to draw a diagram of the possible outcomes this may help give me a better idea of what is happening and may lead to further development. (Lila, Steps, p. 1)

- An important way of finding more about the situation is by carefully analysing the information that is available or that has been made available. In some cases, information and understanding may emerge easily by looking at the data. In other cases, however, students have to make conscientious efforts in order to generate knowledge. By insistently considering (or reconsidering) available information and trying to understand it, it may be possible to derive further information and understanding from it. This may involve reviewing the data and making deliberate efforts at drawing out observations and ideas.

  Ok, let's look at our previous example.

  N=4

  Stage 1: 1, 2, 4 [Divisors of N]

  Stage 2: (1), (1, 2), (1,2,4) [Divisors of divisors of N]

  Is there any significance about the numbers at stage 1? (Jared, Liouville, p. 6)

  Can't see anything from 3 folds. Only – I guess that the sequence that happened in the previous fold would happen in the current fold again, so 4 folds should start with in in out in in out out, and something else. I want to guess more detail about the 4 folds because I want to prove my prediction is correct. But this is what I can see now. (Patrick, Ins and Outs, p. 1)

It is not uncommon for students to combine these activities by either conducting them at the same time or by sharing information from one activity to another. For instance, students may take a hands-on approach as they gather information for a table of values. Another example is when students conduct a close analysis of information that has been generated after a period of specialising. As said, there is no imposed limit to what students can do in order to generate information and understanding.

The need to generate knowledge will continue to emerge throughout the process. New information and understanding may be required at any stage, from situations in which students are looking for new ideas to situations where they are trying to take an idea further. In other words, students may incur in the activities discussed above at any time during their process.

Finally, students make reference to the information they observe in the form of written or verbal observations. Trying to gain knowledge about the situation leads students not only to noticing but also to 'making a note' on those new pieces of information that may be relevant in terms of generating a solution. The

next subsection looks at the observations that students make as a result of dealing with the data.

Making Observations

The information and understanding that students generate may become manifest in the form of observations. Observations are facts or ideas about the situation that students may find interesting or relevant, and that they choose to point out in a written or verbal way. In some cases, these observations may lead directly to an initial solution.

> *AHA! The pattern behind the centre is just a pattern of the previous one, while those behind is just the opposite way around […]*
>
> *Therefore, if we repeat this, we would be able to generate a sequence after 10 folds. (Karina, Ins and Outs, pp. 1–2)*

In other cases, however, observations may involve information that may or may not be used at a later time.

This is to say that not all observations will be useful in the same way. Some may inform students about ways to generate a solution (like in the example above) and some may provide less central (though not necessarily unimportant) information. In some cases, important observations are easily identified as such. In other cases, it may take the student time and effort to be able to tell whether a certain piece of information is relevant or not.

> *Slope=(4-1)/(4-1)=1.*
>
> *AHA! The gradient of slope 1 is 1. I can use the same method and apply it to slope 2.*
>
> *Slope=(9-1)/(5-1)=2.*
>
> *Aha! I got it! (Patrick, Sums of Diagonals, p. 2)*

> *Obviously, I can only pull out the numbers 1 and 2 and the difference between these is 1.*
> *Hmm… could this always be the case (wild guess)? Or is it too early to tell.* (Aminta, Hat Numbers, p. 1)

When students come across an observation, sometimes they adopt what can be called a 'pragmatic' approach. Adopting a pragmatic approach involves focusing not only on the observation itself but also on how it can be used for generating a solution. When students adopt a pragmatic approach towards making

observations they ask themselves questions like "How can this [idea, fact, etc.] be used?" A pragmatic approach can help students decide more efficiently whether an idea is useful and how.

The examples below (as well as Patrick's example above) illustrate cases where students considered observations in a pragmatic way. As the second example below suggests, a pragmatic approach may help students discriminate unimportant ideas and thus may help in making their process more efficient. Thinking in terms of how ideas can be used seems to lead to starting to generate a solution sooner than if observations are made without considering their usefulness or applicability.

> *The answers for 2 and 5 give the answers for 10. Does this work for other numbers?* (Julia, Liouville, p. 5)
>
> *Points (i, j), where i, j are positive.*
>
> *Defined to be BELOW (m, n) where m, n are positive when* $\leq m$ *and* $\leq n$.
>
> $\therefore$ *(i, j) is below itself – not particularly important. (Dylan, Visible Points, p. 1)*

Key Ideas

Having discussed how students generate knowledge about the situation and how this knowledge becomes manifest, this section will look at 'key ideas' as knowledge that is crucial to solving the problem and that students employ directly to generate a solution. The first subsection discusses 'looking for patterns' as ways of looking for *key* ideas by investigating the situation in a particular way. The second sub-section discusses 'key searching' as a way of looking for key ideas in a more direct way.

As said in the previous section, some of the observations that students make during problem solving lead directly to generating a solution. Since these observations usually refer to crucial aspects of the situation they can be called key ideas. Students usually base their solutions on a key plan or idea that provide hints as to how a solution can be obtained. In order to deal with 'Diagonals of a Rectangle', for instance, students used the fact that there is a relationship between the highest common factor of the rectangle's dimensions and the number of rectangles crossed. This fact was the key idea on which most (if not all) students who provided a solution for this problem based their processes.

Key ideas sometimes emerge as sudden realisations of important aspects of the situation. These ideas may appear as important breakthroughs (as the student

below suggests) and give students the feeling of having discovered how to generate a solution.

> *AHA! This is a huge breakthrough! Anything that happens before the row marked (*) is not important. As long as we can guarantee that our opponent moves to (*), we have won, since we can then move to a definite win position.* (Leonard, Cartesian Chase, p. 5)

In other cases, key ideas emerge as less of a surprise. In these cases, key ideas may come gradually as knowledge and understanding increase.

In either case, it seems that being able to arrive at a key idea requires a good deal of understanding of the situation. When students are able to see a key idea, they are also able to see its significance, its importance in relation to the situation and how it can be of use. In relation to this, Raman (2003) observed that the key ideas that more experienced solvers use to provide a mathematical proof "give a sense of understanding and conviction" and show "why a particular claim is true" (p. 5). In more general terms, Barnes (2000) suggested that when students and more experienced mathematicians are able to see a key idea the following takes place:

> *…there is a claim to a sudden realisation of new knowledge or understanding. Usually this knowledge is 'seen' with great clarity, or experienced with a high degree of confidence or certainty.* (Barnes, 2000, p. 34)

Key ideas can be seen as the product of gathering sufficient relevant knowledge and understanding to be able to start generating a solution. The following sub-sections look at ways in which students generate and search for key ideas.

Looking for patterns

Looking for patterns can be considered as a way of learning about the situation that can lead to finding key ideas. When students look for patterns, they are usually looking for particular features of the situation can lead them to start generating a solution. Students look for patterns hoping that, when they find one, they will be able to transform it into a formula or to make a general statement about the situation.

> *I shall look for patterns which might lead me to a formula of some kind.* (Lila, Sums of Diagonals, p. 1)

Looking for patterns can be a useful activity that generates relevant information. For instance, noticing a pattern in the way the creases were formed in the 'Ins and Outs' problem allowed students to tell how the creases for the 10th fold would look like. Furthermore, as students look for patterns, they may also gain understanding and learn about the situation. Thus, in many cases, looking for patterns can be a fruitful activity.

However, looking for patterns can also become a 'blinding' activity that prevents students from gaining the necessary information and understanding. When students focus mainly on looking for patterns and neglect trying to see other aspects of the situation, the possibility of gaining useful information seems to decrease. In the example mentioned above, most students were able to see how creases were formed and thus were able to tell how the 10th fold would look like. However, very few students were able to provide a general (non-recursive) formula for this sequence. Students that were able to provide a general formula did so not by looking for patterns but by gaining a deeper understanding of how the sequence of 'ins' and 'outs' was generated. In contrast, students that focused mainly on looking for patterns (as illustrated below) were able to provide a recursive formula but failed to provide a general one.

> *I can't see a pattern or anything jumping at me.*

But by counting the number of 'ins' and 'outs' in any number of folds I can see that each one seems to be an odd number.

E.g.,

> *Just comparing the difference between the number of 'ins' and 'outs' seems to show that they are powers of 2.* (Rita, Ins and Outs, p. 2)

Number of folds	Number of I's and O's
1	1
2	3
3	7
4	15
5	31

Thus, it may be said that looking for patterns can provide some very useful information. In order to provide a more satisfactory solution, however, further information and understanding need to be generated as well. Focusing on trying to find particular information about the situation can lead to a dead end as it

prevents students from genuinely learning about the situation. 'Key searching', as will be discussed in the next sub-section, is a way of looking for key ideas that is related to this aspect of looking for patterns.

Key Searching

As mentioned above, key ideas allow students to start generating a solution. Finding a key idea is certainly related to successful problem solving, and students seem to be aware of this. For this reason, students may look for key ideas by looking for patterns. Another way of looking for key ideas is by 'key searching'. Key searching means looking for key ideas in a direct way by trying discover special features about the problem or by trying to find "what is so special" about the situation.

> *I'm looking to see if the number left in the hat has some special quality…*
>
> *Still stuck! Maybe I should go back and try the odd numbers. After all, as this may be the missing clue to the solution…*(Aminta, Hat Numbers, pp. 2–4)

As students try to gain knowledge and understanding of the situation, it is very likely that they will eventually come across key ideas. Paradoxically, however, key ideas are less likely to emerge if students focus on actively seeking them. The reason for this may be that searching for key ideas may divert students' attention from trying to learn about the situation. During key searching, students seem to be so concerned about trying to find some "special" clue or quality that they may neglect other important information. In the case of the Liouville problem, for instance, some students spent most of their process trying to figure out what was so special about sequences of numbers that if added and then squared give the same value as when they are cubed and then added. In these extreme cases, students were unable to make any significant progress and were not able to identify any of the key ideas that allowed other students to generate a satisfactory solution.

When students search for key ideas, they may ignore important information that, if not a solution in itself, can be used towards that end. Furthermore, in some cases, students that search for key ideas seem to ponder on the problem rather than on trying to gain a broader understanding of the situation.

In general, not all students incur in key searching and those who do may eventually abandon this activity and try to generate information and understanding. However, the implications of key searching make this activity an important one to consider. There is no evidence to suggest that key-searching is

related to mathematical background. What can be suggested is that key-searching may be related to the features of the problems involved. This hypothesis is supported by the fact that more students key-searched in the 'Liouville' problem than in any other. There is not sufficient evidence to state take this hypothesis further. This issue can only be suggested for further research.

GAINING UNDERSTANDING

The above sections deal with the way students generate knowledge during their problem-solving processes. This knowledge constitutes the information and understanding that will allow them to deal with the problem and eventually to achieve a solution. This section deals more closely with the issue of gaining understanding. This issue plays an important role in being able to generate a solution and most students will seek to gain understanding about the situation. However, as it is discussed below, students may also ignore or avoid trying to gain understanding and concentrate on manipulating data.

A good place to start a discussion on the characteristics of gaining understanding during problem solving is by considering the following quote from Thurston:

> *On a more everyday level, it is common for people first starting to grapple with computers to make large-scale computations of things they might have done on a smaller scale by hand. They might print out a table of the first 10,000 primes, only to find that their printout isn't something they really wanted after all. They discover by this kind of experience that what they really want is usually not some collection of answers – what they want is understanding.* (Thurston, 1995, p. 29; emphasis in the original)

Although Thurston's assertion was made in reference to professional mathematicians, it may be said that it applies to many students as well.

Gaining understanding is an important aspect of the problem solving process. Most students try to gain understanding of the situation to be able to start generating a solution. As a student put it, it is easier to generate a solution by "understanding the underlying principles" of the situation. In general, it seems that having a better understanding of the situation empowers students and allows them to generate a solution and take it further.

> *I can't believe how I missed how every entry in the grid is the product of its coordinates…*

> *This means that given any coordinates we can work out what the entry is.* (Nadia, Sums of Diagonals, p. 4b)

An important way of gaining understanding is by reasoning in terms of how the data is created, or how it stems from the situation. Although not all students try to gain understanding in this way, and those who do may not do so all the time, it may be said that thinking in terms of how information is created is a common practice. Thinking in terms of how the sequences of 'ins' and 'outs' were created, for instance, provided students with useful understanding of the situation. In most cases, this allowed them to generate an initial solution for the 'Ins and Outs' problem. The following quotes illustrate the type of reasoning that was conducted in an attempt to gain understanding in relation to this problem.

> *What I'm going to do is take the five folds sequence and identify which creases come from which fold. (Lydia, Ins and Outs, p. 7)*
>
> *Maybe I should start to think about things on a more subtle level. What actually happens every time I add a crease of paper? I'll try to get this into a diagram.* (Leonard, Ins and Outs, p. 4)

When students try to think in terms of how the data is created, they usually gain a kind of understanding that allows them to make informed decisions on what to do next. In other words, they achieve what Skemp (1976) called 'relational understanding'. This type of understanding allows students to know "both what to do and why" (p. 20) and for this reason it is usually an important asset during problem solving. The understanding achieved by the students in the following examples is relational in the sense that it provides information that can be useful for understanding the situation and deciding what to do next. Furthermore, their understanding seems to have been generated by reasoning in terms of how what they observe stems from the observed situation:

> *Let's try to think logically about specifically when a diagonal would pass through a corner.*
>
> *AHA! I think the diagonal will pass through a corner when n and m have a common factor greater than 1. This makes a lot of sense because it implies that the rectangle can be split up into smaller rectangles with the same diagonal, and therefore the diagonal would pass through the corners.* (Hannah, Diagonals of a Rectangle, pp. 3–4)

Finally, considering the benefits of trying to think in terms of how the data is created may look as if all students worked naturally in this way. However, this is not the case. Students with stronger mathematical backgrounds are usually keen on reasoning in terms of how the data stems from the situation. On the

other hand, students for whom mathematics is not a main subject seem more prone to look for patterns without considering the situation that gives rise to the data. The reasons for this behaviour are difficult to trace. It can be speculated that thinking in terms of how data relates to the situation requires students to combine thinking about the situation while, at the same time, trying to identify useful patterns. Thus, some students may unconsciously avoid such an increased complexity and choose to focus on only one task at the time. In such situation, they may prefer to work on the simpler one which will be, presumably, trying to spot patterns. This, however, is a tentative explanation; a more grounded explanation certainly requires further research.

GENERATING SOLUTIONS

The previous sections looked at how students generate knowledge about the situation. It was discussed how students make key ideas available and what courses of action may hinder their emergence. Some ways in which students gain understanding about the situation were also considered. In spite of its importance, it may be said that generating knowledge is not the final aim of problem solving but a means of making necessary resources available. The aim of problem solving is to generate a solution and students will start attempting to do this as soon as sufficient knowledge has been gathered. Two ways in which students may try to generate a solution is by reasoning deductively and inductively. Reasoning in terms of how data is generated from the situation can also play an important role in generating a solution.

In order to generate a solution, students may rely on deductive reasoning. In other words, they may follow logical implications from one idea to another until a conclusion is reached. Reasoning deductively seems to be held in high regard by most students since, whenever possible, they will try to arrive at a solution in this way. In the Liouville problem, for instance, most students' first attempt at generating a solution involved providing some version of the following deductive argument.

> *A prime number n has divisors 1 and n only, by definition.*
>
> *1 has one divisor (1)*
>
> *n has two divisors (1, n)*
>
> *The sum of the number of divisors or divisors is therefore 1+2=3 and squared this is 9.*
>
> *The sum of cubes of the number of divisors or divisors is 13+23=9.*
>
> *So the two numbers are equal for prime numbers.* (Julia, Liouville, p. 2)

Also, as one student put it:

> *I generally try to use deduction. Deduction is 'more valid' in mathematics although I often use inductive arguments.* (Leonard, informal interview)

When students reason deductively, they sometimes base their arguments on a relevant piece of mathematical knowledge. This piece of knowledge may consist of mathematical concept or a procedure. In other words, students may build a deductive argument by applying a concept or a definition in an ingenious way or by making use of a familiar mathematical procedure. In the example above, the student based her deduction on the mathematical definition of 'prime number'. The way she made use of this definition allowed her to generate a logical chain of reasoning and to achieve an initial solution. As for applying a mathematical procedure, the Arithmagons problem provides a good example. In most solutions to the 'Arithmagons' problem it was common for students to base their arguments on procedures for solving systems of linear equations. Although making use of procedures may be more straightforward than deciding how to apply a concept, in the sense of constructing logical chains of reasoning, the former can also be considered a deductive argument.

Whenever there is the possibility of generating a deductive argument from the knowledge and information available, students will usually follow this route. When this is not the case, one option is to continue trying to generate information and understanding until it is possible to generate a deductive argument. Another option is to start trying to generate a solution by induction.

Reasoning inductively involves making tentative conjectures or generalisations out of the information that is available. Making deductions involves deriving ideas that are a logical consequence of the information available. In contrast, when students reason inductively, they not only consider the information that is available (and the logical implications of this information) but also draw upon other less factual sources such as previous (possibly informal) knowledge and experience. This knowledge and experience may arrive in the form of insight or intuition, or in the form of 'intuitive guesses', as Fischbein and Grossman (1997) put it. It is the combination of empirical data with other sources of knowledge what usually makes inductive reasoning a fascinating process.

> *All the results are in a range 48–63…*
>
> *Notice that the last two results are equal.*
>
> *Conjecture 1: the percentage of visible points converges to a number.*
>
> *Conjecture 2: the convergent number x=48.7%.* (Aminta, Visible Points, p. 4)

Generating ideas inductively may lead to inaccuracies or even to incorrect solutions. This is not to say that deductive reasoning is foolproof. What this suggests is that, due to the nature of inductive reasoning, students sometimes have to accept, and deal with, the fact that they are working with imperfect results. However, this is usually not a serious problem since ideas can be re-examined and modifications can be made. Moreover, checking whether a tentative solution is correct and makes sense allows students to improve their solution and increases their knowledge and understanding of the situation. This, together with the fact that an initial solution – i.e., a starting point – is already available, seems to outweigh the possible drawbacks of generating a solution in an inductive way.

As said, most students will try to work deductively if at all possible and if not they may choose to work inductively. However, inductive and deductive reasoning are not mutually exclusive as this generalisation may suggest. In fact, it may be said that students combine both approaches and that they complement each other. For instance, after reasoning inductively and generating some feasible conjectures, students may recur to deductive reasoning to show that these are always true.

Besides reasoning inductively and deductively, students may generate a solution as a result of reasoning in terms of how data is created. The previous section discussed how thinking in terms of how data is created may provide students with information as to what to do next and why. Since this information is easily translated into a solution, reasoning in terms of how data is created can be considered as another way of generating a solution that is different to both induction and deduction. Simon (1996) observed a similar situation. He suggested that students may invent or infer situations to explain how data is created and that this may allow them to generate a solution. The following example illustrates the case of inventing a situation to explain how data is created and how the understanding that it provides can be used to generate a solution.

> Ms. Goodhue: *Mary, could you make an isosceles triangle by specifying two angles and the included side?*
>
> Mary pauses and then punches in equal angles.
>
> Ms. Goodhue*: Can you tell me what you did?*
>
> Mary*: Well, I know that if two people walked from the ends from this side at equal angles towards each other, when they meet, they would have walked the same distance.*
>
> Author [Martin Simon]: *What would happen if the person on the left walked at a smaller angle to this side?*

> Mary: (Without hesitation) *Then that person would walk further [than the person on the right] before they meet…* (From Simon, 1996, p. 199)

Thinking in terms of how data is created can be seen as a way of gaining deep understanding of the situation that helps generating a solution. Solutions achieved in this way tend to be more 'transparent' than solutions arrived at by deduction or induction. When students reason in terms of how data is created, it may become evident how a solution should look like and why.

Guessing and Ungrounded Ideas

It was mentioned before that tentative solutions that are generated inductively or in any other way are usually a good place to start generating a more comprehensive solution. However, there does seem to be an exception to this case. In some cases, students' apparently inductive reasoning can be better explained as 'guessing'. When students guess a solution, their reasoning is unclear and it is usually difficult to tell where ideas come from. Yet, from the comments that students make, it usually becomes evident that they may be testing their luck and proposing ideas without going through conscientious reasoning about the situation.

> *Try completely new approach. Convert sequence into a straight number using binary representation (might get lucky). (Sebastian, Ins and Outs, p. 5)*
>
> *We can see by looking at the diagram that there are three points that would not be visible. Could I work this out algebraically so that it applies to any size grid square?*
>
> *Maybe it could be (i–j)/j, that would be (9–3)/3=6/3=2. That doesn't work!*
>
> *Maybe (i–j)/i would be better: (9-3)/2=3. Would this work for other (i, j)? […]*
>
> *There only seems to be two points which means that my formula is not correct.* (Gina, Visible Points, pp. 3–4)

Ideas that are arrived at by guessing are usually ungrounded, i.e., they are more the product of inventiveness than of carefully analysing the data. Although the relation between guessing and ungrounded ideas is somewhat evident, guessing a solution is not the only way in which students may generate this type of ideas. Trying to invent a situation to explain how data is created may also lead to generating ungrounded ideas, particularly when used without considering sufficient empirical data. In other words, in an attempt to provide an account of

how data is generated or of how the "system in question works", students may fall into 'making up' an explanation that is more the product of their ingenuity than of what they know about the situation.

Ungrounded ideas tend to be inconsistent and thus can lead to problems and frustration. This was the case of a student that provided an interesting explanation as to why it is not possible to build a fault-free rectangle (see the 'Faulty Bricks' problem). Since fault-free rectangles can be built, and since the explanation was the result of the student's creativity, she found it hard to elaborate the argument further. In general, although ungrounded ideas can be problematic, a positive aspect is that the frustration that they cause may become, in some cases, a good place for starting to learn about the situation.

Summarising, students may generate an initial solution by reasoning deductively, inductively or in terms of how data is generated. Although students may have a 'predilection' for deductive reasoning, it seems that this predilection is based more on their beliefs about mathematics (deductive reasoning being 'more valid') than on the results that they obtain from reasoning in this way. Inductive reasoning may allow students to generate initial solutions that can later be improved. Thinking in terms of how data is generated is a good way of generating 'transparent' solutions. Although the last two types of reasoning may not be the students' first choices, they can be efficient ways of generating results.

Once a solution is generated, it may be validated and/or improved. The next two sections look at 'validating' and 'improving' results, respectively.

VALIDATING RESULTS

During their problem solving processes, students look for ways of validating the ideas that they are generating. To do this, they may try to validate their results in terms of whether they are correct and make sense. In other words, students try to verify that their results are correct and seek to explain why this is the case. When students validate their results in this way their main concern is being on the 'right track' and having a clear understanding of the situation. Thus, the arguments that they produce can be considered as personal 'proofs' aimed at convincing themselves, their peers and possibly even a sceptical reader trying to follow their process (i.e., convincing oneself, a friend and an enemy, in Mason's (1982) terms).

Once students have achieved a satisfactory solution, they sometimes seek to provide a formal mathematical proof of their work. However as the quote below suggests, providing a formal argument seems to have a different purpose than making sure that a solution is correct and makes sense.

> *This certainly seems to hold for all m, n [where m and n are natural numbers], but whether or not I can prove it is a different matter.* (Leonard, Diagonals of a Rectangle, p. 19)

It seems that trying to provide a formal mathematical argument that proves that a solution is true is more a way of improving a solution than of making it convincing for themselves and for others. For this reason, providing a formal proof will be discussed in the next section below ('Improving Results').

Making Sure Results are Correct and Make Sense

Students may validate their results by verifying that their ideas are correct and make sense. In order to verify that results are correct, students may review their reasoning and look for any errors or inconsistencies. For instance, they may check that suitable procedures were chosen and that they were properly conducted. Besides verifying their procedures, students may check to see whether their generalisations work in particular cases. If the results obtained from particular cases are as expected or match with previous data, then they can be accepted. Verifying that results are correct allows students to move on, whereas noticing any inconsistencies will require them to go back and try to correct them.

> *Now I want to check it again that my result is right before I go any further from here. Therefore I count the number of grid squared that are touched by the diagonal again from the grid squares that I have already drawn. And it's correct.* (Anibal, Sums of Diagonals, p. 4)

> *I will now see if it works for the numbers I have so far.* (Jasmine, Sums of Diagonals, p.6)

> *Check: Does this match the examples I have tried so far?* (Julia, Liouville, ca. p. 10)

Students may verify that the ideas being generated make sense by looking for explanations as to why they must be true. Explaining why an idea is true reassures students that the solution that they are generating is congruent with their knowledge and with what they know so far about the situation. Furthermore, when students try to make sure that their generated ideas make sense they may resort to thinking in terms of how data is created. Understanding of how the situation 'works' and how the data is derived from the situation provides students with ideas that can be used to explain why a solution must be true.

> *Why does this work? Aha! Looking at any diagonal, moving down one adds 1 to the first element, 2 to the second, etc. And then finally one more element equal to the new 'x'. (Marcus, Sums of Diagonals, p. 3)*

Trying to verify that results are correct and making sure that they make sense are related activities that are usually combined. In many cases, after checking that their results are correct, students may proceed to explain why this is the case. The following quote illustrates this situation.

> *This looks like the number of creases is 2a-1.*
>
> *Check for a=6.*
>
> *From previous formula creases = 31+32=63=26-1.*
>
> *I can see this would be true because each time I am doing n+(n+1) to get the next term which is equal to 2n+1, so each time I am doubling the previous number (which is less than 2n as 1 is one less than21=2) which would give me 2n=2 and then adding one so I get 2n-1. (Jasmine, Ins and Outs, p. 4)*

This is not to say, however, that verifying that generated ideas are correct implies that students will proceed making sure that they make sense. After all, not all students are able to conclude their process by saying:

> *My calculations do work and make sense, and I think the answer is reasonable.* (Hannah, Faulty Rectangles, p. 11b)

In some cases, students may not be interested in explaining why ideas are true so long as they seem correct. In other cases, students may be able to verify that their results are correct but may find it difficult to provide an explanation as to why this is the case.

> *It does seem to be the case that the Liouville results are always identical, regardless of the chosen starting number. Sadly, I have no theories as to why this occurs.* (Conrad, Liouville, p. 5; emphasis added)

Continuously trying to verify that ideas are correct and make sense ensures that inconsistencies are brought to the fore and provides an opportunity to amend them. In fact, it seems that verifying that ideas are correct and make sense, and making the necessary modifications, plays an important role in successful solutioning. Inglis and Simpson (in press) suggest that it is error-correcting – rather than error-free processes – that may account for the fact that

mathematicians perform better than non-mathematicians in logic tasks. Furthermore, in a study of collaborative problem solving in combinatorics, Eizenberg (2003) found that it was not peer collaboration that was directly related to successful problem solving but that successful problem solving is closely related to 'control behaviours', i.e., to constantly monitoring whether ideas are correct and making the necessary modifications. In the author's words:

> *Our study provides evidence that success in problem solving in combinatorics is not a direct outcome of collaborative problem solving. It is mostly a result of enhanced control behavior.* (Eizenberg, 2003, p. 399)

In spite of the benefits of validating results, students do not always stop to verify that their results are correct and make sense. As said, validating solutions in the ways discussed here may help to reassure students that they are on the 'right track' in terms of the ideas that they are generating. This, in turn, will allow them to continue with their solving process or, in other words, to 'move on'. In some cases, however, being able to move on can be more important than whether results are correct and make sense. In such cases, students may simply avoid trying to validate their results or will do it in superficial ways. For instance, they may check that results are true in one or two known cases. In this way, even if results are inaccurate, this will not necessarily prevent them from continuing to work towards a concluding solution.

> *Number of rectangles formed is 3n+(n–4). E.g., when 5 dominoes are used 15+1=16.*
>
> *That seems to work! I will test the formula out when more dominoes are used.[Continues to work with 3x1 rectangles]* (Gina, Faulty Rectangles, p. 3)

Being able to validate a result may provide students with an acceptable solution. However, unless the student had already been working on improving this solution, it is very likely that it will not be final but one that needs to be improved. The next section looks at ways in which students may seek to improve a solution once it has been achieved.

IMPROVING THE RESULTS

This section looks at what can be considered as the last stage of the solutioning process. Once a solution is achieved, students usually acknowledge the need to improve their results. This is particularly true when students feel that their

answer is correct but not ready to be presented as it is. If time and mathematical knowledge allow, they may try to improve their results by providing a formal mathematical proof or by extending their results to other domains. Alternatively, they may try to express their solution in more concise ways.

> *OK – I'm happy that's worked out in that case. I'm definite there is a more elegant explanation which might be worth looking for. Argument sounds a little awkward to me at the moment – could do with being more persuasive.*
>
> *Right. Review here – there's a few different ways to go…*
>
> *Have shown for odd x even, if I could show for even x even I'd be done!* (Rafael, Faulty Rectangles, p. 12)

> *I wonder if I could improve this further by rewriting my formula as a closed expression, i.e., an equation in x and n with no summation signs.* (Hillary, Sums of Diagonals, 15)

Improving a solution can be a straightforward task that involves making simple modifications or additions. However, this is not always the case and the work that students need to conduct to improve a solution can vary from being straightforward to very laborious and time-consuming. In most cases, improving a solution will involve dealing with situations that are more complex than when an initial solution was generated. Having to deal with progressively more complex situations can make it difficult – or even impossible – for some students to improve their solutions further. The probability of this being the case seems to be higher when students lack the necessary mathematical background to deal with more sophisticated mathematical ideas. Lack of time or energy can also prevent students from improving their solutions. Under these circumstances, some students will decide to stop their process and will present their solution as it is.

> *Reached a dead end at the moment so I am unable to progress any further. If I had been able to solve this problem properly I could have also extended it to look at the rest of the items on my brainstorm. (Lydia, Cartesian Chase, p.13)*

Students who are able to improve their solutions recognise that it is almost always possible to take them even further. However, they only have to continue improving their solution until a seemingly acceptable solution is found. Such a solution is one that is clearly (and if possible, formally) stated and that accounts for a variety of cases.

Trying to Provide Formal Mathematical Proofs

One way in which students may seek to improve their results is by attempting to produce a formal mathematical proof of their work. Once a satisfactory solution or initial solution is generated, students may try to improve it by providing a more rigorous argument. Providing a formal mathematical argument is a way of putting an already satisfactory solution in such a way that it can be presented as a final product to others. In other words, providing a formal mathematical proof involves elaborating a deductive argument that not only satisfies the student's understanding but also satisfies certain mathematical requisites.

Producing a formal mathematical proof is something that some students do as part of their processes. For instance, in 'Sums of Diagonals' various students proved their general formulas by mathematical induction. However, in general, it may be said that providing a rigorous mathematical proof is usually considered a secondary aim. For some students, the fact that the results are reliable should be evident from the way they were generated and validated.

> *I believe I have the correct answer, although I have no concrete proof. I believe that, as a possible extension, it would be possible to get an answer involving trigonometry…This would be a concrete 'proof' of the answer but it isn't very easy to show. Other extensions [could be]…* (Roberto, Diagonals of a Rectangle, p. 5)
>
> *My formulas are very general and because of the way they were obtained they don't really need any formal proof or justification, as these are evident in the method.* (Nadia, Sums of Diagonals, p. 7b)

In general, students seem more concerned about producing arguments that are convincing, both for themselves and for a sceptical reader than of providing a formal mathematical proof. Moreover, when it comes to improving their solution, they seem to be more concerned about extending their results, as will be discussed next.

Extending

Once students generate a solution, it is not uncommon for them to try to improve it by extending it. Students extend their solutions by showing that they account for all possible cases or by making their results valid for a wider domain.

When students generate a solution, they sometimes notice that the ideas or the methods that they used can be applied to other situations as well. In other words, they notice that some of their ideas can be transferred and thus be made useful for solving, or dealing with, other cases – i.e., for extending.

> *Aha! If I can do this for a number with two divisors that are prime, I could probably do it for a number with exactly 3, 4, … or more non-trivial divisors, all which are prime.* (Jason, Liouville, p. 3)
>
> *Can I use the same process as earlier to generate more even x even fault free rectangles?* (Camille, Faulty Rectangles, pp. 2b–3)

Although transferring means that previously developed ideas will be used in other situations, this is not necessarily a simple task. Transferring may require students to make some changes to the ideas or procedures to be transferred to make them suitable for the new situation. These changes can be relatively simple, such as when students decide to introduce a new, more efficient notation.

> *The largest secret number 'a' was found by adding the two largest side numbers and subtracting the remaining side numbers…I think [this] rule is most likely to work with arithmagons with >3 sides.*
>
> *As I am seeing a general rule for arithmagons with n sides, I will need to alter my notation for improved clarity. Instead of x, y and z for the side numbers I will use s1, s2, s3, …, sn…* (Jules, Arithmagons, p.5)

In other cases, adapting previously used methods or ideas can be complicated or even impractical.

> *My proof that there was a path came from visualising, again, what the path should be, since anything other than the circle seemed unlikely, and bearing in mind the complete symmetry of the circle. Unfortunately, this reliance on the symmetry of the circle meant I couldn't extend the theory to irregular circles very easily.* (Albert, Jogger's Dog, Commentary)

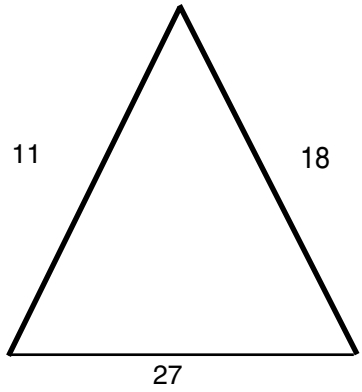
In some cases, adapting can be a considerably complicated activity. In situations like this, students will find that looking for new ways of generating a solution may be a better option. In a way, finding new ways of solutioning may suggest that students will need to start the solving process all over again. However, this is not the case. The knowledge and understanding that students have gained about the situation are very likely to make this 'new' process a more efficient one. Of course, this will be the case only if students persist in extending their solutions. They may well decide to stop their process at this stage.

APPENDIX 1 – THE PROBLEMS (IN ALPHABETICAL ORDER)

Arithmagons:

A secret number is assigned to each vertex of a triangle. On each side of the triangle is written the sum of the secret numbers at its ends. Find a simple rule for revealing the simple numbers.

For example, secret numbers 1, 10, 17 produce:



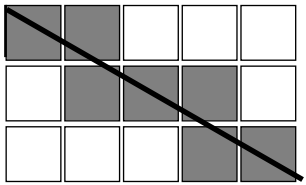
Generalise to other polygons.

Cartesian Chase:

A game of two players is played on a rectangular grid with a fixed number of rows and columns. Play begins in the bottom left hand square when the first player puts a counter. On his turn, a player may move the counter one square up, one square right or one square diagonally (up and right). The winner is the player who gets the counter to the top right square.

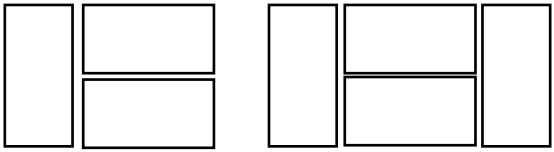
Diagonals of a Rectangle:

On squared paper, draw a rectangle and draw in a diagonal. How many grid squares are touched by the diagonal. E.g.



Faulty Rectangles:

These rectangles are made from 'dominoes' (2 by 1 rectangles). Each of these large rectangles has a 'fault line' (a straight line joining opposite sides).



What fault free rectangles can be made?

Hat Numbers:

A hat contains 1992 pieces of paper numbered 1 through 1992. A person draws two pieces of paper at random from the hat. The smaller of the two numbers drawn is subtracted from the larger. That difference is written on a new piece of paper which is placed in the hat. The process is repeated until one piece of paper remains. What can you tell about the last piece of paper left?

Ins and Outs:

Take a strip of paper and fold it in half (always placing the right hand edge on top of the left hand edge). Unfold it several times and observe the sequence of 'in' and 'out' creases. For example, three folds produces:

in in out in in out out

What sequence would arise from 10 folds?

Jogger's Dog:

A jogger runs, at a constant speed, around a circular track. The jogger's dog runs, always toward the jogger, at constant speed. What sort of paths does the dog describe?

Liouville:

Take any number and find all of its positive divisors. Find the number of divisors of each of these divisors. Add the resulting numbers and square the answer. Compare it with the sum of the cubes of the numbers of divisors of the original divisors

Sums of Diagonals:

Investigate the sums of diagonals of different slopes in the grid below.

1	2	3	4	5	6	7	8	9	…
2	4	6	8	10	12	14	16	18	…
3	6	9	12	15	18	21	24	27	…
4	8	12	16	20	24	28	32	36	…
5	10	15	20	25	30	35	40	45	…
6	12	18	24	30	36	42	48	54	…
7	14	21	28	35	42	49	56	63	…
8	16	24	32	40	48	56	64	72	…
9	18	27	36	45	54	63	72	81	…
…	…	…	…	…	…	…	…	…	

Steps:

You are standing at the beginning of an infinitely long path, as shown below:

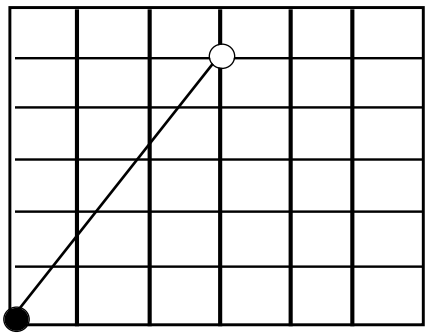
You throw a fair coin which has the number "1" written on one side, and he number "2" on the other. You walk forward the number of steps shown on the side of the coin that lands face up. For example, if you throw the coin and it comes up "2" you take 2 steps forward to land on the 3rd step of the path - 2 steps from where you were on step number 1.

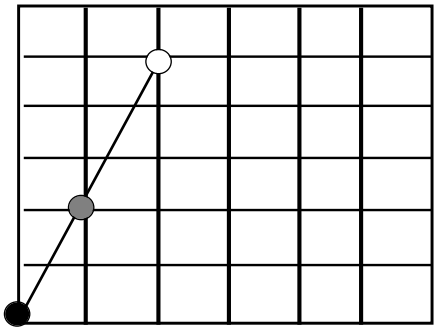
You now repeat the exercise - throw the coin again and walk forward the number of steps that comes up on the coin. If you throw the coin 24 times you are certain to have landed on, or past, spot number 25. What is the probability that you will land on step number 25?

Visible Points:

A point (i, j) in the plane, with non-negative integers coordinates i and j, is below a point (m, n) with non-negative integer coordinates when and i £ m and j £ n.

A point (m, n) in the plane, with m and n non-negative integers, is visible from (0, 0) if the straight line joining (0, 0) to (m, n) passes through no other points below (m, n).





As m and n increase, what percentage of points is visible from (0, 0)?

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Grounded action: Achieving optimal and sustainable change

By Odis E. Simmons, Ph.D. & Toni A. Gregory, Ed. D.

Abstract

Grounded action is the application and extension of grounded theory for the purpose of designing and implementing practical actions such as interventions, program designs, action models, social and organizational policies, and change initiatives. Grounded action is grounded theory with an added action component in which actions are systematically derived from a systematically derived explanatory grounded theory. Actions are grounded in the grounded theory in the same way that grounded theories are grounded in data. Grounded action was designed by the authors to address complex, multi-dimensional organizational and social problems and issues.

The Roots of Grounded Action: The Real World Context of Grounded Theory

Grounded theory is a primarily inductive research method that was developed in the mid-1960's, by Barney Glaser and Anselm Strauss (1967). As they pointed out, before their discovery of grounded theory, methods of social research focused mainly on how to deductively verify logically elaborated theories. They suggested it was equally important to have a method by which theories could be systematically generated, or "discovered," directly from data. After their original collaboration, Glaser's and Strauss' views of what constituted grounded theory diverged. Because Glaser's developments in grounded theory are more suitable for practical applications, grounded action is rooted in grounded theory as articulated by Glaser.

A rigorous, inductive approach to theory development that provides a "controllable theoretical foothold" (Glaser & Strauss, 1965, p. 268) and gets at what is really going on in action scenes and contexts is a crucial tool for developing effective, sustainable solutions to social and organizational problems. Grounded theory fits this bill. As Glaser (1998) notes:

> *…fields with high impact dependent variables, variables that deal with learning, pain or profit, began looking for a methodology that gave them answers that fit, worked were relevant and easily modifiable to constantly changing situations…A methodology was needed that could get through and beyond conjecture and preconception to exactly the*

> *underlying process of what is going on so that professionals and laymen alike could intervene with confidence to help resolve the participants' main concerns.* (pp. 4-5).

In grounded theory, getting at what is really going on in an action scene/context is ensured by continually asking:

What is actually happening in the data? What is the basic social psychological problem(s) faced by the participants in the action scene? What is the basic social psychological process or social structural process that processes the problem to make life viable in the action scene? (Glaser 1978, p.57)

In contrast, actions deduced from logically elaborated theories that are not grounded in what is really going on in context are unlikely to fit the needs of the context for which they were designed. Many years of experience show that actions based on ungrounded ideas more often than not fail to provide meaningful long-term outcomes.

The power of grounded theories in real world contexts has been apparent since the method evolved out of a study of death and dying in hospitals, conducted by Glaser and Strauss in the mid 1960's. Their grounded theories of "awareness contexts" (Glaser and Strauss, 1964) and the "death trajectory" process (Glaser and Strauss, 1968, 1970) that emerged from this study had important implications for improving the way in which health care professionals manage the personal care and organizational aspects of dying patients and their families.

One of the earliest grounded studies is Pape's (1964) study of high job turnover amongst young nurses. Pape discovered that, although it was a serious problem for them, health services administrators had failed to understand the source of low retention rates among young nurses. They incorrectly attributed it to factors within the work situation—what would ordinarily be viewed as "job dissatisfaction"—which as Pape discovered were irrelevant to the nurses' decisions to quit their jobs. As a result the administrators' retention efforts were ineffective. Using grounded theory, Pape discovered what was relevant to the nurses. She conceptualized her discovery as "touring," which was related to personal rather than professional factors. As Pape portrayed it:

> *What makes them different from workers migrating in search of greener job pastures is that, for them, a job is merely the way to support themselves decently while they see the sights, sample the social life, have a bit of fun and then move on. These nurses do not follow any orientation to work as a central focus of living; their attention is directed to values outside the job environment and they use their work as a means to other, unrelated ends.* (p. 37)

The nurses were able to indulge themselves in this manner because the high demand for their services provided them with the opportunity. Pape's discovery framed the issue in such a way that high turnover of nurses could be seen as an opportunity rather than as a problem, increasing the potential for addressing the issue in creative ways.

Another example of a grounded theory study that provides highly useful, practical understandings is Lee's (1993) study of "doing time" in prison. Lee studied how new prisoners adjust to the personally problematic aspects of prison life and how they manage the difficulties presented by having an excessive amount of time on their hands, with little control over how they manage it. Lee's theory shows how "doing time" relates to almost every aspect of prisoners' lives (adjusting to incarceration, managing excess time, managing the subjective slowness of time, lack of meaningful activity, lack of privacy, lack of proprietorship, emotions, relationships within the prison, relationships outside prison, and so forth). Lee's theory is highly useful for anyone working with inmates (correctional professionals, organizations dedicated to helping prisoners and their families, social workers, counselors). Furthermore, Lee's theory could (and has been) easily be modified to fit other situations in which "doing time" has problematic consequences, such as classrooms.

A further example of a grounded theory theory study that has high value in an applied context can be found in Charmaz's (1994) study of men who are suddenly confronted with the onset of a serious chronic illness. Charmaz's grounded theory depicts the process by which men in this situation adjust to the new reality presented by their health predicament. Her study has important implications for health care workers, including M.D.'s, nurses, social workers, and therapists (psychiatrists, clinical psychologists, counselors). Understanding the various stages that such men progress through, and how they move from one stage to another, will enable professionals who work with them to more carefully and accurately shape patient care. Careful, accurate care is literally of critical importance in the care of chronically ill patients.

Simmons' (1994) grounded action, participant observation study of the counseling/psychotherapy field holds significant potential for improving the practice of working professionals in that field. The primary product of this study is a novel approach to counseling/psychotherapy that Simmons refers to as "grounded therapy." Grounded therapy is a methodological rather than preconceived theoretical approach to counseling/therapy that, as a form of grounded action, incorporates many of the methodological features of the grounded theory research method. Rather than applying extraneous, preconceived therapeutic interpretations, diagnoses, labels, and such to clients, the grounded therapy approach treats each counseling/therapy case on its own terms. Grounded therapy systematically generates explanations and

interventions out of information (data) collected in an open-ended fashion. It is designed to discover what is really going on in each case. In this manner, interventions are derived that closely meet the requirements of individual circumstances, rather than being based in general clinical categories that are applied, often force fitted (Glaser, 1978), to individual clients.

Research by Gregory (1996, 1999; Kleiner, Roth, Thomas, Gregory & Hamell, 2000) and Gregory and Lewis (1996), in the technology and oil industries, are excellent examples of studies in which grounded theory provides greater insight into the dynamics of organizations as they specifically relate to managing diversity. As a result of her work in organizations, Gregory has discovered that the common denominator in all diversity issues is that they involve a process of learning that occurs at different levels for different individuals. She has also discovered that the degree to which this process is understood and can be used to produce positive outcomes of “diversity tension" (Thomas & Gregory, 1994, 1995), the conflict that arises between people of diverse backgrounds, appears to be related to aspects of human development and the capacity of the individual for transformative learning (learning that moves an individual to a higher level of understanding and action). Gregory (1996, 1999) was the first to discuss the relationship between organizational learning and diversity and the possibility of resolving diversity conflict through applying the principals of transformative learning.

Grounded Action: Addressing Complex Issues in Context

Grounded action was designed specifically for the purposes of investigating and addressing complex organizational and social problems and issues. We maintain that the key to understanding and addressing such issues is to systematically discover the basic social processes (Glaser, 1978) underlying and driving them. Grounded action

> *…is a tool that allows a researcher to get at the essence of the core issues or problems [from the perspective of the people involved in the problem]. In this way the core issues generated…are [as close as possible] to the main issues of the participants because they generated them. This makes the 'action' generated by the research more likely to penetrate the nucleus of the problem and bring forth more lucrative solutions for all concerned.* (Morris, 2000, p. 18)

Grounded action is effective at addressing complex, multidimensional social and organizational problems and issues because it addresses the complexity of the contexts within which they exist. Many attempts to solve organizational and social problems fall short because they are not systematically derived from data

nor theoretically sophisticated enough to address the multidimensional complexities inherent in the problems. Practitioners acting as change agents often fail to understand the importance of systematically generating an explanatory theory grounded in context, prior to action planning. However, the development of a theory that explains and clarifies the underlying, usually complex, sources of a problem is critical. Actions that are not directly and systematically related to what is really going on in the relevant action scene/context are destined to fail at producing and sustaining the desired change.

Uniqueness of Grounded Action

Grounded action is unique and distinguishable from other problem solving approaches in that:

1. Grounded action contains an important distinction between the social or organizational problem or issue for which a solution/intervention is being sought and the research problem. When designing their research practitioner-researchers often confuse the two, focusing more on what they think “ought to be" than discovering and explaining “what is." This derails the discovery process right from the beginning and leads to a disconnect between actions and what is really going on. In grounded action we characterize the initial identified practical problem or issue as the “action problem." As discussed below, the first step in the grounded theory/action process is to suspend the action problem. This prevents preconceptions inherent in the action problem from tainting the explanatory portion of the research. Consistent with grounded theory, the research problem is the discovered core variable.

2. Another important distinction made in grounded action is between the explanatory theory and the “operational theory." The explanatory theory is the core variable grounded theory, as it would be in any grounded theory project. The operational theory is systematically generated from and grounded in the explanatory grounded theory. The operational theory provides a grounded theoretical foothold for action planning and implementation (see below).

3. Grounded action involves a systematic, rigorous, empirically grounded procedure that addresses and systematically links explanation with action. Thus, actions can be directly tied to all significant properties and dimensions (and their interrelationships) of complex problems in need of complex solutions. It provides a sequenced action package that is grounded all the way through.

4. Like grounded theory, grounded action is designed to maximize the number of discovered variables and their interrelationships in a given set of data. Proposed solutions to complex problems must directly address the full complexity of the social systems and organizations within which they exist, including the likely

consequences of actions. And importantly, they must include an understanding of the factors that *promote, inhibit, and prohibit change*.

The failure to consider and understand the complex systems nature of a problem can result in problems of greater magnitude than the original problem of concern, often because of unforeseen and unintended consequences. For example, the policy makers who used the Coleman Report (Coleman, 1966) as a basis for public school busing did not foresee “white flight" and all of it’s many consequences for American cities and surrounding countryside as they were transformed into suburbs. Nor were the difficulties experienced by (particularly low-income) families of bussed children in maintaining involvement in their children’s schools anticipated. In hindsight, it is easier to see that Coleman’s research was far too narrow in scope to serve as a basis for an action of such great magnitude.

Grounded action is by its very nature a systems approach because it attempts to discover all (limited primarily by skills, time, and resources) relevant variables, including those that might undermine the intervention (they are part of what is really going on in the setting). In the course of doing a grounded action project the researcher/practitioner invariably discovers multiple problems and issues, each with multiple properties and dimensions, being processed by participants in an action scene, all related to one or two core variables (categories). The core variable approach to theory development, which grounded action borrows from grounded theory, provides for a multi level, well integrated, easy to understand theory that fits and is relevant to the full range of issues and problems being processed in the system being studied.

It is notable that seldom are these issues and problems the ones commonly identified. Participants usually understand the practical problems and issues they deal with on a day to day basis. But, because they experience them individually, they seldom are aware of or understand the latent patterns that underlie them, unless or until they are conceptually identified. For example, it is highly unlikely that the nurses in Pape’s (1964) study were aware that they were “touring," because each was making individual decisions that contributed to the latent pattern. However, had they been introduced to the concept, they would likely have gained new insights into their own choices and behavior, as well as the choices and behavior of their peers.

5. Grounded action gets at what is really going on because, consistent with grounded theory, it uses a process of discovery that begins with as few preconceptions as possible. There are no a priori formulations of problems, issues, hypotheses, or theories. There are no a priori categories, concepts, ideas, etc. to make sense of a subject matter *before* data are collected or analyzed. There is no presumption of the relevance of a particular type of information, category, variable, etc. Nor is there either intentional or, if properly

conducted, unintentional personal “investment" in a particular outcome or finding. Research questions are not identified in advance. Instead, in grounded theory/action the research process leads to the discovery of relevant questions in the data. To avoid theoretical preconceptions, consistent with grounded theory, grounded action integrates existing literature and research only after the generation of a theory is essentially complete.

6. Like grounded theory, grounded action can use qualitative and/or quantitative data. The nature and type of data to be used at various phases of a grounded action project is itself open to discovery. A project may begin with open-ended interviews, progress to observations, quantitative archival data, surveys, evaluation research, or whatever is indicated through the evolving analysis.

7. Although grounded action is generated in a particular context for use in that context, because it is about understanding and discovering generic variables, it remains open to modification, application, and transformation in new settings. Grounded action is modifiable and cumulative, through meta-analysis. A grounded action meta-analysis involves the integration of multiple substantive theories useful for generating a wider understanding of the multi-dimensional, systems nature of social and organizational problems. Although you may never be able to cover and understand all aspects of a particular problem, you will come much closer with a grounded action meta-analysis. It will provide sufficient understanding to formulate creative, workable, doable, effective actions without having to “start from scratch." Applications in new contexts would require only verification of the extent to which the existing grounded action theory is relevant and useful in the new context, as well as the discovery of variations unique to that context so that actions can be modified, if necessary. Ideally, the grounded action process will become an integral part of an organization or change effort. As actions are implemented changes occur in an ever-evolving process. It would be wise to keep pace with these changes.

8. As with grounded theory, a theoretical advantage made possible by grounded action is the potential integration of micro (social psychological) and macro (social structural) dimensions of a problem. For example, Bigus’ (Simmons) (1972) study of milkmen cultivating relationships with customers shows how changing social structural (macro) factors (economic, technological and cultural) in American society transformed the retail milk industry from one involving mere delivery of a product to one centered around the need to “cultivate" relationships with customers (micro).

9. In both traditional applied research and action research, the question of who conducts and participates in the research is usually predetermined. Applied research is ordinarily conducted by professional, usually university based, researchers. Action research is customarily conducted by participants in the action scene, in the case of participatory action research many participants.

From the perspective of grounded action, before a project begins decisions about participation simply involve too many yet to be discovered variables (organizational politics and power, skill levels, training needs, managing research resources and time, etc.) to make predetermined judgments and decisions. In grounded action, who or who doesn't participate is secondary to ensuring that the research and the actions are *grounded and theoretically rich.* Decisions about who participates and at what levels and in what ways are open to discovery.

For example, Morris (2000) began her grounded action dissertation research on the general topic of

education professions because of a personal curiosity about why so many members of her extended family had historically become professional educators. She began by interviewing family members. From this data she discovered a core category which she termed "fitting in." As a middle-school teacher, she decided to share the concept with her students. They became very excited because they recognized that fitting in was a central problem in their lives. At this point, Morris' realized the potential of including student participation in her emerging project. She enlisted students to help her fine tune the topic and to interview each other. They formulated the action problem as "how to fit in and still be yourself." Through their participation in the research, the students gained understanding about a problem central to their social lives. They wrote a booklet about what they discovered, for distribution to other classes and schools in their district. In all, they gained a unique, valuable educational experience. Morris gained a unique grounded action dissertation. Through her initial data collection and analysis, Morris's *discovered* an important research role for the students—one that the students could do, with minimal training.

Doing Grounded Action

Generating the explanatory theory

The explanatory theory provides a theoretical explanation, grounded in the reality of the people in the action scene/context. The explanatory theory captures and explains the behavior relevant to the problems or issues at hand. As we suggested above, this is critical for grounded action because programs, policies, and such, will work as intended only if they are grounded in the realities that are relevant to and experienced by participants in the action scene/context.

Generating the explanatory grounded theory involves the following steps:

1. Minimizing Preconceptions

Starting with as few preconceptions as possible is important to any grounded theory/action project. Although preconception is too large a topic to cover fully

here, we will mention several important measures that should be taken from the outset.

Suspend the action problem.

The action problem is the social or organizational problem or issue for which a solution/intervention is being sought, such as why women and minorities do not pursue information technology careers, or why students perform poorly. It is the "purpose" for conducting the research. Action problems usually come from participants in the action scene/context, often from persons in positions of power or high status. Because it is natural and ordinary for participants in a research context or action scene to have strong preconceived (to the research) understandings, explanations, interpretations, perspectives, beliefs, ideologies, and so forth, as well as imagined solutions to problems they are processing, it is important to begin the grounded action process by *suspending the action problem.* It is important to treat all of this purely as data for constant comparison—not as a problem but as an opportunity. This is critical because of the need to start the research process with as few preconceptions as possible. As Glaser (1978, p. 22) states, "…*the grounded theory researcher whether in qualitative or quantitative data, moves into an area of interest with no problem*."

At this point, the action problem functions only as a broad topic area, a general entry point into the research. For example, if one were interested in understanding and addressing the problem of poor student performance in middle schools, it would make sense to begin collecting data from that action scene. Certainly, it is important to remain open to the possibility of collecting data from other locations and sources, as informed by theoretical sampling and the ongoing grounded action process. However, you do not begin the study by "working" the action problem. You begin with open-ended observations and interviews of participants in the action scene/context, as is customary in grounded theory studies (other types of data such as archival documents, official statistics may be useful supplementary data).

Glaser (1978, p. 8) states, "*Good ideas must earn their way into the theory through emergence or emergent fit.*" Eventually, before it is inserted back into the process, possibly in modified form, the action problem will be required to "earn its way" like any other element of a grounded theory. Notably, it may be discovered that the action problem as originally conceived is *the wrong problem*! To focus on the action problem will likely be misleading because it may be found to be of minimal relevance or merely a property of the discovered core variable, not the core variable itself. For example one of the authors (Simmons) was asked to develop an "anger management" program for a social services agency. Using grounded action, he discovered that the relevant core variables were respect and power, not anger. Anger was a consequence, not the core category. With this discovery, the program was designed around helping clients to

understand and develop skills related to respect and power. In contrast, conventional anger management programs focus on anger by taking a pathologing, psychologizing, blaming approach that stems from the assumption that "anger problems" are usually, if not always, a psychological property of the individual, rather than a response to relationships or other types of life circumstances.

Discovering the research problem

Rather than beginning with a clearly articulated research problem or question, grounded theory/action studies begin with only a general topic area. This general topic provides hunches about where and how to begin data collection, but does not lead the research. It is only a jumping off point.

The research problem in grounded theory/action is *necessarily* emergent, not preconceived. As Glaser (1992) notes:

> *…the research question in a grounded theory study is not a statement that identifies the phenomenon to be studied. The problem emerges and questions regarding the problem emerge by which to guide theoretical sampling. Out of open coding, collection by theoretical sampling, and analyzing by constant comparison emerge a focus for the research.* (p. 25)

Above all, the research problem in grounded theory/action must be about the main concerns of participants in the action scene/context. As Glaser (1998) argues:

> *It is about time that researchers study the problem that exists for the participants in the area, not what is supposed to exist or what a professional says is important. "Whose relevance" drives the focus of a research project. Grounded theory requires that it is the relevance of the people in the substantive area under study. It is their main concern and their continual process of it that is the focus of grounded theory…* (p. 116)

The research problem in grounded theory/action is the discovered core variable. The core variable is the variable that accounts for the most variation around the main issues and problems being processed in the action scene/context. As Glaser (1998) says:

> *Always keep in mind, that grounded theory is an inductive approach that calls for emphasis on the experience of the participants. The goal of grounded theory is to generate a theory that accounts for the patterns of their behavior which are relevant and problematic for the participants.*

> *The core category is that pattern of behavior which is most related to all the other categories and their properties in the theory which explain how the participants resolve their main concern."* (p. 117)

For example, in Pape's (1964) study of high job turnover amongst nurses, the discovered core category is "touring." In Lee's (1993) study of prison life, the discovered core category is "doing time."

No preliminary literature review.

In grounded theory/action, you do not conduct a preliminary literature review, as is commonly done in other types of research. As Glaser (1998) states:

> *The traditional approach is to study the literature in a substantive area before one starts the research. Grounded theory's very strong dicta are a) do not do a literature review in the substantive area and related areas where the research is to be done, and (emphasis in original) b) when the grounded theory is nearly completed during sorting and writing up, then the literature search in the substantive area can be accomplished and woven into the theory as more data for constant comparison. To state the point bluntly, these dicta have the purpose of keeping the grounded theory researcher as free and as open as possible to discovery and to emergence of concepts, problems and interpretations from the data. (*p. 67)

2. Data Collection

When conducting a typical grounded action project, you enter the field somewhere in the action scene/context and begin data collection (usually but not necessarily open-ended intensive interviews and/or unstructured observations), in the same manner you would begin any grounded theory study. The problems and issues being processed by the participants will lead to one or two core variables. By the nature of core variables, these core variables will be related to the action problem. Often they will not be of the nature that those who are concerned with the action problem preconceived them to be. They may modify the action problem as originally conceived, or even identify a new one. Because they are about what is relevant and how it is being processed by participants not only on a conscious but on a latent level they will better address the action problem. They will theoretically capture the full spectrum of what is really going on.

Because grounded action projects are usually conducted in specific action scenes, they will involve some level of participant observation. It is important to take field notes of observations so that they can be analyzed as data. However, open-ended intensive interviews usually yield the richest, densest data. But, of course, any type of data can be subjected to constant comparative analysis.

To ensure that you begin as openly as possible, it is beneficial to begin your initial interviews with a general “grand tour" type question. A grand tour question is a non-leading, open-ended question (not necessarily stated in question form) formulated so as not to indicate a preferred response, such as “Tell me about a day in your life" or “Tell me something about what it’s like to work here." From there, it is important that you follow the lead of the respondent. Later in the research, data collection, including what questions to ask, will be informed by the analysis. Glaser and Strauss (1967) refer to this process as “theoretical sampling."

> *Theoretical sampling is the process of data collection for generating theory whereby the analyst jointly collects, codes, and analyzes his data and decides what data to collect next and where to find them, in order to develop his theory as it emerges.* (p. 45)

It is important to note that there is no point during the grounded action process when data collection ceases by prior design. After actions have been planned and invoked they must be assessed and possibly modified. Theoretical sampling continues to guide decisions about data collection until the very end.

All participants in an action scene who may be relevant to the core variable are potential sources of data. For example, if the action scene were an elementary school, in addition to teachers, administrators, and students, who are usually included in education research, potential respondents would include janitors, secretaries and other clerical personnel, interns, volunteers, parents, or anyone else who has potential relevance.

3. Analysis

The analytical technique used in grounded theory/action is what (Glaser, 1965) refers to as constant comparative analysis. Constant comparative analysis begins immediately, as the first data is collected. This not only serves as a beginning for the emergence of a theory, but also provides informed hunches for theoretical sampling.

Constant comparative analysis involves relating data to ideas, then ideas to other ideas. This is done through “coding" the data. As Glaser (1978) puts it,

> *The essential relationship between data and theory is a conceptual code. The code conceptualizes the underlying pattern of a set of empirical indicators within the data. Thus, in generating a theory by developing the hypothetical relationships between conceptual codes (categories and their properties) which have been generated from the data as indicators, we 'discover' a grounded theory.* (p. 55)

Coding is conducted at two levels, substantive and theoretical. “Substantive codes summarize the empirical substance of the area of research. Theoretical codes conceptualize how the substantive codes may relate to each other as hypotheses to be integrated into the theory" *(Glaser, 1978, p. 55).*

Substantive coding

The first phase in substantive coding is “*open coding*." In open coding, you code freely for as many categories as possible. You code for anything and everything that might fit. In open coding you ask three questions of the data (Glaser, 1978, p. 57). The first question is “*What is this data a study of?*" This question is about discovering the core variable, which becomes what the study is about. The second question is “*What category does this incident indicate?*" The long form of this question is “*What category or property of a category, of what part of the emerging theory, does this incident indicate?*" This question spurs you to think conceptually and theoretically. The third question is “What is actually happening in the data?" This question is designed to get at the social psychological or social structural issues and problems being addressed by participants in the action scene—what participants are “working on."

Once visible patterns emerge and induce the discovery of a core variable you begin “*selective coding*." At this point, you code selectively for matters materially related to the core variable.

Theoretical coding.

Theoretical codes are more abstract than substantive codes. They provide a theoretical frame that helps you organize and integrate substantive codes into theoretically meaningful relationships. Glaser (1978 & 1998) presents numerous “coding families," from which single theoretical codes can be drawn and tested for usefulness and fit. One example of a theoretical coding family is what Glaser refers to as “The six C's," which are “causes," “contexts," “contingencies," “consequences," “covariances," and “conditions." Glaser characterizes the six C’s as the “bread and butter" theoretical codes of sociology.

4. Memoing

"*Memos are the theorizing write-up of ideas about codes and their relationships as they strike the analyst while coding*" (Glaser, 1978, p.83). When writing memos, you should think and write theoretically, in a “stream of consciousness" fashion, with little consideration for grammar, spelling, sentence structure, and organization. You should write down ideas, even if they are hunches or don’t make immediate sense. You may make something of them later by using them for theoretical sampling or returning to the data for more selective coding. Some ideas may fall by the wayside; others may prove to be valuable to the emerging theory. Memos can always be cleaned up, modified, clarified, elaborated, reorganized and integrated with other ideas, at a later time.

Memoing takes precedence, because it provides the bridge between data and the emergent theory. Data are always available for analysis at any time. Ideas are fragile, so they should be written down at the *earliest possible moment*. Although memoing should take precedence, data collection, analysis and memoing are ongoing and overlap in a back-and-forth process, until “theoretical saturation" (Glaser 1978) is reached. However, memoing prevails throughout the *entire* grounded theory/action process. Ideas should always be written down, whenever they occur to you.

5. Integrating the Literature

Once you achieve confidence in the richness, depth, elaboration, and integration of your theory, it is time to begin reading literature. Any literature that you incorporate into your theory must be relevant and earn its way like any other aspect of a grounded theory/action study. Theoretical material from the literature is subjected to constant comparison as if it were data. Theoretical literature is used to reinforce, illustrate, example, or add something to your theory. You may find variations in the literature that weren’t in your particular data set. Literature may also generate ideas for theoretical sampling or additional selective coding of existing data.

6. Sorting and Theoretical Outline

Sorting refers not to data sorting, but to *conceptual* sorting of memos. The sorting process entails integrating and organizing memos into conceptual relationships, from which an outline of the theory emerges. A theoretical outline depicts all the major properties, dimensions, concepts, theoretical codes (which sometimes remain latent) and their relationships. In grounded theory/action the theoretical outline is emergent rather than pre-constructed. As Glaser (1978) says:

> *The analyst does not need a “ready made" outline to sort into. Rather the reverse is required in grounded theory…He should simply start sorting the categories and properties in his memos by similarities, connections, and conceptual orderings. This forces patterns which become the outline.* (p. 117)

The actual sorting process consists of cutting and pasting memos and sections of memos into the emerging theoretical outline. Sorting will likely stimulate more memos, more analysis, and even more data collection.

Generating the Operational Theory

The operational theory is where explanatory grounded theory leaves off and grounded action begins. The operational theory serves as a rationale and model for action. In grounded action, the operational theory is systematically grounded

in a well integrated, multi-dimensional explanatory theory that is grounded in data. In turn, this keeps the operational theory grounded in what is really going on in the action scene. And, it enables the operational theory to cover all relevant, important aspects of the action problem, as it is currently understood.

The operational theory can take the form of program designs, policies, calculated procedures, and such—whatever is indicated. It is a theoretical prediction about outcomes—what will happen if you take certain actions. In order for an operational theory to produce optimal and sustainable change, to the extent that it is practicable, *it must incorporate all important properties and dimensions of the explanatory theory.* If this is achieved, it will address the multivariate, systemic nature of the action problem.

The first step in generating an operational theory is to revisit the action problem in light of what has been discovered while generating the explanatory theory. The explanatory theory will be about what is really going on in the action scene/context—the issues and problems being processed by participants. This will likely cast new light on the action problem, which may consequently need to be dimensionalized, elaborated, clarified, and/or revised. The operational theory is generated using a process similar to that used for generating an explanatory theory. This ensures that the operational theory will be systematically grounded.

7. Analysis

Analysis for generating an operational theory consists of constantly comparing all major components of the explanatory theory to all relevant properties and dimensions of the action problem, looking for indicators in the explanatory theory as to possibilities for optimal and sustainable actions toward mitigating the action problem. Of course, each aspect of the operational theory must earn its way. Because the action problem and explanatory theory have now been fully grounded and developed, analysis is selective around such questions as:

• What does the explanatory theory indicate the real action problem is?

• What are the desired outcomes of the action? This is a values-based question that cannot be fully answered by the explanatory theory. The answer may also vary from the perspectives of different participants in the action scene, which may present the grounded action researcher with ethical dilemmas (see below).

• What does the explanatory theory inform us about assigning priorities to these outcomes? For example, priorities may be determined by which outcome(s) need to be accomplished before others can be addressed, they may be determined by currently available resources, they may be determined by political considerations within an organization, and so forth.

• What does the explanatory theory indicate about aspects of the action problem that need to be successfully addressed to bring about the desired change?

• What does this particular component of the explanatory theory indicate needs to be done in order to mitigate this particular aspect of the action problem?

• What capacity does each person or role in the action scene/context play and how would they need to change to bring about the desired results? How could this change actually be achieved? What are the "pushes and pulls" (Regalado-Rodriguez 2001) in the action scene/context towards or against these changes?

• What is possible, given the current circumstances (available time and resources, skills of participants, internal politics, etc.)?

• What are likely outcomes of implementing the operational theory? What are potential worst case outcomes? How can they be prevented? If possible, fallback and recovery plans should be devised.

From the frame of the action problem, each of these questions must be asked in relation to each relevant property and dimension of the explanatory theory. This will produce a grounded blueprint for action. You may also discover a need to double back in the process to clarify or fill in portions of the explanatory theory, by doing more analysis, memoing and/or data collection.

8. Memoing

As with an explanatory theory, the primary purpose of constant comparison in generating an operational theory is to induce ideas for theoretical memos. In this case, the ideas are about connections between the explanatory theory and actions that address the action problem. Not only is it important to generate ideas for action that are indicated by relevant components of the explanatory theory, but it is important to generate ideas for integrating them into an overall action plan that includes priorities, sequences, and given resources, politics, and such in the action scene, practical possibilities. The memo fund should also include memos on the action problem, as currently understood, considering the roles and stakes of all participants.

9. Sorting and Theoretical Outline

Once you have a sufficient fund of operational memos, you can begin sorting them into an outline for an operational theory—an action plan—which as we suggested above should include relevant components of the explanatory theory, priorities, sequences, and practical possibilities, as they relate to all relevant dimensions of the current action problem. As with an explanatory theory, the theoretical outline of the operational theory should be emergent rather than pre-constructed.

10. The Write-up

Grounded action projects may involve multiple write-ups, for different audiences, at different stages in the process. Once you have completed your explanatory

theory, you may choose to write it up as a scholarly piece, for publication. Or, you may delay the scholarly write-up until later in the project, so you can include discussions of the operational theory, actions, and results. Even if you don't do a write-up for a scholarly audience, you will likely be required to do one or more write-ups for stakeholders and/or funding sources. Each type of write-up will have different purposes with different audiences. It is important to keep this in mind when composing the write-ups. Whatever your audience or purpose, the relevance, fit, grab, conceptual clarity, theoretical integration, workability, and such of grounded/grounded action theories provides you with the opportunity for compelling write-ups.

Regardless of the write-up's purpose, the first draft is achieved through the memo sort. The structure of the theory (explanatory or operational) will provide the organizing structure for the theory portion of any type of write-up.

11. Implementing the Action

The action is the application of the operational theory towards solving the action problem. Like all other aspects of a grounded theory/action project, all actions taken must earn their way; they must be ultimately traceable back to and supported by data. The calculated actions constitute an empirical test of the explanatory and/or operational theory. If actions are fully grounded in dense, rich explanatory and operational theories they should significantly mitigate the action problem. Although it would be tempting to end the process at this point, it is not advisable, because without relevant measures how are you to know if specific actions have worked?

12. Transformative Learning

Grounded action is transformative. It involves a process of continually discovering, learning, rediscovering, and relearning. During the action stage there is ongoing reflection on the efficacy of the action plans. Did they work? What is the status of the problem, issue, context or environment after implementation of the actions? What modifications and improvements can and need to be made for solutions to be optimized and sustained? Have the actions resulted in unforeseen and/or unintended consequences? How can what was learned be transformed into a process of continuous organizational learning?

Because organizations and systems continually change and evolve, even in the absence of change initiatives, it is sometimes difficult to know exactly when to close a grounded action project. As we suggested above, ideally, the grounded action process will become an integral part of the organization or system. However, practicalities external to the grounded action research (e.g. resources, managerial decisions, etc.) may preclude this. In the absence of external requirements, the data and analysis will indicate when it is time to close a project.

The evaluation phase of the grounded action process is a measure and reflection on the efficacy of the explanatory and operational theories and the subsequent action(s) taken to mitigate the action problem. Because it is often expected or required by managers, funding sources, and such, traditional quantitative or qualitative evaluation measures may need to be included. If these types of evaluation measures are taken, they should be treated as fresh data and incorporated into the double-back process and subjected to constant comparison. Expectations, requests or demands for conventional evaluation measures is itself data, also worth of constant comparison.

Whether or not conventional evaluation measures are taken, it is important to continue doing interviews, observations, and constant comparative analysis, to measure the process of change, not just outcomes. There is seldom a point at which outcomes crystallize. The full grounded action process does not end when initial actions are implemented and outcomes are evaluated. The unfolding consequences of actions must be studied in process, both in terms of the effectiveness of the actions and the responses of participants.

The easy modifiability of grounded theory/action makes them ideal for this task. As the consequences of actions unfold they must be assessed in relation to the action problem, so you must continue data collection and analysis, memo writing, and modification of the explanatory and operational theories, as indicated, to theoretically keep up with changes brought about by the original action.

Modification also involves reformulating and adjusting actions as indicated. Solutions cannot be static. They must evolve as the problem, solutions, and context evolve. Undiscovered conditions and unforeseen effects may surface. The action problem itself may have morphed into a different set of issues or problems.

Participants in action scenes/contexts are usually also stakeholders in the action problem and how it is addressed. Thus, when actions are introduced, stakeholders will assess their relationship to the action and act accordingly. Because the purpose of grounded action is action, which always involves some sort of change, no matter how righteous the action problem may be and no matter how well grounded and rich the explanatory and operational theories may be, they will likely be cast in a competitive frame by some participants. There is no way around the fact that when you introduce change into an organization or social system, fear, resistance, and opposition will likely occur from some parties and support from others. Regalado-Rodriguez (2001) refers to this as the “push-pull dynamic." It is important to view this as data to be analyzed—as an opportunity not a problem. However, if you have done a thorough job of devising actions that are based upon a grounded understanding and consideration of the roles of all participants, these types of issues will be minimized.

If, as will likely be the case, the data and analysis indicate that involving stakeholders in developing ideas about how to implement and test actions would be useful and advisable, they should be incorporated into the process. This may even be done from the beginning, as part of the data collection process. For example when Simmons developed his “anger management" program (mentioned above), he began by pushing preconceptions aside and asking the first group of participants, “If you were me, how would you do this?" The core categories and design of the program emerged from this initial grand tour question.

13. Ethics

In addition to the ethical considerations of any form of research, because of the action orientation of grounded action, skilled grounded action researchers will be presented with unique ethical considerations. The two most likely ones are:

• Grounded action researchers need to consider the ethics of the original action problem, particularly when the research is commissioned by individuals in powerful positions who appear to have minimal consideration for the consequences of their actions on those over whom they have power. Grounded theory and grounded action are powerful. Skilled grounded action researchers should continually be aware of this in making decisions about how, where, and when to hire out their skills, and in some cases even to re-contract or terminate a project if discomforting ethical situations emerge.

• Desired outcomes may vary between different participants in the action scene; they may even be contradictory or mutually exclusive. This presents ethical dilemmas to the grounded action researcher who may, if only by default, be placed in the position of having to effectively “take sides" when planning actions. One option is to do what Glaser (in personal conversation) urges, “make your problem your topic" and treat this as data to be processed for a solution.

Why Do Grounded Action?

If any two words exemplify modern society, they might be “problem" and “solution." Everyone has ideas about what problems are or aren’t and how we should or shouldn’t go about attempting to solve them. We devote endless time, attention, and resources in our efforts to identify, define, prevent, and fix them. In one way or another, virtually all professions are engaged in this endeavor.

In our combined professional experience, as educators, consultants, researchers, and practitioners, we have closely observed and participated in a wide range of professional problem identifying and solving efforts, including, therapy/counseling, social work, organizational management and administration, diversity, public health, program development, anger management, parent education, alcohol education, K-12, undergraduate, and graduate education. We

have seen many interventions, programs, action models, change initiatives and such come and go, mostly with disappointing results. New actions are often met with excitement about their potential. Staff are trained. The intervention is put into play. Results are disappointing. Another intervention comes along. Results are the same. As this process repeats itself, eventually participants become jaded, cynical, pessimistic, and return to “normal," going about their work as they see fit. In our conversations and interviews with practitioners and those they serve, discussions about this process, and the frustrations that it entails, frequently emerge. Reluctant participants go through the motions, or even subvert the intervention, while maintaining a façade of support, compliance, and productivity. Evaluations are done, measurements are taken. They are often carefully crafted to ensure that funding continues, rather than to be true measures of efficacy. Things are made to “look good," but in reality the problem endures.

Oftentimes when new actions are introduced, fear and loathing rush through an organization. Changes in job responsibilities and organizational structure, the requirement that individuals acquire new knowledge and skills, cynicism about past actions, the elimination of jobs, and such, lead people to focus on their immediate needs and fears. An intervention can represent positive opportunities for some, negative for others (Gregory, 1996).

The above sorts of circumstances may serve to undermine an intervention, even if it’s a promising one. If these circumstances become chronic in an organization, rather than activities achieving their purpose, they can become the functional equivalent of digging holes and refilling them, reducing the effectiveness and productivity of the organization. The organizations may survive, but their goals and purposes remain elusive targets.

Despite the enormous resources public and private organizations and agencies put into solving social and organizational problems, the results have usually been disappointing. Perhaps as a society we are too optimistic in our belief that social and organizational problems can actually be substantially mitigated or solved. Be this as it may, we maintain that applying grounded action to social and organizational problems will produce optimal, sustainable, positive results in relation to previous approaches.

For example, most research and actions on the issue of diversity in organizations has suffered from a one-dimensional perspective, that of responding to and correcting perceived discrimination and inequity in company hiring patterns and workplace practices. Racial and gender discrimination has been preconceived as the primary motivating variable in studies and programs related to diversity (Cox, 1990; Gregory, 1996, 1999; Thomas, 1991, 1992, 1996, 2000).

Thomas (1991 & 1996) attempted to expand the understanding and study of diversity to include dimensions other than race and gender and variables other than discrimination. His work called attention to an extensive number and combination of diversity dimensions and an equally extensive number and combination of variables. He recognized diversity as a complex and multidimensional phenomenon, which could best be understood by developing a cohesive and comprehensive theory about the nature of diversity and its related dynamics. However, because of the continued focus on racial and gender discrimination and inequity, in spite of Thomas' work, the study of diversity has not advanced far from its roots in the civil rights movement forty years ago.

Gregory (1996, 1999) asserts that a more complete understanding of the dynamics of diversity is still open to discovery. We maintain that the most effective means of doing this is to take a fresh grounded theory/action approach by starting at the beginning. Like all grounded action research, this would involve suspending the issue of diversity as it is currently understood as an action problem, collecting and analyzing data, generating a grounded explanatory theory, more clearly articulating the action problem, then generating an operational theory from which optimal, sustainable actions can be derived. This may be a big undertaking, but we think a grounded action approach would be a productive way to address the issue.

Common approaches to problem solving are in-house actions designed by employees, actions designed by “expert" consultants, those designed by university-based applied researchers, and those designed as action research. None of these approaches have been as effective as we think they could and should be. The first two are often unsystematic in nature, subject to the predilections, preferences, interpretations, self-interest, knowledge, skills, experience, and so forth, of those who design and implement them. These factors can vary widely. Given the variable nature of these approaches to problem solving, it is impossible to address their strengths and weaknesses in the abstract.

University based, applied research is systematic, usually using commonly accepted research methods and scholarly theories, applied by highly educated, knowledgeable, trained, skilled, experienced research professionals. This allows for a critical assessment of strengths and weaknesses. However, applied researchers seldom have the quality and quantity of day-to-day experience in particular action scenes that participants have. Nor do they have the investments in actions and outcomes that participant-stakeholders have.

Action research is also systematic usually using commonly accepted research methods. But, the levels of education, knowledge, theoretical sensitivity, research training, skills and experience of its practitioners vary considerably. Because they are often practitioners not professional researchers, their

qualifications as researchers seldom match those of university-based applied researchers. Furthermore, in participatory action research they turn over major aspects of the research to participants with little or no research skills, experience, or theoretical sensitivity. Unless this is done carefully and mindfully weighing all potential negatives and positives and matching participants to tasks for which they are properly suited and trained the epistemological veracity of the research may suffer considerably. Enlisting participants in the research design and process may satisfy an otherwise commendable central philosophical preference of action research, but it raises serious potential for problems with the research itself.

The question of who's preconceptions (prior understandings and interpretations brought to the research) are more potentially damaging to the conceptual/theoretical results of action-oriented research, participant-stakeholders or professional university-based researchers, is an empirical one individual to each separate project, not a philosophical one. Likewise, the question of whether the high level of day-to-day experience in the action scene and the personal stake in the outcome of participant-stakeholders present fewer threats to the veracity of the research than the lower level of day-to-day experience and minimal personal stake of university based researchers is difficult to ascertain. Who is most or least apt to be objective?

Regardless, you cannot design effective actions unless they are grounded in what is really going on, not what you think, hope, or wish is going on. Thus the critical question is "Is it grounded?" not who carries out the research. Anything that prevents, breaks or derails the grounding of explanations in data will diminish the opportunity to devise truly optimal and sustainable change.

Grounded action is an innovative approach to understanding and solving complex social and organizational problems, which systematically grounds and integrates data, analysis, theory, and action. As such, in the hands of well-trained researcher change agents, it is a powerful tool for producing effective, sustainable solutions.

Endnotes

[1]We are assuming that the reader has a general familiarity with grounded theory. Those who want to do grounded action will certainly need to read Glaser's grounded theory related books. Training in grounded theory is of course preferable, but hard to come by. The authors teach a sequence in grounded theory and grounded action at the Fielding Graduate Institute [osimmons@fielding.edu, tagregory@fielding.edu].

[2]Rather than presenting the complexities of our reasoning here, please refer to Strauss and Corbin (1990) for Strauss' post *The Discovery of Grounded Theory* conception of grounded theory. Glaser (1992) took strong issue with Strauss' depiction of the method, asserting that Strauss' and Corbin's book "distorts and misconceives grounded theory, while engaging in a gross neglect of 90% of its important ideas" Glaser asks of Strauss, "You wrote a whole different method, so why call it 'grounded theory'?" (p.2). Glaser's reasoning is consistent with the fundamental role grounded theory plays in grounded action. Since Discovery, Glaser has clarified and refined grounded theory in a number of books. See Glaser (1978, 1992, 1998, 2001).

[3]These are but a few examples of grounded theory studies that have obvious practical implications. For other examples, see Glaser (1993, 1994, 1995, 1996).

[4]We use the term "action scene/context" because data are not always collected from specific action scenes. For example, in her study of curriculum changes in accounting higher education, Thiru (2002) collected data from the broader context of accounting higher education, not just from one or several action scenes. Her interviews were conducted mostly by telephone.

[5]Glaser uses the terms "core variable" and "core category" interchangeably.

[6]For more detailed discussions of the issue of preconception in grounded theory research see Glaser (2001), particularly Chapter 6, and Simmons (1995).

[7]Many discussions of how to enter a research setting are available in the literature, so we won't cover the topic here.

[8]Many discussions of how to conduct open-ended intensive interviews are available in the literature, so we won't cover the topic here.

[9]Because of its complexity, we will provide only a cursory description of constant comparative analysis. For thorough depictions of the process, see Glaser (1965, 1978, 1992, 1998 & 2001).

[10]For detailed discussions of sorting, rules for sorting and generating theoretical outlines, see Glaser (1978, 1992 & 2001).

[11]For grounded action professionals who are hired from outside the organization or system, this means training participants in the minimal skills required to carry on.

[12]There is no doubt, however, that these types of situations present ethical dilemmas, as we discussed earlier.

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