Collaborative Approaches to the Digital in English Studies

CHAPTER	1
TITLE	Collaborative Methodologies for New Media Research: Using Grounded Theory and Contextual Inquiry
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OVERVIEW	Scholars in English and writing studies are starting to draw techniques from research methods such as grounded theory and contextual inquiry in order to represent the ever-shifting sites and agents involved in the production of new media texts. This chapter explores how grounded theory and contextual inquiry have been used to organize studies where multiple forms of data are collected and analyzed, interdisciplinary research teams are involved, and the study outcomes are empirical, theoretical, and applied. Grounded theory and contextual inquiry are presented within their historical contexts as methods developed within sociology and technical communications. The potentials of these methods for work in English and writing studies is demonstrated by three samples: (1) a study of the impact of IT in elementary school language arts classes, (2) an examination of a management writing course delivered via interactive video technology, and (3) an investigation of how information technologies and practices shape communication at a hospital. Eight promising features of grounded theory and contextual inquiry for English and writing studies are discussed at the end of the chapter.
TAGS	collaborative, contextual inquiry, data, grounded theory, interdisciplinary, methods, methodologies, new media, research
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Collaborative Methodologies for New Media Research: Using Grounded Theory and Contextual Inquiry

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Over the past decade, we have seen research projects outgrow traditional English and writing studies models that put one person in conversation with textual data. Instead of producing solo interpretations (albeit socially and culturally situated in their sites of production), researchers are now more likely to grapple with the ever-shifting sites of production and consumption of new media literacy. These locations can range from elementary classrooms where IT is being integrated into the language arts curriculum to offices where IT is reshaping workplace literacies to virtual sites where writers compose with emerging text tools such as Twitter.

Studies of these digital tools, the texts they create, and the user practices they engender work best when they take into account multiple stakeholders and shifting epistemological frameworks. When we applied grounded theory or contextual inquiry to studies of distance learning (Neff & Whithaus, 2008; Whithaus & Neff, 2006), writing across the disciplines (Neff & Whithaus, 2008), communication technologies and processes in hospitals (Bartocci, Potts, & Cotugno, 2008), the development of genres in tweets (Whithaus, 2008), and integrating technology into elementary school curricula (Whithaus, Moore-Pewu, & Riley, 2009; Whithaus, Moore-Pewu, & Sinha, 2009; Whithaus, Senna, Sinha, & Wong, 2010), our experiences taught us important lessons about methodological choices, and they illuminated ways in which traditional methods may need to be modified as researchers begin to account for the practices employed in new media composing. Our goal in this chapter is to explore grounded theory and contextual inquiry for researching new media projects because these methodologies encourage multiple types of data collection and analysis; support cross-disciplinary and collaborative perspectives; and produce empirical, theoretical, and applied outcomes.

How grounded theory and contextual inquiry enable cross-disciplinary collaboration and fuller understandings of how new media technologies work can be seen in one of the early studies of Twitter (Whithaus, 2008). In the fall of 2008 and winter of 2009, Twitter was in transition between a stage of emergence and wider acceptance as a tool for writing. Twitter was becoming more known, but its

audience was still much smaller than that of social media sites such as Facebook. Its under 140-character rule was a strict limitation on form; however, differences in styles of tweets could be seen and analyzed. For instance, on Super Tuesday (February 2008), one could track Twitter posts from around the United States about the primary election results. These tweets included posts from local news affiliates as well as from individuals. They could be followed using Google Maps to see pop-ups from around the country and see the election results being announced and spun in real time. On Super Tuesday, Twitter provided a site where multiple authors with various agendas wrote using a relatively new tool for text production and distribution—yet, within these different postings text types could be identified. These text types show ways in which distinctive genres may be developing as writers work with Twitter as a tool. The tipping point for Twitter may very well have come in June 2009 during the aftermath of the Iranian election. To understand the future of writing, we need close textual analyses of emerging forms, but we also need theories of genre that highlight the interplay between formal text structures and social interactions.

Analyzing the development of genres within tweets works at the seams of writing studies and computational linguistics. North American writing studies has tended to define genre as fluid, socially constructed, and always changing descriptions of documents embedded within activity systems (i.e., Russell's [1997, 1999], Miller's [1984, 1994] and Spinuzzi's [2003] work based on Bakhtin's semiotic theory of genre). In contrast, applied linguistics and Australian and European writing studies have been more willing to identify text types as fixed forms associated with and used by groups with social power (i.e., Kress's [2003] and Cope and Kalantzis's [1993] works based on Halliday's systemic functional linguistics). The vast textual corpora produced in Twitter provide an ideal ground for analyzing the development of genres within a new media tool. Coding samples of tweets according to Halliday's systemic functional linguistics can help writing researchers establish working definitions of text types or emergent genres. Bakhtin's theory of genre as speech act can be used to contextualize these text types within a field of social interactions. This type of research framed by grounded theory or contextualized inquiry methods, then, can describe the dynamic genre conventions being used in an emergent writing tool (Twitter) and can attempt to balance genre analysis based on systemic functional linguistics' social semiotic approach with a poststructuralist, Bakhtin-influenced approach to genre as a more fluid, highly contingent social creation.

Grounded theory and contextual inquiry can bridge the gap between humanities-based and social-science-based understandings of writing and genre, and they

hold particular promise for studies of new media literacies. Many disciplines accept grounded theory and contextual inquiry as legitimate methodologies, so a team composed of scholars from different disciplines already shares a methodological sensibility and can get a faster start on a complex interdisciplinary study or a study that requires multiple subject-matter experts. Disciplines such as sociology, criminal justice, business, education, counseling, and health sciences publish research that uses grounded theory and contextual inquiry methods. Because grounded theory and contextual inquiry actively seek participant perspectives and willingly construct research subjects as co-investigators during data collection and analysis, they are collaborative by definition as well as by design.

PART I: DEFINING AND LOCATING GROUNDED THEORY AND CONTEXTUAL INQUIRY FOR NEW MEDIA RESEARCHERS

Taken together, grounded theory and contextual inquiry are part of an epistemological shift in empirical research and provide a variety of techniques for collecting data about how material conditions shape the production of knowledge and effectiveness of communication when new media technologies are used. Further, both methods emphasize the potential for researchers and research subjects to apply the knowledge gained from empirical research to writing practices and to reshape those writing practices and the information technology tools used in those activities. Sketching the histories, epistemological bases, and techniques of grounded theory and contextual inquiry opens discussion about how these empirical methods can be used by writing and new media researchers.

In this section, we define grounded theory and contextual inquiry and offer a brief history of their applications in writing studies and technical communication. We then review relevant adaptations of these methodologies by Kathy Charmaz (2006), Adele Clarke (2005), Clay Spinuzzi (2005), and Hugh Beyer and Karen Holtzblatt (1998). Charmaz and Clarke have remediated the epistemological basis of grounded theory to emphasize its adaptability for constructivist researchers; Spinuzzi has adapted activity theory to enhance user-centered design projects; and Beyer and Holtzblatt have developed contextual inquiry as a method of incorporating effective workarounds adapted by individual participants and users into larger workplace-based communication systems. For example, Clarke adds to grounded theory with her strategy of situational analysis, which is a way of mapping the intersecting social worlds where a study is located. And while Spinuzzi and Beyer and Holtzblatt offer discrete, practical techniques for incorporating insights from individual actors into qualitative research projects,

their studies challenge existing epistemologies in technical communication in ways similar to Charmaz's and Clarke's adaptations of grounded theory. As collaborative research techniques, these advances in grounded theory and contextual inquiry have created ways of capturing more complete data sets and producing more rigorous analyses than traditional English and writing studies models that privileged solo interpretations of texts and surrounding contextual data.

Grounded Theory

Grounded theory is an interpretive methodology developed by Barney Glaser and Anselm Strauss in the 1960s for sociological research and for the "discovery of theory from data" (1967, p. 1). Through systematic approaches to data analysis, grounded theory methods lead to better understandings of "interaction processes and social change" (Strauss, 1987, p. 6). In grounded theory, analysis begins early in the data collection phase. Researchers use a specified set of procedures, including coding, constant comparison, and returning to the field to further test emerging patterns, to discover conceptual relationships, and to generate theory from data. Eventually, the emerging categories become fewer and the final core categories become more inclusive. The dimensions and properties of core categories are further tested through theoretical sampling, a process in which the researcher reviews data "on the basis of concepts that have proven relevance to the evolving theory" (Strauss & Corbin, 1990, p. 176). Theoretical sampling provides a means of checking for confirming and disconfirming evidence.

The methods of grounded theory leave a paper trail of memos, matrices, and other graphics that document the researchers' moves between data and theory (see Lempert [2007] on memo writing). The video below features Elizabeth Vincelette recounting her application of grounded theory methods to a National Public Radio *Talk of the Nation* transcript. Vincelette coded the transcript multiple times, beginning with Charmaz's (2006) suggestion to use gerunds as category names. Vincelette then moved to color coding to better see emerging categories. Her final rounds used Clarke's (2005) method to generate situational maps.
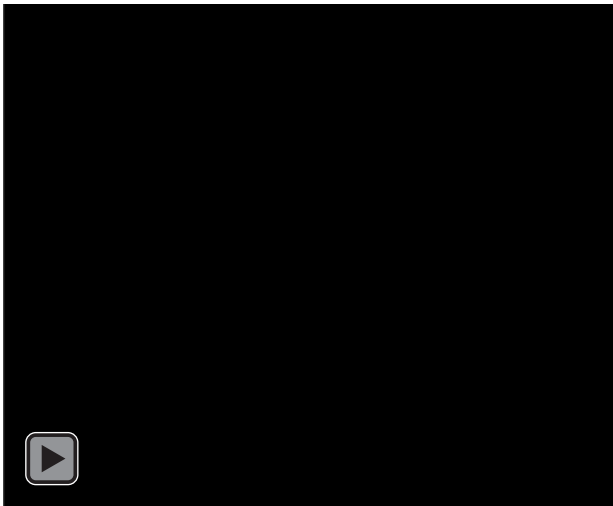
See [Appendix A](#) for transcripts of both videos included in this chapter.

Vincelette's rounds of coding illustrate Strauss and Corbin's (1994) emphasis on the iterative nature of the analytic process: "Grounded theory methodology insists that no matter how general—how broad in scope or abstract—the theory, it should be developed in that back-and-forth interplay with data that is so central to this methodology" (p. 282). The outcome of the methodology is an explanatory theory that adds to our understanding of complex interactions such as teaching and learning. Piantanida, Tananis, and Grubs (2002) put it this way:

> Concepts, as Glaser and Strauss (1967) remind us, are the building blocks of theory. The procedures of grounded theory provide 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 constitutes a grounded theory. Within an interpretive epistemology, such grounded theories are understood to be heuristic, not predictive, in nature. (p. 3)

Grounded theory has been used in a limited number of studies of writing and technology. Sue DeWine's "Student Journals in the Communication Classroom" (1978) and David Schuelke and Thomas King's "New Technology in the Classroom" (1983) represent two early accounts. In 2002, Marion Adler examined a creative writing curriculum for adolescents as her dissertation project. The concepts of "writing as play" and "balancing rules and freedom" emerged from her analysis. One implication of Adler's study is that "students need enough structure to keep play functional yet enough freedom to allow it to

do its work" (Adler, 2002, Abstract). Once a concept like "writing as play" emerges as a core category, researchers can generate hypotheses that theorize the concept's explanatory usefulness. The annual meeting of the Conference on College Composition and Communication (CCCC) has featured a few panels and pre-conference workshops on grounded theory (e.g., Neff, Farkas, Jordan, & Vincelette, 2008), and the Research Network Forum at CCCC draws a few participants who are using grounded theory methods. Grounded theory is mentioned as an analytic tool in the May 2009 issue of *Research in the Teaching of English* in an article by Jane Agee and Jeanette Altarriba titled, "Changing Conceptions and Uses of Computer Technologies in the Everyday Literacy Practices of Sixth and Seventh Graders." Agee and Altarriba (2009) built a database from surveys, literacy inventories, classroom observations, reading protocols, and individual interviews, and they analyzed the interview transcripts over an eight-month period using coding to tease out patterns and develop categories and concepts. They found differences in "how students with different abilities and preferences defined themselves as readers, what they thought about computer technologies, and what role these technologies had in their lives in and out of school" (p. 379). Grounded theory led Agee and Altarriba to "three categories of use (school related work, personal entertainment/knowledge, and social networking) and three categories of conceptions (personal relevance, trustworthiness, and difficulty of use) that represented themes in these students' responses" (p. 375). In spite of these interesting projects, the full potential of grounded theory for studying new media literacies remains largely untapped.

As is true for most methodologies, grounded theory is not static. Since its beginnings, scholars have adapted the procedures to suit their research questions and contexts (Covan, 2007), including those who place more emphasis on coding and constant comparison than on the development of substantive theory. In other words, some studies result in a description or case analysis rather than a grounded theory. (See Jane Hood's [2007] "Orthodoxy vs. Power: The Defining Traits of Grounded Theory" for a discussion of the distinctions between grounded theory and generic inductive qualitative methods.) In the early 2000s, Kathy Charmaz put a social constructivist spin on grounded theory. In 2003, Adele Clarke introduced situational maps as visual tools that further elucidate human and nonhuman elements, social worlds, and positionality within grounded theory studies. Situational maps increase the degrees of complexity that researchers can tease out from data, and they take advantage of the postmodern turn in empirical work. (See Greckhamer and Koro-Ljungberg, 2005, for a critique of these adaptations).

Contextual Inquiry

Contextual inquiry emerges from a developing sense of the importance of audience and research subject participation in the interpretation of data about complex social processes. Robert Johnson (1997) acknowledges that "the involved audience is an actual participant in the writing process who creates knowledge and determines much of the content of the discourse" (p. 363). This emerging sense of audience and subject participation in the creation of knowledge about daily practices is integrated into the basic principles of contextual inquiry. Generally, user-centered design is understood by practitioners to mean creating products from the user's perspective (Saffer, 2007) and is often associated with participatory design methods (Spinuzzi, 2005). Recognizing that we should be collaborating with users rather than designing without them, user-centered design researchers bring to fruition the notion of collaboration and participation, granting that "the purpose of public discourse will not be to persuade but to participate in an ongoing exchange of ideas with other people and other cultures" (Zappen, 2004, p. 161).

The four principles of contextual inquiry as set forth by Beyer and Holtzblatt (1998) are highlighted in the video below. These principles include context, partnership, interpretation, and focus. Beyer and Holtzblatt (1998) explain them as follows: "context, go where the work is and watch it happen; partnership, talk about the work while it happens; interpretation, find the meaning behind the customer's words and actions; and focus, challenge your entering assumptions" (p. 77). In the video, Dave Jones and Liza Potts enact a data-gathering session using the four principles. The session takes place in the Center for Mediated Experience Lab in the English Department at Old Dominion University.
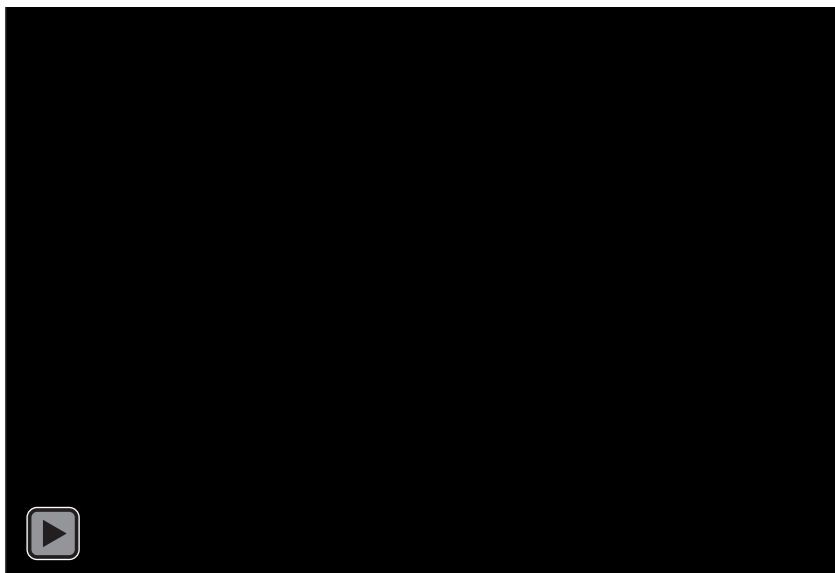
Researchers apply contextual inquiry, a methodology based on ethnographic methods borrowed from anthropology, to designing digital experiences such as software applications, Web sites, and service design projects (Potts & Bartocci, 2009). Such collaborations between researchers and participants "build on natural human ways of interacting" (Beyer & Holtzblatt, 1998, p. 41). Researchers conduct contextual inquiry at the location where the participant accomplishes whatever tasks need to be studied. Locations such as hospitals, schools, homes, and offices are all relevant places where work happens, and designers must travel to them to understand the contexts in which people accomplish their work. Within these spaces, the researchers are encouraged to "interview, apprentice with, and interpret the resulting data with users" (Courage & Baxter, 2005).

The goal of gathering these insights is either to improve current processes and technologies or to create new ones that are based on actual user behaviors and goals. To "co-design the system with users" (Beyer & Holtzblatt, 1998, p. 370), researchers are encouraged to immerse themselves in their user's culture and work process. Whereas other techniques such as usability testing and surveys distance the researcher from research subjects, contextual inquiry is "apprenticeship compressed in time" (Beyer & Holtzblatt, 1998, p. 46). The apprenticeship is not meant to instruct the researchers on how to do the work so much as it is meant to educate the researchers on the context in which the work takes place so they can design technologies to support it (Beyer & Holtzblatt, 1998, p. 46). Incorporating local, situational elements into empirical studies is an aspect of the postmodern turn in qualitative studies and reflects Charmaz's (2006) and Clarke's (2005) adaptations of grounded theory.

In order to understand the environment and daily experience of the participant, the researchers prepare a set of questions ahead of time, which they use to prompt the participant during the field study phase. Typically, these questions lead to information not previously investigated, such as current limitations of the system. Often, contextual inquiry allows the researcher to learn about new workarounds invented by the participant. Sometimes these workarounds can be integrated into the system; at other times they are best left as unofficial workarounds shared by expert users within the community. Current industry practices are more aligned with recent work in user-centered design for interfaces and systems (Potts, 2009; Potts & Bartocci, 2009; Slattery, 2007; Spinuzzi, 2002; Swarts, 2007). Examining the locations of use provides a way for the designer to understand macroscopic processes and how they may relate to microscopic tasks that can be supported by technology and design choices.

On location, the researcher sits next to the study participants both to observe their everyday work activities and to inquire as to how these activities are accomplished. While Beyer and Holtzblatt (1998) recommend fifteen to twenty participants, Courage and Baxter (2005) state that four to six is more common in industry practice (p. 581). These field study sessions are often recorded, either with video cameras, which can be intrusive, or with audio recorders, which are generally seen as less intrusive. The researcher takes notes during these sessions, and any materials offered by the participant, such as personal notes or office procedures, are also gathered. In industry settings, it is best for two researchers to be present: one to interact with the participant and the other to take notes. This is done to gain rapport with the participant as well as to avoid overwhelming the participant with too many observers (Courage & Baxter, 2005, p. 596).

The researchers then analyze these observations and interviews. Looking for patterns across participants, the researchers construct process diagrams, use cases, and other materials (Bartocci, Potts, & Cotugno, 2008). Such materials either support the design process or lead to further research such as affinity diagramming, card sorting, and usability testing.

Potential of Grounded Theory and Contextual Inquiry for New Media Research

Both grounded theory and contextual inquiry emphasize research methods that account for multiple stakeholder views, shifting epistemological frameworks, and anti-foundational, anti-essentialist interpretations of data gathered in empirical research projects. Aligning these two methods as a means of understanding how new media technologies are affecting literacy practices in school, work, and leisure activities offers writing researchers the potential to produce studies that are rich in situational detail and yet have testable and reliable findings with potential applicability to other sites or tasks. These findings and their applications for developing new literacy practices and new information technology tools enable writing researchers to contribute to the building of knowledge about new-media literacy practices.

Studies in nursing (Kearney, 2001), aging (Covan, 2006), chronic illness (Charmaz, 1993), teaching (Whithaus & Neff, 2006), women's studies (Hesse-Biber, 2006), hospitals (Bartocci, Potts, & Cotugno, 2008), and other social processes (Potts, 2009) confirm our claim that grounded theory and contextual inquiry are especially appropriate for studying complex, situated activities such as composing new media, and for collaborative research that encourages

participation by multiple team members. Grounded theory unpacks the theory-practice binary and requires a reflective stance; we see similar moves in contextual inquiry's emphases on context, partnership, interpretation, and focus. As Neff (2002) argued in a previous study, "Grounded theory is, itself, a critical research practice with the potential to help compositionists work the borderlands between scholarship and teaching" (p. 132). This emphasis on an interplay between theory and practice, between scholarship and teaching, and between user-centered design research and professional communication underscores grounded theory's and contextual inquiry's shared epistemologies. The various techniques developed by grounded-theory and contextual-inquiry researchers are integral to the building of knowledge about literacy practices in new media environments. To understand and map these techniques, we turn to in-depth examples of new media studies that employ them.

PART II: THREE EXAMPLES OF GROUNDED THEORY AND CONTEXTUAL INQUIRY IN NEW MEDIA RESEARCH

This section of the chapter analyzes recent uses of grounded theory and/or contextual inquiry in studies of new media writing. Specifically, we look at studies of the impact of integrating information technologies into the language arts curricula of three elementary schools, the video versus textual aspects of a mediated management writing course delivered from a distance, and technology uses at a hospital. At the end of this section, we diagram and compare the analytic steps taken in these studies with attention to the outcomes and action components of each.

Impacts of Integrating Information Technologies into the Elementary Language Arts Curriculum

To understand how information technologies can be implemented in fourth- and fifth-grade classrooms is a difficult task. Teachers, principals, students, parents, and experts in language arts curriculum development and educational uses of IT all play a part in this sort of project. Grounded theory provides a methodology for bringing together these participants from multiple disciplines and professions when evaluating how the integration of multimedia reading and writing activities improves student performance in language arts. The project under review (Whithaus, Pewu-Moore, & Riley, 2009) targeted fourth- and fifth-grade students at three elementary schools in California's Central Valley. The project team included three school principals, nineteen teachers, three experts in educational uses of IT, four experts in language arts curriculum development (writing project

Teacher Consultants), and six project evaluators, drawn from writing, education, and cultural studies.

Participating fourth- and fifth-grade teachers connected with university and community partners to examine and implement twenty-first-century strategies and resources. This collaboration and professional development was intended to make California's rigorous content standards in language arts attainable for all 452 students involved in the study. Staff development at the sites included training and support on how new technologies can transform the delivery of the language arts textbook ([Open Court](#)) from the traditional workbook approach to a highly participatory, interactive multimedia program that actively engages students in the learning process and requires them to problem-solve, communicate, create, and share.

Targeted teachers participated in forty-two hours of professional development on information and communication technologies followed by hands-on explorations with specific Web 2.0 tools (blogs, wikis, podcasts, and multimedia applications) that "powered up" Open Court lessons and engaged students in the learning process. Literacy consultants modeled teaching strategies and lessons aligned to the textbook and also provided pre- and post-writing assessments. Technology specialists provided training and support in selected applications. Targeted teachers also participated in twelve hours of follow-up activities in which they shared the successes and challenges associated with moving their teaching—and their students—into the twenty-first century.

Grounded theory played a key role in the assessment and research components of the program. Teachers conducted regular assessments of student progress in language arts. Student performances were assessed using multiple measures that examined the development of digital literacy practices and forms of conventional academic writing. Using grounded theory, the research team created a formative and summative evaluation plan that assessed the impact of technology integration on student performance and determined evolving staff development needs. This process could be seen as a social impact assessment/needs assessment in contextual inquiry. Open and axial coding techniques were used to arrive at core categories and then confirm those categories' accuracy and usefulness with participating teachers. The project team forged strong connections between student performance assessment, technology training, and curriculum integration.

Using grounded theory, the research and assessment team helped the schools embrace new opportunities for teaching and learning in a digital age, established

clear and measurable improvement goals, and used data to guide action and practice. The preliminary findings from this study indicate an increase in student achievement of 27.5 percent in technological literacy skills and 10.2 percent in the print-based literacy skills tested on statewide standardized assessment. These efforts provided students with relevant and engaging reading and writing experiences, resulting in strong academic gains, and, more importantly, students becoming prepared to live, learn, and thrive in the twenty-first-century workforce.

[The Enhancing Education Through Technology](#) project is significant in terms of collaborative, empirical research methods because it draws together a diverse group of stakeholders and researchers. Using grounded theory as the key methodology in the evaluation portion of the project allowed the research team to gather data and test open and axial coding categories (i.e., preliminary analyses) with participants' experiences. The input from participating teachers, teaching consultants, and school district staff and administrators allowed the research team not only to sketch out formative feedback, which could shape the project's implementation during year two, but also to confirm/disconfirm the researchers' analyses of the data. In some cases, the teachers' commentary on the data caused the research team to discard some categories and reshape others; in other areas, the teachers' commentary confirmed the importance of a line of inquiry and encouraged the gathering of further data to illustrate the dynamics in that area.

A Mediated Writing Course Delivered from a Distance

In "Contact and Interactivity: Social Constructionist Pedagogy in a Video-Based, Management Writing Course," Whithaus and Neff (2006) analyze the impact of video-based media on the delivery of a management writing course to distance learning students. This study demonstrates one way in which grounded theory can be used to account for the experiences of a variety of stakeholders interacting with content across a variety of media. It also highlights the ways in which grounded theory can enable a collaborative research process involving a teacher-researcher examining her own pedagogical practices and an outside researcher interested in issues of media and content delivery.

Using grounded theory to analyze their data, Whithaus and Neff (2006) identified two core categories (contact and interactivity) and four subcategories (presence, control, dialogue, and liveliness). *Contact* dealt with technological connections among participants, while *interactivity* involved exchanges between the teacher and students. *Presence* and *control* were subsets of *contact*, and *dialogue* and *liveliness* were subsets of *interactivity*. Both *dialogue* and *liveliness* were seen as

forms of interactivity, but they were coded as *dialogue* when teacher directed; and when the discussion moved in a different direction—driven by the students and by its own internal logic and intensity—it was seen as *liveliness*. Coding for liveliness was a way of acknowledging those moments of unpredictable interactions among teachers and students enabled by the distance learning technology tools. The possibilities of allowing more moments of liveliness were identified as a means of using distance learning technologies to make the courses more student centered. Whithaus and Neff's (2006) analysis of these categories revealed that for distance learning students, active learning may occur more readily during the spontaneous (i.e., "lively") discussions enabled by video components than during text-based forms of interaction. As a methodology, grounded theory provided techniques that supported the analysis of students' reactions in three different environments—within the studio classroom, at remote studio classrooms, and at home on isolated computer terminals. The researchers incorporated interviews with instructional assistants, studio engineers, and distance education administrators into the study's data collection to provide a fuller, richer context.

The impulse to work with multiple stakeholders and examine their reactions to content in a variety of media-delivery systems shows grounded theory's usefulness for studying how material conditions of texts impact the production and reception of new media. The products of the course were students' written texts (memos, business plans), yet the digital learning spaces examined in the study were both products and processes of learning. As a research methodology, grounded theory insists on capturing and including as much contextual data as possible. Having a research methodology that supports analysis of multiple forms of text is vital for studying learning and writing environments mediated by or created through digital technologies. Understanding the significance of these texts and the activity systems in which they are embedded is achieved by generating working categories through open and axial coding and then confirming those theoretical categories with the experiences of multiple research participants. Further, in this instance, grounded theory facilitated collaboration between a teacher-researcher studying her own class and an outside researcher focused on questions about the impact of IT. Each participant provided his or her perspective and contributed to data analysis, theory development, and production of research reports. An eventual outcome was the redesign of two classrooms to increase synchronous video capabilities and opportunities for liveliness.

Investigating Communication Technologies and Processes at a Hospital

In "Communicating Ethnographic Findings Effectively Within Multidisciplinary Teams and to Your Client," Bartocci, Potts, and Cotugno (2008) discuss how they communicate ethnographic findings across teams and clients. In their study, the researchers assessed the communication landscape of a small hospital in order to develop recommendations to "bring their data collection, analysis, communication and planning out of the paper-and-pencil age" (Bartocci, Potts, & Cotugno, 2008, p. 99). The artifacts that resulted from this study aimed to solve communication, technology, and process issues for the hospital staff.

The team was comprised of representatives from various fields including design anthropology, information architecture, software development, visual design, project management, and content quality. Such diversity allowed different members to focus on different aspects of the people and technologies with which and the settings in which they worked. The team's diverse makeup was a key component to understanding the context of use for these processes, systems, and technologies. In this case, context is described as "the physical setting, the particular business culture, and the goals, standards, rules, and regulations" of the hospital (Bartocci, Potts, & Cotugno, 2008, p. 99). The value of contextual inquiry is how it encourages active participation within these cultures. While it has been argued that contextual inquiry can be too focused on general process issues (Spinuzzi, 2002), in industry practice, contextual inquiry can be employed to look at specific issues, while a less formal practice referred to as "deep hanging-out" can be used to examine holistic issues (Courage & Baxter, 2005).

In order to better understand the hospital context, the team used numerous ethnographic approaches. Methods included contextual inquiry coupled with focus groups, stakeholder interviews, user interviews, facility tours, and demonstrations of the hospital's technology (Bartocci, Potts, & Cotugno, 2008, p. 100). Obviously, diverse stakeholder backgrounds can cause communication issues, many of which can be avoided by creating common documents that can allow for cross-disciplinary collaboration. It is for this reason that Bartocci, Potts, and Cotugno (2008) recommended the use of a common document set from which different information could be captured, cataloged, and defined. Altering the structure of the traditional data inventory, which is a tool used in technology work to define where data comes from and where it goes, the team was able to capture activities outside of technology systems to include more holistic, natural workplace experiences such as writing on blackboards, walking paperwork from one floor to another, and reserving rooms on whiteboards (Bartocci, Potts, & Cotugno, 2008, p. 100).

The deliverables of this research were a data inventory, a gap analysis derived from user needs and technological limitations cataloged in the data inventory, and a feature set describing technological and process solutions based on the gap analysis (Bartocci, Potts, & Cotugno, 2008, p. 100). In this case, the results of these field studies were applied outcomes that would allow the researchers' client to address pressing issues. By encouraging participation during these contextual inquiries, the research team was met with eagerness and a high level of involvement by the hospital leadership and staff. Through these documents, the team was able to narrow down rich, contextual data to specific action items resulting in a recommendation set that was communicated to the staff leadership (Bartocci, Potts, & Cotugno, 2008, p. 99).

Comparison and Discussion of Three Sample Studies

New media forms of writing have had an impact in each of the studies discussed in this section. In the Enhancing Education Through Technology project, the integration of opportunities for new media composition into fourth- and fifth-grade classes has changed how teachers and students conceive of, and practice, literacy—reading and writing are no longer only about handwriting and printed books. They now include computer screen time, keyboards, and digital audio and video recorders as literacy tools. For the teachers, students, and staff involved in delivering the management writing courses through a distance learning platform, the opportunities to learn how to write effectively have been changed by the modes of delivery. In the hospital case study, technology-based communication systems were not capturing all the available information; changes in how IT was used—informed by the research—impacted how information was managed in the hospital. Because the collaborative research projects drew on grounded theory or contextual inquiry, changing information technologies not only reshaped these environments but also impacted participants' lives.

To understand how grounded theory and contextual inquiry work as collaborative research methods, we can compare the analytic steps, action components, and multiple outcomes of these studies with attention to the action components of each (see Table 1).

Table 1. **Comparison of Analyses, Actions, and Outcomes in Three Sample Studies.**

ANALYTIC STEPS	ACTION COMPONENTS	OUTCOMES
Project 1: Enhancing Education Through Technology (integrating IT into 4th- and 5th-grade ELA)		
Open coding, axial coding, development of core categories, core categories confirmed/disconfirmed with research subjects Research process developed by a team that included researchers from writing studies, education, and cultural studies as well as active participation by research subjects (teachers, teaching consultants, school district staff and site administrators)	12 professional development workshops 30 site visits to the elementary school classrooms to observe teachers' and students' use of the technology in the English/Language Arts curriculum Weekly meetings of the research and evaluation team 3 full project team meetings (Attendees included the 3 school site principals, the school district project coordinator, the project consultant, a writing project coordinator or teaching consultant, and the 3 members of the research and evaluation team) • Opening meeting with EETT project team to outline implementation plans for the project and answer questions about the process • Mid-year meeting with EETT project team to review progress made and refine activities for the next 6 months • 3rd quarter meeting with EETT project team to review progress made and refine activities for the next 3 months and	Mid-year Report to the California Department of Education (Feb. 2009) Annual Report to the California Department of Education (Sept. 2009) Students receive awards at district-wide film festival (Apr. 2009) Family literacy nights and Internet safety nights are held at each of the three school sites. Presentation at Computers and Writing Conference (June 2009 in Davis, CA) Presentation at National Conference of Teachers of English (November 2009 in Philadelphia, PA)

	plan for implementation of the 2nd year of the project	
Project 2: Management Writing		
Open coding, axial coding, development of core categories (2 core categories; 4 subcategories), core categories confirmed with research participants Research process developed by a team that included a teacher-researcher and an outside researcher	Instructor's written reflections on a teaching journal kept during the course Data set included group and individual interviews with students, instructional assistants, engineers, and administrators during and after the course • videotapes of class sessions • memos that captured team negotiations during coding sessions	New designs for ITV studios when 2 more rooms were brought online. New studios now have 2-way video to increase opportunities for liveliness. Collaborative Decision Matrix for institutions designing distance programs Matrix of Change for redesigning writing courses for distance delivery Whithaus and Neff article published in *Technical Communication Quarterly* 2006 Neff and Whithaus, *Writing Across Distances and Disciplines*, 2008 Conference presentations at CCCC, Watson, Penn State, U of New Hampshire
Project 3: Communication Technologies and Processes at a Hospital		

Data points (collected from CI), data clusters, grouping of data points, data cluster coding (names, functions, definitions [organizational goal and use]), whom cluster affects, method of collection (paper, system, etc.)
 	
Research process developed by a team that included an anthropologist, visual designer, software developer, project manager, and content writer
	Data inventory (served as the knowledge repository)
	
	Collection of data clusters listed by process within functional areas across processes and functional areas
	Gap Analysis
	    Derived by examining the data inventory vs. user needs
		Feature Set
		    Document that listed the requirements for improved communication systems
		
		Bartocci, Potts, and Cotugno, paper published in the *Proceedings of the 26th ACM International Conference on Design of Communication*, 2008.

In each case, the research method provides a framework of analytic steps that helps organize how the interdisciplinary research team develops their research process. A key element in both grounded theory and contextual inquiry is interaction among the researchers and research participants. The meetings among researchers and participants and the emphasis on user needs in the action components of all three studies demonstrate the interactivity of these methodologies. The variety of outcomes (i.e., official reports to funding agencies, participant actions/awards, researcher presentations and publications) is another key element. Studies using these methodologies usually are not done only to produce scholarship or theory; rather, they are research methods that support intervening in and improving given situations. Using these methodologies in studies of writing and communication foregrounds the increasing emphasis in English and writing studies on action-based or applied research—what we do within our field studies should positively impact those involved in the studies. Collaborative research methodologies share a vision of university researchers as participants in communities. To understand grounded theory and contextual inquiry as methods for pursuing this sort of action-oriented research, we need to review some of their promising features.

PART III: PROMISING FEATURES OF GROUNDED THEORY AND CONTEXTUAL INQUIRY

The third section of this chapter discusses the features of grounded theory and contextual inquiry that hold promise for team-based, cross-disciplinary projects looking at sites of, and text tools used in, new media literacy activities. A central claim behind this section is that understanding digital tools requires a situated evaluation of how these tools are used by multiple individuals. Grounded theory and contextual inquiry enable research teams to draw on quantitative and qualitative data sources to represent how these tools function and to give a fuller picture of the production and reception of new media writing. When it comes to theoretical and empirical knowledge-making, grounded theory and contextual inquiry are well suited to researchers who see writing itself as a means of inquiry (Richardson & St. Pierre, 2008). Key features of these methodologies include the following:

1. **Grounded theory and contextual inquiry bridge the gap between researchers and practitioners** by putting stakeholders in direct communication (Bartocci, Potts, & Cotugno, 2008). The methodologies encourage researchers to cycle early interpretations of data to those who participate in the study and to use participants' responses to tease out additional meanings: "'Subjects' become 'agents' in analysis phases of a project" (Neff, 2002, p. 145). As a result, the

theory produced by these methods has great "fit" and "working capacity" to explain things to researchers and practitioners (Glaser & Strauss, 1967, p. 4). Similarly, the designs produced by a contextual inquiry result from the collaboration between researchers and practitioners in the workplace. Rather than asking practitioners to summarize their experiences, the researchers observe and interact with the workers as they walk through their daily tasks, leading to a nuanced picture. Although Beyer and Holtzblatt (1998) emphasize the discovery of work structures (p. 48), the experience of industry researchers focuses on more specific issues to pinpoint use habits and preferences for task completion (Courage & Baxter, 2005). The principle of partnership in contextual inquiry addresses collaboration between the researcher and participant. In contrast to the traditional interview model, in which the researcher controls the interview, asks the questions, and paces the meeting, in contextual inquiry the discussions are purposefully balanced between the participant and researcher. The researcher should not be the "apprentice" to the "master" participant, nor the "interviewer" of the "subject" participant. Only with such equal footing will the designer be able to "develop expertise in seeing work structure, in seeing patterns and distinctions in the way people organize work" (Beyer & Hotlzblatt, 1998, p. 51).

2.   Grounded theory and contextual inquiry are ideal for team research.
Features such as the paper trail of memos and visuals make the methodologies suitable for broadly conceived studies of new media literacies where experts from different fields are a necessity. It is unlikely that one individual knows about consumption, design, and production of a new media technology as well as knowing about literacy acquisition related to that technology. It is also unlikely that one individual can manage studies of this scope. For example, the study of distributed learning mentioned above (Whithaus & Neff, 2006) involved faculty, students, IT experts, administrators, site directors, academic advisors, and instructional designers—the stakeholders in the production and consumption of the management writing course. All of these stakeholders contributed to the database and reviewed emerging findings as the study progressed.

Sometimes, subject matter experts from different disciplines are critical to a research team; both grounded theory and contextual inquiry methods invite team approaches. For example, the hospital study discussed above had its own interdisciplinary team for the hospital but also presented findings to the CEO contextually. The researchers spent time with many participants reviewing the feature set that they had distilled from the data inventory/process inventory. The participants were able to confirm these requirements, talk through them with the researchers, and prioritize them to help the research team with its own strategic

IT plan. A vital outcome that is not commonly discussed is that integrating participants into the process leads them to have more at stake and to be more open to and excited about the findings.

3. **Grounded theory and contextual inquiry support numerous forms of data collection** and do not restrict what counts as data—interviews, statistics, field notes, new media compositions. Everything is data. By beginning with empirical data, grounded theory and contextual inquiry situate an emerging theory or a design revision in the local perspectives and practices of the individuals and groups engaging in the processes being studied. For example, in contextual inquiry, the context principle instructs the design research team to observe and interact with participants in their workplace setting. By going to these places to do the research, they can gather "ongoing experience rather than summary experience, and concrete data rather than abstract data" (Beyer & Holtzblatt, 1998, p. 47).

4. **The results of grounded theory and contextual inquiry can be reported in multiple formats that are suited to various audiences.** The results also can be reported incrementally so that initial designs or emerging concepts can be further tested through user application or theoretical sampling. In both methodologies, researchers imagine an ongoing trajectory for their projects. Ideally, the iterative process allows participants to be as active as possible in the research and allows researchers to become participants (Potts & Bartocci, 2009).

5. **The outcomes of grounded theory and contextual inquiry—the concepts or designs produced—are intended to be applied in other contexts where they might be useful**. In other words, each research project is open ended. A grounded theory continues a trajectory of studies that over time expands the explanatory value of the core category or concept. For example, the study of a management writing course delivered through interactive television produced the core category of "liveliness" in distance education (Neff & Whithaus, 2008). The applicability of the concept of liveliness can be hypothesized for other delivery modes, which can then be studied for confirming and disconfirming evidence. Liveliness as a concept will be further theorized and refined in these studies. Conversely, other forms of qualitative data analysis aim to produce detailed descriptions of local events, descriptions which are trustworthy and accurate, but which are not intended to be generalized. As Ian Dey (2007) puts it, "Categories are grounded when they provide logical and economical accounts of empirical observations; they do not so much represent these observations as explain them" (p. 177). Grounded theory produces fertile,

theorized concepts that have applicability for researchers and practitioners on a wider scale.

Similarly, the new designs produced by contextual inquiry have a future trajectory since the designs lead to applications whose outcomes produce further data, more theorizing, and improved designs. Beyer and Holtzblatt's (1998) view on abstraction is particularly insightful regarding the usefulness of contextual inquiry. By their definition, contextual inquiry favors concrete rather than abstract data. Their view is that abstractions, while necessary to build user experiences, cannot be the starting point for designing systems because "if designers start from abstractions, not real experience, and then abstract again to go across all customers, there is little chance the system will actually be useful to real people" (Beyer & Holtzblatt, 1998, p. 48). Eventually, however, engagement in real-world scenarios that garner *in situ* data as opposed to more hypothetical situations experienced during usability testing, leads to more accurate interpretations and improved design.

6. The analytic methods in grounded theory and contextual inquiry include induction, deduction, and abduction, the last being the creative move so useful to research in new media literacies. Charmaz (2006) defines abductive inference as "considering all possible theoretical explanations for the data, forming hypotheses for each possible explanation, checking them empirically by examining data, and pursuing the most plausible explanation" (p. 188). According to Beyer and Holtzblatt (1998), interpretation is "the assignment of meaning to the observation" (p. 56). Each observation reveals certain facts regarding the participants' tasks and goals. These facts then lead the designer to construct initial interpretations. In collecting these observations, the researcher is looking for patterns across the data. These patterns have meaning, and interpretations of varied meanings can influence the technology's design. In a contextual inquiry, one goal of the site visits is to locate the networks of technologies, people, groups, and organizations that affect the worker's daily tasks. While this can be seen as a more holistic view, understanding the wealth of actors available to these workers can be of great value to the designer (Potts, 2009). It is through interpretation that we examine situations and ask questions to probe the participant about specific tasks and processes. This is a key factor in finding specific data to interpret, and it is part of the cyclical process of observing, coding, seeking response to interpretations, observing further, and so forth.

7. Contextual inquiry and grounded theory insist that methodological processes in a study must be well explained. Methodological transparency keeps researchers and participants honest and keeps the results of a study open

for review and reflection on many levels. For example, the partnership formed between the researcher and participant during a contextual inquiry can lead to the participant becoming "invested in making sure we get it right—that we see everything that's relevant and that we take away the exact right shade of meaning" (Beyer & Holtzblatt, 1998, p. 60). Bringing these contextual viewpoints to the stakeholders can aid in the understanding of the problem and provide the context for relevant decision making (Bartocci, Potts, & Cotugno, 2008). In grounded theory, coding charts and a narrative about the process used to arrive at a concept are made available in published accounts of the study.

8. The requirement for graphics (mapping, Venn diagrams, charts, matrices) creates visual opportunities in grounded theory and contextual inquiry research. Participants across disciplines can see the links between the empirical and theoretical elements of their projects. This added dimension parallels the added dimension of new media tools that move beyond text on a page. For example, matrices that capture multiple participants in process, situational maps, and actor diagrams (Potts, 2009) that clarify positionality in organizations all expose layers of complex activities that might otherwise remain closed to researchers and readers of research alike.

CONCLUSION

Grounded theory and contextual inquiry offer a variety of useful techniques for investigating dynamic and socially situated composing processes. The openness to many forms of data collection means greater flexibility for capturing the diverse and ever-emerging forms of discourse produced using new media technologies. These collaborative methodologies enable teams of researchers from different disciplines to pool their knowledge and offer more complete pictures of how new media texts are created and received. Not only do grounded theory and contextual inquiry encourage interdisciplinary collaboration, they also close the gap between researchers and practitioners. By building in feedback loops that include participants, these methods increase the likelihood that analyses and findings are accurate for those at the research sites. Furthermore, grounded theory and contextual inquiry may produce theoretical insights and new designs for media that have applicability beyond the immediate study. Finally, collaborative research often requires researchers to write up their results for different disciplinary audiences; grounded theory and contextual inquiry support publications that make good use of graphics and other media.

The case studies discussed in this chapter (i.e., technology in fourth- and fifth-grade language arts, a distance learning management writing course, and

communication technologies and processes in a hospital) highlight the analytic steps, action components, and outcomes produced when collaborative research methods are used to investigate the impacts of IT on people and processes. Using grounded theory or contextual inquiry as methods for understanding new media texts situates these works within a dynamic map that includes research participants as well as researchers. These approaches to understanding texts and textual technologies reflect the complexities of the highly mediated writing environments of the early twenty-first century. English and writing studies benefit when researchers engage with various forms of data collection and analysis, are members of interdisciplinary teams, and produce reports and articles that have empirical, theoretical, and applied outcomes. As collaborative research methodologies, grounded theory and contextual inquiry offer approaches to understanding texts and how texts work that produce just these sorts of complex, dynamic, and reflective studies. Shifts in the technologies used to produce texts as well as shifts among the sorts of texts defined as worth examining in English and writing studies have been occurring since at least the early 1990s. Developments within grounded theory and contextual inquiry have produced methods that can capitalize on these shifts and provide researchers with robust means of investigating new types of texts and the composing processes that produce them.

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APPENDIX A: VIDEO TRANSCRIPTS

1. Elizabeth Vincelette on Grounded Theory

I'm going to talk about how I used grounded theory in order to develop a research project on a transcript from the National Public Radio show "Talk of the Nation" and I used a transcript from Talk of the Nation" that was discussing conspiracy theory after September 11 and there was a show regarding a Popular Mechanics article that had pitted *Popular Mechanics* against conspiracy theorists who were discussing why they thought that September 11 had happened and how, and the conspiracy theorists who like to call themselves truth activists debated a number of scientists.

I was interested in looking at the transcript from this program to see what types of things emerged from the language that people were using in the program. He had a bunch of research questions to start off with, such as what types of rhetorical or linguistic strings do the people use, what sorts of keywords are repeated, what kinds of categories come from those, including the number of metaphors that come out of the project, and I found that grounded theory allowed me a way to examine this transcript, just as an artifact for what it is without applying any other theory.

I started to code by writing gerunds off to the side and this was after reading Cathy Charmaz's book on grounded theory that I did these gerunds. After doing the coding of the verbs I went through again and in the second coding I went and I color coded different roles that people were taking in the conversation, and I realized as I was working on it that I was very comfortable coding with colors. And I began to use colors as a way for me to readily identify categories that were emerging and I felt while I was doing this that one of the things that was most interesting and important about using grounded theory was that the categories did emerge, I didn't have a lot of preconceived ideas about the show, but the categories came directly from the transcript. I would have the transcript up on my monitor, and I would have my codings behind it on color-coded sticky notes and I could start to see shapes take place because when I started seeing categories by putting the notes up, I would move them around and then sometimes I would have to change colors, so literally a picture came out of what I was looking at. Or I coded on different versions of the transcript, there were a number of different codings, the more I became interested in these visual shapes and images.

And that led me to looking at Adele Clark's grounded theory using situational analysis, which is grounded theory after the post-modern turn, and what Adele Clark did was she took some of the ideas on grounded theory and looked at how to take codings and turn them into maps, and so these seven codings that I did here on the transcripts turned into different types of codings that Clark writes about, which includes situational maps, social worlds and arenas maps, and positional maps. So, in all there were seven codings on the transcript and then three organizing maps that I did using Clark's theory from those seven codings. My final conclusion was that conspiracy theory serves a democratic function even though it's considered to be a kind of a crackpot way of thinking about disasters a lot of the time or other questionable historic events.

2. Dave Jones and Liza Potts Enact a Data-Gathering Session Using the Four Principles of Contextual Inquiry

Karen Holtzblatt's four principles of contextual inquiry are *context*—go where the work is and watch it happen; *partnership*—talk about the work while it happens; *interpretation*—find the meaning behind the customer's words and actions; and *focus*—challenge your entering assumptions. A key element in contextual inquiry is the interaction between the researchers and the research participants. Rather than asking practitioners to summarize their experiences, the researchers observe and interact with the workers as they march through their daily tasks leading to a nuanced picture.

On location, the researcher sits next to the study participants to both observe these everyday work activities and to inquire as to how these activities are accomplished. These fields study sessions are often recorded either with video cameras which can be intrusive or as audio recorders which can be less intrusive. The researcher takes notes during these sessions and any materials offered by the participants—such as personal notes, office procedures, etc.—are also gathered.

Similarly, the designs produced by contextual inquiry result from the collaboration between researchers and practitioners in the workplace. In contrast to the traditional interview model in which the researcher controls the interview, asks the questions, and paces the meeting, in contextual inquiry the discussions are purposely balanced between the participant and the researcher.

In a contextual inquiry one goal of the site visit is to locate the networks of technologies, people, groups, and organizations that affect the workers' daily

tasks. While this can be seen as a more holistic view, understanding the wealth of actors available to these workers can be of great value to the designer.

It is through interpretation that we examine situations and ask questions to probe the participant about specific tasks and processes. The partnership formed between the researcher and participant during a contextual inquiry can lead to the participant becoming invested in "making sure we get it right, that we see everything that's relevant and that we take away the exact right shade of meaning." Bringing these contextual viewpoints to the stakeholders can aid in the understanding of the problem and provide the context for relevant decision-making.

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