THEORY BASED ARTICLE

Grounded Theory in Genetic Counseling Research: An Interpretive Perspective

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Abstract As qualitative inquiry has gained wider acceptance in genetic counseling research, it has become increasingly important for researchers and those who evaluate their work to recognize the diversity of methods that fall under this broad umbrella. Some of these methods adhere to the traditional conventions of scientific research (e.g., objectivity, reliability, validity, replicability, causality and generalizability). When such studies are evaluated by reviewers who are well versed in scientific methods, the rigor of the study may be readily apparent. However, when researchers are using methods that do not conform to traditional scientific conventions, the distinction between well conducted and poorly conducted studies may become more difficult to discern. This article focuses on grounded theory because it is a widely used qualitative method. We highlight key components of this method in order to contrast conventions that fall within a scientific paradigm to those that fall within an interpretivist paradigm. The intent is to illustrate how the conventions within these two different paradigms yield different types of knowledge claims—both of which can advance genetic counseling theory and practice.

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Introduction

The catalyst for this article is a dilemma posed by Beeson over a decade ago. In arguing that qualitative research methods can provide more nuanced insights into the complexities of genetic counseling practice, Beeson (1997) observed that such methods:

> . . . may not be well understood by reviewers trained in clinical research, although it is much closer to what many physical scientists actually do. This is one of the points at which qualitative grant writers often compromise in their presentations to funders and reviewers. You will have to make a strategic decision depending on your own level of comfort with some of the assumptions of the interpretive/constructivist paradigm, and the advice and assistance of your methodological consultant(s). (p. 35)

We concur with Beeson's observation that qualitative research methods may not be well understood, but see the suggestion to compromise one's language as problematic. Doing so would be analogous to asking football referees to use only the language of baseball to judge action on the gridiron. Just as the languages of football and baseball reflect fundamental differences in the conventions of play in each sport, the languages of
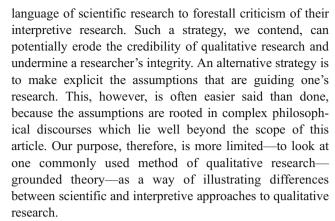
scientific and interpretive research[1] reflect fundamental differences in the conventions for generating knowledge.

Reviewers of a preliminary draft of this article suggested that qualitative research is now so well understood and accepted that we are revisiting an issue that has already been examined extensively in other literature. While this may be true, there is still a lack of publications relating qualitative research methods directly to genetic counseling. For example, a colleague, who has published qualitative research in numerous refereed journals shared the following anecdote that suggests the matter has not been put to rest:

> I met recently with the Chairperson of my department, the Dean of my school, and several senior faculty members to discuss opportunities for promotion. Even though I've been successful in securing grant monies to conduct qualitative studies and have published articles in well-regarded, refereed journals, they said my research was not "scientific" enough. They actually suggested I should consider changing my research focus despite my track record of obtaining grants and publishing. When I tried to discuss the merits of conducting qualitative research within an interpretive tradition, they were so skeptical. After the meeting I wondered if promotion opportunities would be limited. I'm just so tired of trying to defend my research to those who don't seem to understand either the purpose or methods of interpretive qualitative research.

We imagine our reviewers might dismiss this anecdote as an isolated incident, but for us it echoes a persistent stream of conversations with colleagues whose grant proposals are rejected because of "inadequate sample size," whose manuscripts are rejected because of non-generalizable findings, or whose promotion and tenure are denied because of less than "scientific research." Our concern in this article is not to argue that such misunderstanding and devaluing of qualitative research is rampant in the field of genetic counseling. Indeed it may not be. Rather, our concern is for individuals who may feel pressure to use the

language of scientific research to forestall criticism of their interpretive research. Such a strategy, we contend, can potentially erode the credibility of qualitative research and undermine a researcher's integrity. An alternative strategy is to make explicit the assumptions that are guiding one's research. This, however, is often easier said than done, because the assumptions are rooted in complex philosophical discourses which lie well beyond the scope of this article. Our purpose, therefore, is more limited—to look at one commonly used method of qualitative research—grounded theory—as a way of illustrating differences between scientific and interpretive approaches to qualitative research.

Our focus on grounded theory is supported by three considerations. First, much of what we say about grounded theory is applicable to other qualitative research methods (e.g., narrative, case study). In essence, we are using grounded theory as an exemplar for a much broader range of qualitative methods. Second, we have focused on grounded theory, because it is widely used in genetic counseling research (e.g., Bombard et al. 2008; Clarke et al. 2008; Hamilton et al. 2009; Hamilton and Bowers 2007; Hamilton et al. 2005; Lippman-Hand and Clarke Fraser 1979a, b; McAllister et al. 2008a, b; McAllister 2001; McAllister, et al. 1998; Skirton 2001).

Third, grounded theory was originally developed by Glaser and Strauss (1967) as a method for generating theory inductively from data systematically gathered through empirical observations of social phenomena within naturalistic settings. In challenging the prevailing assumptions of theory-verifying social research of that time, it was important that grounded theory be seen as scientifically rigorous. Yet, the analysis of data depended a great deal on the researcher's interpretive capacity to generate concepts. Thus, from its inception, grounded theory embodied conventions that are seen as scientific by some and interpretive by others[2]. As a result, it provides a fertile context for exploring often subtle differences between these two orientations to qualitative research. In the remaining of this article, we explore a number of key differences beginning with the nature of truth claims that can be supported by these two approaches to qualitative research. Of particular relevance for genetic counseling, is the way in which grounded theory creates the potential for theorizing from practice. Following this discussion, we look more specifically at the procedural conventions of grounded theory—i.e., theoretical sensitivity, theoretical sampling, coding, constant comparative analysis, memoing, theoreti-

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[1] We are using the term "scientific research" as the descriptor for a set of assumptions rooted in the philosophical tradition of positivism and, more recently, post-positivism. In this tradition, the hallmarks of legitimate research are seen to be objectivity, reliability, validity, replicability, causality, and generalizability. We use the term "interpretive research" as the descriptor for an alternative philosophical tradition that sees knowledge as socially constructed within historical, cultural, and political contexts. We recognize that this is an oversimplification of the descriptors, the philosophical traditions, and the debates about what constitutes scientific knowledge. More nuanced discussions of various research traditions may be found in Barone 1995; deMarrais and LeCompte 1999; Eisner 1997; Lather 2004; Paul 2005; Schwandt 2003, 2007

[2] For those who want to read more about these various perspectives on grounded theory please see the following references: Annells 1996; Charmaz 1994, 2000, 2006; Corbin and Strauss 1990; Corbin 1998; Glaser 1992, 1994, 1998; Piantanida et al. 2004; Rennie 2006; Stern 1994; Strauss and Corbin 1990, 1994, 1998.

cal saturation and portraying the ground—in order to highlight differences between scientific and interpretive approaches.

Theorizing from Practice—Researcher Purpose and Stance

Genetic counselors have a choice about the kind of research they pursue. By virtue of their training in the scientific aspects of human genetics, one option is to conduct research that conforms to the purpose of post-positivism which is associated with the natural sciences. Researchers working within this tradition strive to "offer causal explanations of social, behavioral, and physical phenomena" (Schwandt 2000, p.191). Genetic counselors who wish to contribute to an understanding of biochemical, structural, and other physical aspects of genes and genetic conditions might claim the stance of basic or applied research scientist. Research methodologies might include experimental or correlational studies, blind or double blind clinical trials, or other post-positivist designs. The aim of such research would be to extend current understanding of the human genome and its contribution to human disease.

But the field of genetic counseling is concerned not only with bio-medical processes, but also with psycho-social issues that individuals and families may experience when confronted with a genetic condition. Thus, genetic counseling professionals have the option of pursuing research that can shed light on the psycho-social and health-related issues of living with actual or potential genetic conditions. If one's interests lie in this direction, then one might want to claim the stance of practitioner-researcher. With this orientation, the aim of the research might be to gain deeper understanding of clients' experiences or the nature of the counselor-client relationship. Such understanding would help counselors be more responsive to clients' concerns.

Unfortunately, it is not uncommon for those who want to understand the human aspects of genetic conditions to describe their research simply as "qualitative." This sets the stage for misunderstandings if reviewers automatically assume that such qualitative research will apply the tenets of post-positivist scientific research to linguistic rather than numeric data. While this may be the case for some qualitative researchers, others may be working within an interpretive tradition. To avoid confusion it is important for both authors and reviewers to acknowledge the fundamentally different nature of knowledge claims generated from these two research orientations.

Undoubtedly, responsive genetic counselors must have a thorough understanding of the scientific knowledge that underpins practice. It is crucial to provide accurate information based on a state-of-the-art understanding of the human genome. However, if one believes that genetic counseling involves psychological processes (Resta 2000), then this grasp of scientific facts is a necessary, but not sufficient condition of competent practice. As argued elsewhere (Grubs 2002; Kessler 2000; Veach et al. 2003; Weil 2000), empathetic responsiveness is also important. Empathetic responsiveness is heightened when counselors have deeper understanding of how their clients are making sense of their genetic condition and what genetically-based conditions mean within the context of a person's life. Post-positivist scientific research that is appropriate for studying physical phenomena is not particularly useful for studying the meaning of powerful and profound human experience. Interpretive research is more suited to this latter type of understanding. Drawing on the work of Husserl, Crotty (1998) notes:

> . . . the scientific world is an abstraction from the "lived" world; it has been distilled from the world of our everyday experiences, distances us from the world of our everyday experiences, and takes us further still from the world of immediate experience lying behind our everyday experiences. Science imposes a very tight grid on the world it observes. The world perceived through the scientific grid is highly systematic, well-organised world. It is a world of regularities, constancies, uniformities, iron-clad laws, absolute principles. As such, it stands in stark contrast with the uncertain ambiguous, idiosyncratic, changeful world we know at first hand. (p. 28)

To illustrate the difference between a post-positive and interpretive research orientation, we offer the following example.

When studying the experience of making a decision about genetic testing, a researcher working within a post-positivist scientific paradigm might look for patterns of factors that influence decisions about testing. The purpose of this research might be to generate scientific knowledge regarding, if not causal, then correlational relationships between factors and decision outcomes. Once such relationships have been established with a reasonable degree of probability, they might better allow counselors to predict a client's predisposition for one decision over another with a fair degree of scientific certainty. This generalizable knowledge, it is assumed, can be translated into appropriate interventions. The level of confidence that counselors can place in this generalized knowledge is judged by the reliability, validity, and replicability of the research method.

In contrast, an interpretive researcher might strive to gain insights into the existential experience of facing genetic risk and making genetic-related decisions (see for example, Grubs 2002). The purpose of this research is not to discover broad generalizations. Rather, it is, as Beeson (1997) so

eloquently says, to tease out the nuances, complexities and contexts of clients' experiences. This interpretive knowledge is not meant to be causal or predictive. Instead, it has the potential for sensitizing counselors to the range of responses that clients might have to the prospect of genetic risk. With increased sensitivity counselors can listen and respond more empathetically to clients' emotions and concerns. Interpretive knowledge claims, rather than being generalizable, are assumed to be heuristic[3], tentative, contextual, and positional. Ultimately, the quality of this knowledge is judged on its utility—both to counselors and clients. As Crotty (1998) comments:

> There are useful interpretations, to be sure, and these stand over against interpretations that appear to serve no useful purpose. There are liberating forms of interpretation too; they contrast sharply with interpretations that prove oppressive. There are even interpretations that may be judged fulfilling and rewarding—in contradistinction to interpretations that impoverish human existence and stunt human growth. "Useful," "liberating," "fulfilling," "rewarding" interpretations, yes. "True" or "valid" interpretations, no. (pp. 47–48)

When it comes to counseling clients who are facing the prospect of a potentially debilitating or even fatal genetic condition, practitioners have an ethical responsibility to convey knowledge that is useful to the individual who is at risk. In our experience, an interpretive approach to grounded theory can be a powerful method for generating knowledge that is useful within a counselor–client relationship. With this general view of grounded theory as background we now turn our attention to assumptions about more specific procedures of the method.

Assumptions About "Bias"—Theoretical Sensitivity

Underpinning an interpretive approach to grounded theory is an assumption that knowledge is constructed by human beings out of their individual and shared understandings of the world. Within this perspective, the researcher is obliged to strive not for objectivity, but for ever-increasing awareness of her/his own assumptions, preconceptions, beliefs, and values. This constellation of qualities along with race, gender, and class comprise the position from which a researcher sees the phenomenon under study. In a

post-positivist approach, the researcher's positionality is seen as problematic and thus great methodological care is exerted to guard against bias. So, for example, the desire for objectivity gives rise to procedures such as double coding of data to promote inter-relater reliability and triangulation to promote convergence of interpretation. The aim is to assure to the greatest extent possible a correspondence between a phenomenon and a researcher's account of that phenomenon. The concern here is whether the researcher has captured with validity and reliability what is "really" happening.

In contrast, an interpretive approach acknowledges that positionality is inevitable and when informed by an in-depth understanding of theoretic literature and professional experience, it contributes to the researcher's theoretical sensitivity. As Strauss and Corbin (1990) state, "Theoretical sensitivity refers to the attribute of having insight, the ability to give meaning to data, the capacity to understand, and capability to separate the pertinent from that which isn't" (p. 42). It is this very sensitivity that allows the researcher to resonate with data (Piantanida 2008 ; Piantanida and Garman 2009) and to eventually draw from it the important ideas that comprise a grounded theory. Rather than being seen as problematic or a "contaminant" of a study, "subjectivity" is seen as integral to the process of making meaning. Despite the inevitability of subjectivity within an interpretive approach, care must be taken to avoid overly superficial, simplistic, or naïve interpretations based on one's taken-for-granted assumptions. Within this approach, the purpose of having more than one researcher code the data is to push, not for convergence, but for multiple interpretations of the data. Similarly, triangulation or gathering data from multiple sources is to push for awareness of alternative meanings that people might make of seemingly similar experiences.

For example, women of advanced maternal age may face the same statistical risk of having a child with a chromosome condition, but the meaning they ascribe to that risk may be quite different. In one study (Grubs 2002), women and their partners responded to the "reality" of statistical risk in a variety of ways. One woman, for example, described being concerned about the risks associated with her age, but she and her husband were reassured because they "felt" younger than their chronological age. Another woman refused to think about the risk associated with her age believing that if she did not think about her risk, then nothing bad was going to happen to her pregnancy. In contrast, one woman described feeling overwhelmed about her risk and tried to hold any joy of being pregnant in abeyance until receiving normal prenatal test results.

Thus, one source of rigor in a grounded theory study is to gather what Corbin and Strauss (1990) refer to as

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[3] "Heuristics are conceptual devices (e.g., principles, guidelines, typologies, models, hypotheses) depicting complex phenomena. As such, heuristics serve to further discourse and inquiry by offering coherent portrayals of phenomena. Heuristics are not claimed as verifiable accounts that correspond directly to an external, objective reality." (Piantanida et al. 2004)

"comprehensive" data and what Charmaz (2000) refers to as "thorough" data. Drawing from the work of Geertz, Charmaz (2000) goes on to caution that "qualitative researchers should gather extensive amounts of rich data with thick description" (p. 514). The grounded theory convention of theoretical sampling offers researchers guidance about what might constitute relevant sources and types of data.

Assumptions About Sampling—Theoretical Sampling

In considering the issue of sampling in grounded theory research, it is crucial to differentiate theoretical from statistical sampling. Within the post-positive scientific tradition, there are well-developed procedures for obtaining a statistically representative sample of a population that is under study. By following these procedures, researchers can (within the limitations and delimitations of the study) support knowledge claims about the population at large. Sound statistical sampling, then, is a cornerstone for moving from the particular to the general, from the individual to the group.

While some grounded theorists may follow procedures for statistically representative sampling, it is not unusual for practitioner–researchers to gather data from a relatively small number of participants. Further, these participants may be recruited, not at random, but through processes such as self-selection, word-of-mouth referral, and person-to-person contacts. Often these contacts are made within contexts where researchers have existing relationships (e.g., a clinic, school, program), making the "sample" one of convenience. When researchers trained in a post-positive tradition see such an approach to sampling, they may view the knowledge claims of the study with skepticism and dismiss the research findings as unscientific. Such criticism may be justified if interpretive grounded theory researchers have, in the process of "strategically compromising" their language, created mixed messages about the purpose of theoretical sampling and the nature of truth claims supported through such sampling procedures.[4]

To minimize one potential source of confusion, it is useful to make a distinction between small-scale, grounded theory studies carried out by a single practitioner–researcher with minimal funding and large scale studies conducted with major funding under the direction of a principal investigator. Quite possibly, well-funded,

large-scale studies might involve a statistically representative sample of a particular population (e.g., women of advanced maternal age, parents of children with cystic fibrosis, women who received an abnormal maternal serum screen result). If this is the case, it might be possible to warrant a grounded theory that meets the criterion of scientific generalizability. In contrast, studies of a more modest scale might be undertaken as dissertation research or research conducted within a context of practice. It is not unusual for such studies to involve relatively few (often less than 20) participants. Thus, from the outset and by their very nature, such circumscribed inquiries can yield interpretive, but not post-positive, grounded theories.

One assumption underpinning an interpretive approach to grounded theory is the recognition that information provided by participants is only one source of data. Often, researchers will sample additional sources of information—e.g., policy and/or position statements, legislation, published research articles, autobiographical, biographical and/or fictionalized accounts of experiences related to the phenomenon under study. Thus, when working within an interpretive approach, theoretical sampling can be viewed as a conscientious and exhaustive quest for "texts" rich with potential meanings. We use the term "text" in contrast to "data" to signal the socially constructed nature of information.[5] In other words, within post-positivism, reliable and valid "data" are taken to be objective facts representative of some external reality. In matters of human experience, however, interpretivism assumes that humans make meaning of their experience and convey these meanings through written and unwritten texts. Using the concept "text," therefore, acknowledges the fundamentally subjective nature of information.

The aim of theoretical sampling within an interpretive approach is to amass thick, rich texts from both divergent and convergent sources. The intent is not to gather corroborating "facts," but rather to increase a researcher's understanding of the complexities and nuances of the phenomenon under study. Sampling texts from divergent sources helps to challenge a researcher's taken-for-granted assumptions and pre-existing knowledge. Sampling texts from convergent sources allows a researcher to hone a potential point or insight, to probe it more deeply, to get hold of something that might be

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[4] We speculate that such mixed messages contributes in no small measure to concerns about the quality of grounded theory studies that have begun to appear in the literature. See, for example, Stern (1994).

[5] For a more extensive discussion of issues surrounding the concept of "text" in interpretive research see: Atkinson 1990; Barthes 1979; Bazerman and Paradis 1991; Garman 2006; Gergen 1988; Piantanida and Garman 2009; Ricoeur 1981, 1991; Schwandt 1999; Tierney and Lincoln 1997.

important. Thus, in an interpretive approach to grounded theory, theoretical sampling helps to safeguard against premature or simplistic interpretation.

In grounded theory, decisions about sampling and the collection of texts evolve throughout the inquiry process. This evolution occurs as the researcher codes accumulating texts, compares codes, and generates memos about potential meanings of the codes and the texts. Through the interplay of coding, constant comparative analysis, and theoretical memoing the researcher follows the trail of insights emerging through the inquiry.

Assumptions About Making Meaning—Coding, Constant Comparative Analysis, and Memoing

Over the years, we have met a number of researchers who are drawn to grounded theory because it seems to offer a systematic procedure for analyzing, managing, and ultimately reducing massive amounts of qualitative data. With this mindset, a great deal of attention is often given to the mechanics of coding—e.g., how codes will be linked to data sources, where codes will be recorded and stored, whether a computer-based data management program will be used. Overshadowing all of these logistical concerns, however, are two fundamental questions. Who will actually do the coding and what can be done to guard against the coder's bias? As mentioned above in our discussion of theoretical sensitivity, more than one coder may analyze the data in order to increase confidence in the correspondence between the codes, the original data source, and the "reality" the data sources are assumed to represent. When such procedures are included in a description of a study's method, it is likely that the researcher is working within a post-positive paradigm. If, in fact, the study design includes a statistically representative sample, then these post-positive concerns with the reliability and validity of the codes may be necessary in order to warrant the truth claims that will ultimately be generated through the study. However, if the study design never included a statistically representative sample and never aimed to generate post-positivist truth claims, then a different mindset for approaching the process of coding is needed.

Rennie (2006), a grounded theorist working in the field of psychology, makes an observation with which we concur:

> They (Glaser and Strauss) also maintained that the role of the researcher's perspective is so great that different analysts working with the same data could develop alternative theories, which is acceptable as long as all theories developed are grounded in the

data, each in its own way. In my view, in making this observation, *Glaser and Strauss failed adequately to take into account the epistemological implications of this operating from a perspective. It may be supposed that, if indeed the researcher's perspective is involved, the method entails interpretation in a major way* (italics added) (pp. 65–66).

Failing to account for the epistemological implications of researcher perspective in the process of theory development may be a consequence of the time at which Glaser and Strauss (1967) were formulating their argument for grounded theory. They were on the leading edge of shifting assumptions about the nature of knowledge (epistemology) and reality (ontology) in the social sciences. Their language hints at, more than asserts, the interpretive nature of knowledge. Consider, for example, their explanation of the relationship among evidence, facts, and concepts:

> . . .in generating theory it is not the fact upon which we stand, but the *conceptual category* (or a *conceptual property* of the category) that was generated from it. A concept may be generated from one fact, which then becomes merely one of a universe of many possible diverse indicators for, and data on, the concept. These indicators are then sought for the comparative analysis.

> In discovering theory, one generates conceptual categories or their properties from evidence; then the evidence from which the category emerged is used to illustrate the concept. The evidence may not necessarily be accurate beyond a doubt (nor is it even in studies concerned only with accuracy), but the concept is undoubtedly a relevant theoretical abstract about what is going on in the area studied. Furthermore, the concept itself will not change, while even the most accurate facts change. Concepts only have their meanings respecified at times because other theoretical and research purposes have emerged (Glaser and Strauss 1967, p. 23).

In seeing concepts, not facts, as the building blocks of theory, Glaser and Strauss set the stage for an interpretive understanding of grounded theory. Within this perspective, as Rennie (2006) concludes, ". . . even the development of codes involves interpretation. . ." (p. 66). Given this, how might we think about coding, constant comparative analysis, and theoretical memoing.

Within an interpretive approach to grounded theory, we see coding as a process of naming what the researcher–coder sees as important within texts that are collected through the process of theoretical sampling. Because the original texts have been authored by particular individuals occupying particular social, psy-

chological, and cultural positions, they, too, represent a process of naming that which is important to the author. So, for example, when a woman gives an account of being at risk because of her advanced age, she is naming what is important about that experience as she talks with a researcher. The language she chooses simultaneously constitutes and expresses the meaning she has made of her experience of risk—within the context of the interview. It is entirely possible that she might choose to name her experience in different ways at other times, for other audiences, for other purposes. Within this view, the researcher's concern is not whether a participant is giving a truthful account of a fixed experience or singular reality. Rather, the account—the text—is seen as embodying meanings that can be mined for insights into the phenomenon under study.

Rennie (2006) uses the concept of "meaning units" (MU) to explain an interpretive approach to coding:

> In deciding what constitutes an MU, the analyst is alert to the main point or theme of a given passage. We have found that when people are interviewed, they wish to make a point and that, when they have made it, they move on to something else. There's a shift of main meaning. It is as if a given passage is enclosed in what we sense to be an "envelope" of meaning. We declare the material enclosed by the envelope to be an MU. . .The MU is studied carefully, and every meaning that we interpret is represented by a category (i.e., code). (p. 67)

Sometimes, the language contained within original texts is powerfully descriptive or expressive. The researcher, upon encountering such language, decides to retain words or phrases from the original text to flag various meanings within a passage. These words or phrases, drawn from the substance of the original text, serve as in vivo codes. As codes are identified, the researcher begins the process of constant or continuous comparative analysis. Quite simply, the researcher compares and contrasts the codes and makes two interpretive decisions. First, are the codes similar to or different from one another? If similar, they are clustered together. If different, they are kept separate. Second, the researcher names the quality of the clustered codes based on what she or he considers to be their similarities. It is important to remember that the similarities lie within the conceptual relationships that the researcher sees within codes, not necessarily shared characteristics that define a particular experience or group of people. Thus within an interpretive approach the aim of coding and constant comparative analysis is not to push for conformity/uniformity/convergence of patterns but rather to surface nuances of complex and diverse experiences.

The interconnected processes of coding and comparative analysis are interpretive in several senses. The codes themselves are created when the researcher decides that a particular passage of text is meaningful and chooses particular words to name the passage. Passages of text are likely to embody multiple meanings so, in turn, the codes may point to more than one meaning. Thus, codes can potentially be clustered in many different ways depending on what meanings the researcher wants to foreground. Perhaps most crucial is the point that the researcher decides how to name the cluster—it is she or he who decides what is important to name. A cluster of codes is considered a category and the name for categories might come from any number of sources—the original text, other texts that the researcher is coding, published literature, or the researcher's lexicon and imagination. An example of coding from an interpretive grounded theory study (Grubs 2002) is included in Appendix 1.

Throughout the coding and comparative processes, theoretical sensitivity comes into play. What knowledge and sensibilities do researchers bring to their interpretation of the original texts? Are they able to respond empathetically to the meanings; can they recognize meanings that speak to issues or concerns in their field of practice; can they recognize meanings that challenge their preconceptions and assumptions; can they recognize the need for further theoretical sampling and identify sources of potentially informative texts? Through memoing researchers are able to construct an evolving text of their thinking about these types of issues. As Glaser (1978) contends,

> The *core stage* in the process of generating theory, the bedrock of theory generation, its true product is the writing of theoretical memos. If the analyst skips this stage by going directly from coding to sorting or to writing—he [sic] is *not* doing grounded theory. *Memos are the theorizing write-up of ideas about codes and their relationships as they strike the analyst while coding*. . . Memo-writing continually captures the frontier of the analyst's thinking as he goes through either his data, codes, sorts or writes. (p. 83)

As this passage suggests, it is the researcher's capacity to make meaning that lies at the heart of the theorizing process, and it is the act of writing memos where a great deal of the meaning making can occur. Conscientious memoing provides a record of the researcher's insights in a way that lends rigor to the theorizing process. This is not to imply that the memos per se "add up" to the theory, for memos may vary considerably in their conceptual depth. Some may, for example, be notes about possible avenues for theoretical sampling or references to check. Others, however, may reflect the

researcher's initial attempts to (re)construct the thinking that has led him or her to notice and name some aspect of the ground of lived experience. Through this process of "thinking through writing" the researcher can begin to move from the details of idiosyncratic experiences to deeper understanding of key concepts that shed light on the phenomenon under study. Appendix 2 offers an excerpt from a 19 page memo from the aforementioned study of women/couples at risk because of advanced maternal age (Grubs 2002).

This interpretive view of memoing can be troubling to those working within a post-positivist orientation because this process of meaning making is subjective, often intuitive, highly contingent upon the researcher's theoretical sensitivity, and not replicable. However, without exercising such interpretive sensibility, the researcher risks remaining mired in situational details failing to provide a coherent portrayal of either the ground or the theory.

Assumptions About Representation—Reaching Theoretical Saturation, Portraying the Ground, and Generating Theory

We recognize that the concept of portrayal may not be as familiar to some readers as the post-positive concept of "data display." Such displays (e.g., tables, graphs, pie charts) provide a concise report of essential variables and key findings of a study. For interpretive grounded theory researchers, however, the efficiency of such displays does not convey the textured details of the context (i.e., ground) within which the phenomenon under study is embedded. Bruner (1986) uses the concept of "verisimilitude" to describe a portrayal that represents complexities and nuances of a phenomenon in such a way that it is recognized as a "truly conceivable experience." Thus, the challenge for interpretive researchers is to generate a picture (i.e., portrayal) of the ground that allows readers to vicariously share in the experience of research participants. Rendering such a portrayal serves as a starting point for warranting an interpretive grounded theory.

As this perspective suggests, the ground and the theory generated from that ground are inextricably connected. To understand this relationship, the Gestalt concepts of figure and ground offer a useful analogy. Just as seeing an image (figure) against a background brings the figure into sharper relief, seeing a theory against its ground makes its meaning more apparent. In our aforementioned example of being at risk for having a baby with a chromosome condition, the phenomenon under study was the experience of making a decision about prenatal testing and genetic counseling. In order to gain insight into that phenomenon, interview texts were gathered from study participants about their lived experiences of being at risk. These texts constitute the material from which the researcher crafted a representation (i.e., portrayal) of the experience of risk. This portrayal represents the ground of the study. What the researcher chooses to bring into relief against this ground, constitutes the theory of the phenomenon.

Reporting results of a grounded theory inquiry often includes a decision about how to represent the relationship between the figure (theory) and ground (context). This decision may be influenced by space limitations for journal articles or time constraints for conference presentations. In such cases, researchers may choose to describe theoretical core concept(s) and categories propositionally and offer a limited number of illustrative quotes from participants. While such quotes may serve to explain a particular concept, they do not describe the ground with sufficient vitality to render deeper insights into lived experiences of participants. Further, by disconnecting concepts from the ground the warrants for a researcher's theoretic interpretations are not apparent.

Returning to our Gestalt analogy, it is possible for different figures to emerge from the same ground. Embedded within one classic Gestalt picture, for example, are figures of both a young and an old woman. Similarly, in grounded theory different researchers can construct alternative theories from the same ground (Charmaz 2006; Glaser and Strauss 1967). By portraying the theory against the ground researchers make apparent their reasoning for what they are seeing and choosing to name. By explicitly establishing a relationship between abstract propositional knowledge and the descriptive ground from which it is derived, the resulting theory often has an evocative as well as logical quality. In developing a vibrant portrayal of the ground, the grounded theory convention of theoretical saturation is crucial.

Theoretical saturation according to Charmaz (2006) occurs "…when gathering fresh data no longer sparks new theoretical insights…" (p. 113). Given that there is always more to hear and learn about any substantive phenomenon, grounded theory researchers face the challenge of knowing when they have sufficient texts (data) to warrant a credible grounded theory. No straightforward rule can determine when saturation has been reached. Here again, theoretical sensitivity comes into play as the researcher strives to collect thick and rich texts that illuminate the complexity of the phenomenon under study. The failure to collect sufficient texts can lead to a shallow and simplistic portrayal of the ground. In turn, attempts to theorize about such a superficial ground is likely to result in a weak and insubstantial theory. As we have said elsewhere (Piantanida et al. 2004),

grounded theory provides interpretive researchers with a disciplined process, not simply for generating concepts, but more importantly for coming to see possible and plausible relationships among them. It is the researcher's portrayal of these conceptual relationships that constitute a grounded theory. Within an interpretive approach, such grounded theories are understood to be heuristic, not predictive, in nature. An exemplar of a heuristic, in particular a typology, is provided in Appendix 3. The typology was constructed for a grounded theory study to portray how participants appeared to experience and cope with the existential angst associated with being at-risk based on advanced maternal age (Grubs 2002). The typology does not offer "an exhaustive classifactory scheme" (Richardson 1990) which can be generalized to all women and couples who contemplate genetic testing due to advanced maternal age. Rather, the typology helps make visible and generate a deeper understanding of the complex ways in which the participants in the study experienced genetic risk and responded to the offer of prenatal testing. The intent is to provide genetic counselors with a richer appreciation for the experiences of making genetic-related decisions to enhance their chances to better respond to the needs of their clients.

Conclusion

The intent of this article has been to offer some distinctions between a post-positivist and an interpretive approach to grounded theory, and in so doing, to call attention to different inquiry traditions falling under the broad umbrella of "qualitative research." As calls for more qualitative research in genetic counseling are made (Beeson 1997; Grubs 2002; Lippman 1999), it becomes important to understand different assumptions about the nature of knowledge being generated. By making explicit the logics that underpin their research, qualitative researchers can contribute to such understanding. If qualitative researchers make a "strategic decision to compromise their language," they run the risk of obscuring the ways in which their data warrant their knowledge claims. This, in turn, could jeopardize the credibility of qualitative research. In writing this article we wish to encourage more open dialogue about assumptions that underpin various approaches to qualitative research. Just as we hope authors choose to make their assumptions explicit rather than compromise their language, we hope that reviewers will recognize the lenses through which they are critiquing qualitative research. This shared responsibility for advancing the state of qualitative research in the field of genetic counseling is not necessarily easy to carry out. Longstanding and often tacit

assumptions about the nature of legitimate research must be brought to light and carefully examined. This requires collective effort with on-going opportunities for focused dialogue and deliberation. The *Journal of Genetic Counseling* and the Annual Education Conference of the National Society of Genetic Counselors represent important forums within which deliberations about methodology and epistemology can take place. In the long run, strategic decisions about the representation of qualitative research should not rest solely with individual authors or reviewers. Rather, as a field there is value in thinking strategically about the ways in which multiple research traditions can advance the theory and practice of genetic counseling.

Appendix 1-Example of Coding

Excerpts from three interview transcripts are provided below along with their accompanying codes. The interview with Nikki took place early in the study when coding was tied closely to the language of participants. As the study progressed it was recognized that participants often spoke about past events when discussing their experiences. Rather than coding the events separately (e.g., infertility, miscarriage), the codes were clustered under the category of "past events" as shown in the excerpt from the interview with Mary. Participants also described imagining possible future events (e.g., giving birth to a child with special needs) while considering their prenatal genetic testing decision and these events were labeled as "future events." A temporal relationship between the category of "past events" and "future events" emerged. As participants discussed past and possible future events, they appeared to transform complicated biomedical facts into personally meaningful information. This seemed to help them to reach an understanding about what a particular decision may mean within the context of their lives. This connection between temporality and transformation reminded the researcher of *A Christmas Carol* by Dickens. In that story, the main character, Scrooge, undergoes a transformative experience when three ghosts lead him through an exploration of his life shadows from the past, present, and future. For this reason, the label of "life shadows" was used to code experiences upon which participants appeared to reflect as they construed an understanding of what being at-risk, having an invasive prenatal test that carries a risk for harming the pregnancy, and having a baby with a birth defect might mean within

the context of their lives. In the excerpt from the interview with Catherine and Peter, for example, they are discussing the death of Peter's nephew from a genetic syndrome and the impact this loss had on the family. As they considered the risk associated with Catherine's age and prenatal testing, Catherine and Peter reflected upon this death to reach an understanding about what having an affected child may mean within their lives.

Transcripts Excerpts:	Coding:
Nikki: Gary and I have been married for 10 years and we just moved here from California 5 years ago and we started trying to have a baby about 9 years ago and then we finally moved on after a lot of infertility treatment and three and a half years ago we decided to go child-free and (laugh) now I'm in your study.	Tried for 6 years Infertility Child free
**	
Mary: Well, with the first pregnancy actually, um, at 12 weeks I think was about when I was able to get my first OB appointment and the physician's assistant was able to pick up the heartbeat. That was very real for me. Up until that point in time it had been, you know, "well, I'm pregnant but what does this mean?" But to hear the heart beat and that brought tears to my eyes the first time around. Not so much the second time, (laugh), then I'm like lying there going "why aren't I getting all teary eyed this time?" I think because this pregnancy was preceded by the miscarriage, I think I held off getting to heavily vested in it….	Past Events
**	
Peter: Since I knew my baby brother had a baby that was messed up, I think we wanted to know right then and there, too. **Catherine:** But more than the baby being messed up, those people are messed up for life. I mean they are not…they are not getting over this at all…anytime soon. **Robin Grubs:** So that seemed to play an important role. **Catherine:** Oh yeah, it's really hard on the family… **Peter:** It would probably play a bigger part if something was wrong with our baby. I think we would have a better idea what we were going to do now because the baby, we know what a messed up baby looks like.	Life Shadows

Appendix 2-Example of Memo

In this section of the memo, the researcher was attempting to explore the different ways in which several participants (Nickie, Mary, Ron, Dana and Sean) spoke about how the male partner of a couple was involved in making a decision about prenatal testing. In the memo, the interview transcript codes related to the concept of the male partner's role were included so that the codes could be compared.

Excerpt from Memo

When I probed about how they came to the decision to have CVS, Nickie and Mary mentioned that they did not have in depth discussions with their husbands and their husbands did not play a large role in making the decision. Nickie said:

> Well, there was never any real big, long discussion (laugh). We're pretty much… Luckily we think a lot alike when it comes to this. So, it was mainly, it was more, "O.K. when should we do it" you know, and let's do a little research before we go in there so that we have a better idea of our options and maybe we will create some questions.

> *Codes from interview with Nickie*; Talk thru issues; PND-not a lot of discussion; Couple-think a lot alike; CVS-research to find questions; CVS-discussion after research; Spouse harder for him to personalize; CVS-spouse less scared before result; Couple different bonding experience; CVS-results not as intense for spouse; CVS results-spouse dreamed a bit more; CVS-impact of results on spouse; Spouse-more reserved; Spouse wouldn't verbalize it; Spouse just wanted the facts; Age risks-spouse different view; CVS-results less long for spouse; Pregnancy-spouse's life less affected.

Mary spoke several times about how she primarily made the decision while Ron played more of a supportive role. She stated:

> …I have to be honest, I didn't really include him in much of this.

> …everything else he's sort of deferred to me and I think he's happy to leave it like that with the understanding that if I need him, you know, he certainly would be there.

> I think I made the decision (the decision to have CVS) more on my own.

> …I think he was very comfortable with the decision and I think that would've been his decision, as well, I mean if I'd sat there….see, if I had gone to him very

passively and said "it has been suggested or…genetic testing is available to us or offered to us" and didn't, you know, have any opinion and just sort of sat back passively, I think he would have said, "I think this is a good thing for you to do, let's go ahead." I'm confident that he would have come to that conclusion independently, but I think to be honest I think as you said, he was in more of a supporting role. "Oh, this is what you want to do? O.K., that's fine. I don't have a problem with that….blah, blah, blah."

An interesting issue that arose in our discussion was a division of labor in decisions. This was illustrated by their approach to making the decision about prenatal testing (primarily Mary's decision) and the decision about circumcision with their son (primarily Ron's decision). When speaking about deciding whether to circumcise their son, Mary indicated that when the baby is in utero, it is "a very abstract concept." Also, when in utero, it is her problem whereas when ex utero, it is a shared responsibility. Also, she felt that Ron making the decision regarding circumcision allowed him to bond to the baby. The issue of division of labor in decision making is something I should explore in future interviews.

> *Codes from interview with Mary*: Spouse not included in much; Spouse supportive; Spouse anxious about testing; Spouse deferred decisions to wife; Spouse would be there, if needed; Spouse is superstitious; Male vs female differences; Spouse less likely to talk of abn; CVS-wife made decision; CVS-spouse comfortable with decision; Spouse comfortable with decision; Spouse would make same decision; Spouse-followed OB recommendation; Spouse not able to attend OB visits; Spouse went for certain OB visits (Spouse's work makes it inconvenient); Decision about circumcision; Spouse made circumcision decision; Circumcision decision nice start for; Circumcision decision helped bonding; Circumcision decision & responsibility; Couple puts off decisions; Division of decisions; Balancing pros and cons; Pros and cons are equal; Education is important to couple; In utero-woman's responsibility; Ex utero-couple's responsibility; In utero-baby abstract concept.

Sean told me how he felt the decision was primarily Dana's. He said:

> …I said "well, it's entirely up to you." I mean here's my thing; I said "it's your body, if you want to risk that." I mean I don't know at the very end how I'd feel.

> Well, you know, I was only part of it…when…the conception, everything else is going through her body. She has to watch, you know, what she eats, drinks,

whatever and anything that goes into her mouth affects the baby. Anything that's pronged, you know, poked, or anything affects the baby, any drug, whatever. And it's her decision, I mean, I can give her my view on it, on how I feel about certain procedures or whatever, but ultimately I think it should be her choice because it's her body that's being affected, no matter if their checking for the baby, their also checking her, something could happen to her, its going to affect the baby and vice versa and, um, I just want her to, you know, no matter what she has to do she has to take care of her body first, because, you know, because we can always have another baby, but she's first. I mean I'm attached to her, I'm not attached to the baby yet, I am, but she's more important to me at this moment at that time.

Codes from interviews with Dana and Sean: Decision-couple agreed; Spouse deferred decision to wife; Spouse-it's your body; Spouse-supportive; Spouse-said if you want to risk that; Spouse-didn't know how he'd feel; Spouse-I was only part of it; Spouse-mom & baby are one; Spouse-wife is primary concern; Spouse-testing affects wife; Spouse-fascinated with preg process; Wife-doesn't think of self just baby.

It appeared that Nickie's husband, Ron, and Sean were involved in different ways in the prenatal genetic testing. Although their involvement varied, Ron and Sean eloquently described the emotions they experienced as they thought about being at-risk and having to make a decision.

I need to search in the genetic literature for articles that describe the role of male partners in genetic-related decision making.

Appendix 3-Example of Theoretical Portrayal

A narrative typology was constructed for a grounded theory study to portray exemplars of how participants appeared to experience and cope with the existential angst associated with being at-risk based on advanced maternal age and making decisions about genetic counseling and genetic testing (Grubs 2002). The typology emerged as the researcher resonated with aspects of existential angst embedded in participants' stories.

Submerging the Angst—the perception that prenatal genetic testing offers a sense of control and a way to transcend one's "biological destiny" (Newman 1997) may allow a woman/couple to submerge the angst associated with the possibility of receiving an abnormal result. In addition, when a woman believes that the primacy of the pregnancy and prenatal testing experiences belongs to her, she may submerge her partner's angst while she focuses primarily on her own feelings and wishes.

Facing the Angst with Faith—the notion that faith in God would provide a protective shield against the risks associated with a woman's age and would ensure a destiny free of unmanageable challenges.

Evading the Angst—the recognition that a decision about testing needs to be made but allowing time to pass so that testing is no longer an option may allow a woman/couple to evade the angst generated by being at-risk and facing genetic-related decisions.

Focusing the Angst—the act of focusing fears on issues unrelated to being at-risk so that the implications of facing genetic risk and the consequences of making genetic-related decisions can be ignored.

Sharing the Angst—the commitment to sharing experiences and making decisions together as a couple to cope collectively with the angst created by being at-risk and facing a decision about prenatal genetic testing.

Containing the Angst—the desire to avoid services such as genetic counseling that have the potential to heighten a woman's/couple's angst by reviewing genetic risks and relevant testing options as well as psychosocial ramifications of testing.

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