CHAPTER 21

Theories and Methods in Applied Anthropology

Robert T. Trotter, II, Jean J. Schensul, and Kristin M. Kostick

Applied anthropologists commonly conduct research for two reasons. One is to produce research that has straightforward findings or implications that can be used for direct interventions or lead to recommendations for policy change (Pelto and Schensul 1987). The other is to test and improve anthropological theory through devising experiments in sociocultural interventions or policy changes (Van Willigen 2002; Wasson et al. 2012). Applied anthropologists study conditions ranging from health and disease prevention to educational innovation and instructional improvement, community economic development, business anthropology, and environmental protection. Most of their work is based in or concerned with culturally diverse communities and populations. Increasingly, research, interventions, and evaluations are conducted by partnerships that include anthropologists and representatives of the communities or countries in which the problem is addressed. The current movement toward increased community engagement in research (community-based participatory research [CBPR] and other forms) has very strong roots and representation in applied anthropology (Greenwood and Levin 2007; J. Schensul and S. Schensul 1992); Singer and Baer 2007). This combination of complex and diverse communities and subject matter in the context of plural cultural and political systems requires a robust and diverse set of theoretical and methodological options that can be applied under less-than-ideal research conditions.

All research must be conducted with integrity, but two features of applied research place greater-than-usual responsibility on the researcher's shoulders to assure compliance with both the letter and the spirit of professional ethics for applied research (Whiteford and Trotter 2008). First, the human, social, and ecological consequences of applied research are immediate, potentially significant, and sometimes critical to the life and survival of communities (Nastasi and Schensul 2005). Second, because the results are change oriented, they may be disruptive or threatening. Some researchers (e.g., Campbell et al. 1963; S. Schensul 1985) have said applied social science research can and should be the most creative and rigorous of all social science research so as to address these circumstances responsibly. The best approach to conducting ethical research in applied contexts is to carefully select the most appropriate combination of theory and methodological approaches that are consistent with local context and the intended outcomes of the research process.

TYPES OF APPLIED APPROACHES

Applied anthropologists and other social scientists have delineated five types of applied research (see Ervin 2004; Podolefsky et al. 2008; S. Schensul and J. Schensul 1978; Van Willigen 2002). These are as follows.

Policy Research

Policy research intends to assess the effects of a policy, to adapt or change it, or to generate new policies. In anthropology, it usually involves conducting ethnographic research and making suggestions for policy change through single events (press conferences or workshops). Less frequently, it involves describing the effects of implementing a set of policies on a target population and demonstrating the process of change as well as the need for policy change. In both approaches, the researcher speaks to the policymakers but is generally not actively involved either in the process of policy making or in penetrating the locations, networks, or policy clusters within which policy is made (J. Schensul 1985). The recognition that those who produce scientific knowledge for policymakers must be involved in significant ways in the policy-making process has been at the forefront of thinking in anthropology for the past decade. It is only recently, however, that anthropologists have provided written examples of their direct involvement with policy makers at governmental and other levels (e.g., Shore et al. 2011).

Evaluation Research

Evaluation research is intended to improve or evaluate the efficacy or outcome of a program, project, or organization (Trotter 1996). In some instances, the anthropologist isn't directly involved in developing or implementing the program and doesn't have specific responsibility for translating research into program models or activities. However, there are growing exceptions to that general rule where anthropologists are responsible for corrective feedback in real time, or corrective interventions in the system, over time (Briody and Trotter 2008; Hahn and Inhorn 2009). Generally, the evaluation identifies cultural patterns, networks, processes, environmental conditions, system models, or other factors likely to help a program or be important in determining consistency of implementation and outcome. At times, the process includes participatory empowerment (Fetterman et al. 1993; Ovretveit 2002) or action research evaluation models, and the evaluation researcher plays a role in implementation and has experience in managing the class of programs targeted by the evaluation. In each case, the focus tends to be empirically based data collection within a targeted theoretical framework that compares ideal or benchmarked conditions with actual performance. Theories and methods that allow for a constant comparison approach tend to be favored in these endeavors.

Cultural Intervention Research

The applied anthropologist is directly involved in the development, conduct, and evaluation of a culturally based, theory-driven intervention. Here, the researcher conducts research that identifies cultural factors important in guiding interventions and uses the findings to generate or identify appropriate intervention theories. The creation and conduct of the intervention, based on cultural knowledge and theory development,

also falls to the anthropologist, who, like the participatory evaluator, must know a lot about methods of program implementation. Both multidisciplinary teamwork and community engagement is advisable in cultural intervention research. Examples of this type of approach can be found in social marketing research in the context of both localized and large-scale health promotion and disease prevention interventions (Bernard 2011; Grier and Bryant 2005; J. Schensul 1998a; J. Schensul et al. 2009; Stead et al. 2007; Van Willigen 2002; Weeks et al. 2009a).

Advocacy, Activist, or Action Research

This is specifically directed toward identifying, critiquing, and addressing imbalances in allocation of power, economic resources, social status, material goods, and other desired social or economic elements in a community, society, or globally. Advocacy research may include evaluation, policy research, and research and development. The end result, however, is to increase, organize, and activate resistance in community groups, with unions, with groups representing underrepresented or excluded populations, and with those with limited (or perceived as limited) power to change their own conditions. Anthropologists engaged in advocacy research tend to do so from a liberal or critical perspective; thus, culturally based theories guiding advocacy research focus on structural barriers contributing to social inequities, including issue related to class and caste, power, gender, age, sexual preference, linguistic usage, and ethnic group identification.

"Action research" is a now ubiquitous term in the social science literature; it can refer to iterative research leading to any action, rather than action guided by a critical perspective (see Stringer 1996). Advocacy research in anthropology stems from the concept of action research first suggested by Sol Tax (1960), and reiterated in the work of Stephen and Jean Schensul (1978; J. Schensul 2010). It also appears in other classic and contemporary work among anthropologists (e.g., Ervin 1996; Lester 2011; Singer and Baer 1995). In this chapter, we use the term "advocacy research." To reinforce the critical perspective that undergirds activist research, S. Schensul et al. (this volume) have shifted to the term "transformational" anthropology, which emphasizes a reframing of an inequitable situation to address the structural and social factors that create it. Activist research, as defined and described by Hale (2007), is when an anthropologist forges alliances with groups and communities experiencing inequities or claiming their indigenous identities and heritage and conducts research in collaboration with them that furthers their political agendas has a similar meaning.

Participatory Action Research

Participatory action research (PAR) involves several critical elements, including a long-term partnership with those directly affected by an issue, often because they are experiencing inequities, in health, housing, cultural conservation, or political participation. The partnership involves continuous interaction of research with the action process through joint researcher/social actor data collection, analysis, reflection, and use of the research for social and social justice ends. In the other forms of research mentioned above, the means (research) leads to the end (an evaluation, a program, a policy change, etc.). In PAR, the means is the end, and the conduct of research is embedded in the process of introducing or generating change.

PAR is, first and foremost, locally specific and intended to further local goals with local partners. It is also theoretically driven (see Berg et al. 2009) including framing by action oriented theorists such as Dale and Hyslop-Margison (2010), Freire (1995), Giroux (2010), and many others. Early work, such as that of Holmberg and colleagues in their classic intervention in the Cornell-Vicos experiment, merged scientific research with ongoing contributions to improving agriculture, education, housing, and other social domains (Holmberg 1954, 1958, 1966). Some committed to PAR believe that it should contribute to both the development of scientific knowledge on any given topic and make special efforts to publish their work, usually collaboratively. Others frame their research as contributing to various forms of political, social, and economic action and do not attempt to make the results, rigorous though they must be, to the scientific community. Now, however, there are many scientific journals and publications devoted to describing and disseminating the results of PAR and it is a very widely accepted methodology for the ethical conduct of applied research. PAR is further discussed in S. Schensul et al. (Chapter 6, this volume).

Applied anthropologists selecting one or another of these orientations must consider with whom they wish to work, whether they have the skills or experience to conduct research *and* engage in practice, what their personal and professional values are, to what degree these values are rooted in particular theoretical frameworks, what position they occupy in the structure of the research setting, and where they wish to place themselves on the continuum that ranges from those attempting to be objective and value free to those who are integrated or embedded participants in the promotion of specific shared goals. "Positionality" and "reflexivity" are useful terms with respect to these decisions (Robertson 2002).

Positionality refers to self-conscious reflection and recognition of the social position of the researcher in relation to the community and individuals of study (Jacobs-Huey 2002). Since the 1970s, anthropologists have written about their own social status and other critical dimensions (e.g., ethnicity, social race, class, formal education, appearance and style, age, country of origin, and so on), all of which can and do influence the ways in which they enter a community—their own or others'—and conduct research both initially and at any given time in the field experience (Harding 1987; LeCompte and J. Schensul 2010). Reflexivity refers to the researcher's ability to reflect on their interactions, the ways in which they influence both interaction and ability to collect data and build partnerships, and their ability to recognize and modify their behaviors as best they can.

Applied researchers may conduct any or all of the aforementioned forms of research, separately or in combination in the same field setting. Confusion can arise when these approaches serve contradictory purposes (e.g., are advocacy research and evaluation mutually exclusive?). It's important to identify which approach is being used (and why) to avoid or resolve possible challenges to researcher identity, ensuring proper presentation of self in the research site.

All of applied anthropology is subject to the constraints of time, local politics, and other contextual factors. Though we may try, we cannot control conditions in field situations as we can in clinic or laboratory settings.

Ethnographic methods suit field research because they offer researchers and their partners a high degree of methodological flexibility to respond to new circumstances as

they arise, while also maintaining a defensible level of rigor in the research outcomes. Furthermore, ethnography, although guided by general theoretical principles, gives high value to inductive (emergent theory) or localized theory building. Local theory (in interplay with more general theories of change) that is controlled (developed, shared, and understood) by partners in change is far more likely to result in positive outcomes than theory imposed from above. This is not in opposition to experimental design, since we believe in and have successfully used experimental designs in field situations. Instead, we suggest that anthropologists have much to offer the field of applied social science and interdisciplinary research because we are not wedded to specific designs and instruments but to inquiry, exploration, and discovery that guides the most effective selection of theory, methods, and data-collection techniques for a given situation. Applied researchers must be excellent group facilitators as well as researchers and should be familiar with techniques for conducting research with groups and individuals to maximize the rigor of the research.

BUILDING AN APPLIED SETTING

Applied research is embedded in a setting in which a problem has been identified and a group is present to address it. If these two conditions are not met, the research may be useful but it will rarely be used. An important part of method in applied anthropology involves paying close attention to the structures and relationships that affect the success or failure of the research mission.

The use of ethnography generally distinguishes anthropologists from other social scientists. In traditional ethnography, the anthropologist is a student of the culture and the indigenous expert is the teacher. Applied anthropology calls for reciprocal learning and sharing of expertise in identifying a problem, defining a researchable question, conducting research, and using results, what Stull and Schensul (1987) call collaborative research and others label as partnerships. The applied researcher is involved in shaping theory, design, and data collection to fit the requirements of the field situation and those of the field partners.

Common approaches to collaborative field research include consultations with bureaucracies, contract research or evaluations with governments or nonprofit organizations, and researcher-initiated collaborations with clinics, schools, community groups, or networks of nonprofit organizations (Harrison 2001; J. Schensul and S. Schensul 1992) as well both external and embedded applied research in business and industrial organizations (Jordan 2003, Briody et al. 2010). These partnerships are necessary for evaluating the implications of policy decisions or for developing and testing programmatic interventions.

In addition to understanding traditional anthropological theory and methods, applications research demands skills and value orientations that are only now beginning to be taught systematically in anthropology graduate training programs. For example, to initiate a change-oriented program, it's critical to identify key actors outside the university who are influential leaders and who can engage in community or institutional change, program development, or policy advocacy. These are people who are linked to service or policy systems—systems that also must be understood to introduce change efforts appropriately. Understanding the concept of program or intervention;

being able to cross disciplinary boundaries in forging academic partnerships and in conceptualizing and writing intervention grants; designing and managing budgets; and administering research, cultural interventions, and interdisciplinary teams are all additional critically important skills (Lamphere 2004). Finally, team building and group facilitation skills are central to endeavors in complex community or institutional settings (Rappaport 2007; J. Schensul 1999). If researchers can't quickly grasp the "politics" of the setting and negotiate relationships to promote and achieve common goals across sectors, partnerships can fall apart very quickly (Briody and Trotter 2008; J. Schensul et al. 1999).

Increasingly, anthropologists do research and act to improve conditions for their own ethnic/social/racial or special interest group. These anthropologists speak as experienced social scientists as well as informed insiders and must contend with issues faced by any researcher conducting research in his or her own community. The issues faced by "insider researchers" are different from those encountered by researchers from the outside (Bartunek and Louis 1996). Insiders are already "tracked" in their communities, by gender, class, family reputation, affiliation, education level, and so on. They must juggle the demands of the outside world of funders, researchers, and policymakers with the demands of family, friends, and community politics. On the other hand, they are privy to insiders' information, understand local language and references, and are more likely to recognize the utility of local social structures and networks and cultural beliefs in the development of interventions. As a result, they can more readily develop, test, and disseminate culturally appropriate research tools.

Applied anthropology has a global as well as a local (i.e., U.S.-based) face. A full issue of the *NAPA Bulletin* reviewed applied anthropology in Asia (India and China), the Middle East (Egypt and Israel), the UK, Canada, Portugal, and other countries (Hill and Baba 2006). Latin American anthropologists working in countries such as Honduras, Mexico, Puerto Rico, and Argentina are involved in joint ethnography, research contributing to environmental advocacy and policy change, farmers' and workers' rights, and forensic work for NGOS (Field and Fox 2007; Guerrón-Montero 2004). Some of the articles in these publications are written by U.S. or Canadian anthropologists working with anthropological and other collaborators in other countries, and many are written by in-country anthropologists who are working with NGOs, voluntary organizations, and national institutions to conduct applied research. These publications all emphasize the importance of understanding multiple perspectives, addressing the challenges and constraints of local and national bureaucracies, and maintaining a creative stance in the development of theoretical frameworks and methods that respect local views, ideologies, and needs.

BUILDING AND USING TESTABLE ETHNOGRAPHIC THEORY

Building and using strong, testable theory is the most crucial element for creating or selecting research methods in applied anthropology. Theory and methods are always bound together. The way theories are constructed and presented should suggest ways to test them. Theories imply directions in intervention, program development, or policy that will be acted on once the research is done or while it is being conducted. Testing theory in the field, through research and intervention, improves understanding of the

theory, the field situation, the cultural conditions to be modified or influenced, and human responses to both.

The concept of midrange theory is especially attractive in applied anthropology. This concept has several meanings. Pelto and Pelto (1978) refer to it as predictive generalizations arising from the data and linked to broader theoretical approaches or paradigms such as structural, functional, ecological, or systems theories or critical, materialist, or evolutionary theories. We agree with this definition but refine it by referring to the idea that midrange theory is anthropological or cultural theory that can be tested and subsequently applied within an empirical context (Trotter 1997).

Midrange cultural theories are attempts to identify the important patterns of thought or behavior in specific domains of a culture—patterns that are representative of an identified group of people in a designated context (Trotter 1997). In other words, midrange theories are locally situated. A classic example includes identifying the decision-making processes farmers use to decide whether to plant subsistence or cash crops (Barlett 1977). Midrange theoretical models describe, explain, and/or predict what is going on in one or more cultural and behavioral domains in a specific local environment. Such models are generated from prior knowledge and field experience, are tested in the field, and are continually refined (Glazer and Strauss 1967; Strauss and Corbin 2008; Trotter 1995, 1997). The cultural "frame" (i.e., the lens through which culture is viewed and defined) may be cognitive, behavioral, structural, or critical. The choice of cultural frame influences (or is influenced by) the selection of a problem and theory. It also influences the selection of methods of sampling, data collection and data analysis. And it influences interpretation and utilization of the results of the research.

Some applied researchers use a combination of theoretical approaches. Midrange, descriptive cultural theories may predict cultural *choice* and point to general *intervention theories or actions* to be taken, but they don't always specify *how* (in detail) the intervention will be structured. For example, network theories (see below) suggest several directions for intervention: diffusion of information using opinion leaders (Weeks et al. 2009a), working with bounded networks to influence "peer norms," or mobilizing social supports for individuals through their ego-centered networks (Trotter et al. 1995b, 1995c, 1996). But those theories may not specify exactly how to work with opinion leaders. They may not specify all the approaches that are useful in diffusing information (regardless of the diffusion agent) or exactly what to do with social support networks to strengthen, modify, or eliminate selected behaviors. So, to bring about changes in individuals, systems, and policies, applied anthropologists often consider intervention theories from other disciplines in addition to those implied by cultural research.

MIDRANGE THEORY DEVELOPMENT IN APPLIED ANTHROPOLOGY

When conducting research, anthropologists generally focus on cultural theories—that is, theories that predict patterns among groups rather than of single individuals. Here, we discuss several areas of successful cultural theory development that can be used to select ethnographic and other qualitative research methods shown to have positive implications for change.

Sociocognitive Theories

A number of theories about cultural beliefs and thought processes have been derived from the cognitive sciences (including psychology and psychological anthropology) to investigate the psychological aspects of cultural dynamics. A subset of these theories is concerned with links between cognition and behavior. The midrange cognitive behavioral theories used most commonly in anthropology include cultural models approaches and systematic approaches to assessing cultural beliefs (J. Schensul 1998b). The underlying assumption in these approaches is that culture is a mental phenomenon, consisting of identifiable conceptual domains that are shared and can be identified, analyzed, and potentially changed using theoretically congruent processes that change cognitive–behavioral constructs at a cultural level. In an applied context, this approach assumes that group change in behavior occurs through changes in cultural beliefs, attitudes, perceived norms, and concepts. These theories lend themselves to social marketing, to communications approaches to change, and to approaching change through individual learning and changes in beliefs or knowledge. The following theoretical models should not be thought of as mutually exclusive. They are often successfully used in combination to construct effective programs or intervention studies.

CULTURAL MODELS AND CONSENSUS THEORIES

Cultural models theories are based on a view of culture as a set of modal cultural beliefs and norms (Romney et al. 1986) and lead to methods that explore the degree of consensus and variation across individuals in groups as well as individual expertise or knowledge of a given cultural domain (Weller and Romney 1988). Examples of cultural models theories in applied research can be found in the use of cultural congruency (J. Schensul et al. 1993; Trotter 1991; Trotter and Potter 1993) and consonance models (Dressler et al. 2005) to explore health beliefs, behaviors, and emic models of risk, contagion or trauma (Kleinman 1980; Kleinman and Benson 2006; Quinn and Holland 1987). Researchers operating from this paradigm also acknowledge that the link between beliefs and behaviors is not always straightforward and that beliefs and norms are differentially internalized and motivated across individuals within cultures (D'Andrade et al. 1972; Spiro 1987; Vygotsky 1986), but can lead to interesting explorations of cultural decision modeling in practical cases (Gladwin 1989; Ryan and Bernard 2006).

Some examples of how the cultural models approach have been used in applied settings include identifying variation in health beliefs across patients and providers to reduce cognitive incongruity and promote shared understandings that can help remove general or patient-specific barriers to quality care (Chavez et al. 1995; Garro and Mattingly 2000). The method for testing the theory melds ethnographic survey questions with a formal mathematical model based on approaches used by psychometricians in test construction and is influenced by signal detection theory and latent structural analysis procedures (Romney et al. 1986). Some anthropologists involved in work on HIV/AIDS use consensus theory to identify core versus peripheral values, where core values are those that most people agree on and peripheral values are those in which there is less agreement. The identification of significant variation within a group can

be instrumental in identifying beliefs and norms within a community that represent targets of positive change through social marketing and/or cognitive–behavioral interventions (e.g., Kostick et al. 2011).

SOCIAL CONSTRUCTION THEORIES

Social construction theories argue that cultural knowledge, norms, skills, and behaviors are co-constructed through a negotiated group process in specific cultural contexts. According to this perspective, interpersonal exchange is essential to the development of individual cognitions and behavior and to the evolution and transmission of culture (see, e.g., Bearison 1982; Berger and Luckman 1966; Rogoff 1990; Vygotsky 1978, 1986 [1934]; Wertsch 1991). This approach suggests that new ways of thinking and behavior develop initially during social interactions in which more experienced or knowledgeable individuals mediate the person–environment interaction. With repeated exchanges in similar contexts, new ideas and behavior become internalized. Interpersonal relationships provide the context for reinforcing shared beliefs and behaviors, enhancing perceptions of competence, and encouraging persistence of group norms. This theoretical framework lends itself to the use of ethnographic research methods involving symbolic interactionism methods, network research methods, group elicitation techniques for negotiating as well as documenting existing and changing group norms, and audiovisual recording methods for recording and understanding group processes. The approach can be used in group interventions, as illustrated by the work of Berg, Schensul, and Nastasi in the development and implementation of prevention curricula for adults (J. Schensul et al. 2008), and for teens in and out of school based on the co-construction of knowledge through collective research (Berg et al. 2009; Nastasi et al. 1998); it's linked to network theory and research since networks are naturally bounded groupings within which group interventions can be conducted (Trotter et al. 1996).

CULTURAL SCRIPTING THEORIES

Scripting theories assume that patterns of conduct are locally situated and socially rooted, learned, and change over time. Cultural scripts are selectively used, modified, and adapted as people make choices in their lives and implement their understandings in interpersonal scripts with friends and partners. According to this theory, the scripts that people develop include a meshing of what both the cultural setting and the individual define as the cultural domain. The theory promotes the notion that both individuals and public institutions can be innovative in changing the ways in which a cultural domain is represented. For example, middle-class suburban children's birthday parties are scripted in a particular way—including features such as balloons, paid entertainment, acceptable gift categories, appropriate clothes, acceptable foods, and so on. Sufficient innovation—such as a decision to avoid giving gifts or to favor family parties—can change the cultural scripts in a society (Castillo and Geer 1993). As Gagnon and Simon and others show, sexual relationships and rituals are scripted as well (Gagnon and Simon 1987; J. Schensul 1998b), shaping partners' perceptions and understandings of their interaction and sexual negotiation, their behaviors, and their internalizations of responses to those behaviors.

Script theory is closely related to network theory since scripts as event sequences are socially negotiated through networks or groups (Parker and Gagnon 1995). Often, a combination of social marketing (societal level), diffusion theory and influence or power (network level), and cognitive behavioral interventions (individual or dyad level) are necessary to bring about desired changes in cultural scripting. One of the strengths of combining these approaches is that they are all methodologically compatible with the same set of research methods (e.g., semistructured (theory based) in-depth interviews, contextual/pathway analysis interviews, grounded theory metaphor analysis, and cultural models interviews).

Contextual Research

Anthropological midrange theories have helped establish the importance of cultural contexts and the organization and structure of human systems (Kozulin et al. 2003). Contextual research addresses the cultural environment or social conditions that have an impact on daily living (e.g., environmental, political, economic, and social contexts of group beliefs, norms, and behaviors). This research derives from theories of social identity, kinship, and social network analysis and the impact of social and cultural structures on human behavior. Theoretical models include diffusion theory approaches to cultural change and innovation, which address how knowledge is differentially or strategically spread throughout social networks, theories of organizational control and behavior, and theories on dynamics of social networks and the small-world phenomenon (Watts 1999). Other context-specific theoretical models come from community participation research: gender, race, and power analysis and studies of cultural diffusion, cultural resistance, and cross-cultural conflict. Below, we address ecological theories, social network theories, and critical theories in guiding interventions.

ECOLOGICAL THEORIES

Ecological theories link cultural conditions to the context of humans within an ecological or political framework and are a third area of development and exploration for applied anthropology. The models derived from ecological theory are multifactoral and may include interaction with physical or bioenvironmental characteristics. In addition to consideration of multiple "independent variable domains" (i.e., selected elements of larger systems) influencing individual or group behavior, two additional factors are important in ecologically driven investigation: the local nature of the investigation and the notion of adaptation, which assumes that individuals and groups engage in continuous adjustment to environmental circumstances. Most prevention research now uses an ecological framework, identifying and attempting to address or rectify barriers to change at any level (e.g., the family) in interaction with other levels (e.g., the health care system, individual constraints, school problems, etc.; see Bronfenbrenner 1977; Dryfoos 1990).

The midrange theories tested within this paradigm include barriers to change research (referring to environmental factors impeding change or access), cultural congruency models (which attribute results to differences in beliefs and practices between those seeking and those delivering services), human–biological interactions research, and comparative cultural models research.

One example of midrange theory combined with observational methods in a cultural ecological context is a series of studies, supported by the National Institute on Drug Abuse, of needle sharing and needle hygiene practices. Part of HIV risk-reduction efforts, these studies focus on context-specific uses of injection equipment among drug users in the United States. Early descriptions (Clatts 1994; Koester 1994; Singer et al. 1991) explore the meaning and the processes of injection drug use and needle sharing and the public health consequences of drug paraphernalia laws that restrict the possession of syringes that might be used for drug abuse. Later studies (Bourgois 1995; Needle et al. 1995) explore the consequences of needle hygiene and needle sharing at the micro-environmental level.

One applied approach to complex systems is multilevel intervention, a term that refers to the conduct of interventions at multiple social/structural levels simultaneously to maximize effect as Schensul and Trickett describe in a collection of such articles on increasing influenza vaccine uptake (J. Schensul et al. 2009), reducing substance use risk (Berg et al. 2009), and preventing HIV infection among active drug users (Weeks et al. 2009b). Another is dynamic systems modeling (Briody et al. 2010). Although much of this research was originally applied in health related research, recently there have been successful technology transfer applications of this type of research to business and industrial contexts (Jordan 2010).

SOCIAL NETWORK THEORIES

Social network theories have evolved over the past 40 years within a number of research contexts germane to applied research (Galaskiewicz and Wasserman 1993; Johnson 1994; Wasserman and Faust 1994). Some of the broader midrange theories associated with these approaches are personal networks theory, social network structural theory, social support theory, and viewpoint theory. Network theory has been used in studies of family systems and adaptation (Bott 1957; Cross 1990), in diffusion studies concerned with the flow of innovation, information, or infection in populations (Kostick et al. 2011; Weeks et al. 2009a), and in studies testing the efficacy of group interventions in natural groups or networks (Nastasi et al. 1997; J. Schensul et al. 1997; Trotter et al. 1996). Several primary methods (or methodological sets) have been used in conducting these studies, including ethnographic network mapping (Trotter et al. 1995b; Trotter et al. 1996), ego-centered network surveys (Johnson et al. 1995; Trotter et al. 1995a), and full relational network analysis (McGrady et al. 1995; Needle et al. 1995; Trotter et al. 1995b). More recently, network analysis has provided an interesting theoretical and methodological model in designing partnerships and collaborative ventures for corporations and universities as well as governments and nonprofit organizations (Briody and Trotter 2008; Trotter et al. 2008; Valente 1995).

CRITICAL THEORY

Critical theory in anthropology tends to use a systems approach, but its "value frame" substitutes resistance for adaptation (Freire 1995; Giroux 1981a, 1981b). It calls for examining cultural behaviors at the local level in the context of the political economy of national systems in a global system dominated by nationalistic, capitalist, or other forms of hegemonic control over information and economic and human

resources. Singer and Baer (1995), Hill (1991), and others summarize and integrate cognitive/cultural and behavioral domains into their critical theoretical framework. They have identified the importance of gender, race, ethnicity, and identity in the context of anthropological theory.

Other anthropologists and cultural theorists address these areas in greater detail (DeVos and Romanucci-Ross 1995; Heath and McLaughlin 1993; Jordan and Weedon 1995; Morgen 1993; Singer et al. 2006), using a combination of postmodern and critical or Marxist theory. These authors generally view race and ethnicity as socially constructed, with localized meanings influenced by definitions of power and authority that are local manifestations of national or international systems. They argue against static definitions of racial, ethnic, or gender identity, suggesting that these are contested territories and, as such, do not lend themselves to acculturation, gender, or ethnic affiliation scaling techniques unless the tools of measurement are locally situated, constructed, and validated. Critical race, critical Latino, and critical feminist theory have been applied by educational anthropologists to examine structural factors contributing to inequitable distribution or allocation of legal decision making and disposition of cases, inequitable access to health care, and instructional pedagogy (Ginwright and Cammarota 2007; Ladson-Billings 2009; Singer 1989). Although some of these macro theories have been transformed into applied midrange theory (Johnsen 1985; Johnsen et al. 1995), others await testing both as models for applied interventions and for analysis as applicable theoretical models.

APPROACHES TO SAMPLING IN APPLIED ANTHROPOLOGY

Applied research can best be conducted when there is an appropriate group of cultural experts who are willing to share their knowledge with the researcher. Midrange theories can only be tested where they are linked to systematic techniques that identify an appropriate representative selection of cultural experts (sampling techniques and key informant selection processes). This is a methodological condition that has been too long ignored in applied anthropological work.

Applied projects must be designed to create the highest level of confidence in the research results. To provide this confidence, quantitative social sciences have most commonly favored probabilistic (random) sampling techniques that allow for statistical analysis of the data collected. These techniques work well when the universe from which the sample is to be drawn can be identified and where everyone in a population (a school, a town, a country) has an equal chance of being chosen to express their viewpoint. It does not work for qualitative approaches (cf. Trotter and Medina Mora 2000; Trotter 2012), where other conditions apply (J. Schensul and LeCompte 20l0/2012).

For ethnographic and general qualitative research purposes, it is frequently scientifically inappropriate to draw simple random samples or to use random sampling procedures without using other techniques that are guaranteed to produce a qualitatively representative sample of information about the culture, not just a sample of people representing the group. For example, random sampling in multiethnic neighborhoods, when the target of study is a specific ethnic group, may fail to produce a representative sample of members of that ethnic group. Instead, cultural experts (i.e., individuals who are nominated as having culturally representative knowledge in their domain of expertise) must

be identified through ethnographic informant selection procedures (Johnson 1990) or cluster or stratified random sampling techniques, or must follow recent developments in systematic qualitative sampling (Trotter and Medina Mora 2000; Trotter 2012) that provide strong defenses of purely qualitative sampling for applied anthropology.

Probabilistic (quantitative) sampling techniques are designed to be used in projects where statistical analysis is the central analysis strategy. However, there are numerous conditions in which randomized or systematic quantitative sampling and quantitative surveying cannot be met. There are other conditions where probabilistic sampling may be contra-indicated because they do not meet the standards for systematic ethnographic research or the research questions may call for the discovery of cultural patterns or range of variation at the cultural (group) but not at the individual level (Morse et al. 2002). Alternative approaches to sampling must often be used because the target population is hidden, rare, or difficult to find (Luborsky and Rubenstein 1995; J. Schensul et al. 1999). Any systematic approach to research has to specifically tie the theoretical framing of the research to the analytical strategy that will be used to analyze and interpret the data. The following sections provide options to probabilistic sampling in applied ethnographic research contexts.

Systematic Sampling Procedures

Because we want to identify cultural domains or variations in cultural patterning, much of the ethnographic sampling process focuses on cultural expertise (Trotter and Medina-Mora 2000, Trotter 2012). When we are exploring cultural knowledge, it's important to talk to individuals who are carefully selected for their expertise in that area, rather than being randomly selected from the general population. To explore cultural domains, or for cultural consensus purposes, saturation sampling (Polkinghorne 2005; Sandelowski 1986) is often preferable and sufficient (i.e., interviewing a succession of individuals to the point where no new information is obtained). Saturation sampling depends on having sufficient information about the social setting to be able to identify key informants who represent the widest possible or anticipated range of views on the topic under investigation. For example, if the topic is micro-economic enterprises for women, key informants should include women involved in such enterprises, trainers, policymakers, representatives of lending agencies, design experts, educators, and community opinion leaders.

In bounded settings such as small communities, schools, or residential buildings, it is possible to conduct a census in which everyone or almost everyone is interviewed. This is called universal interviewing and it depends on the assumption of a bounded cultural system or social group. Saturation, redundancy, and universal interviewing frequently require multiple interviews with individual informants rather than relying on single interviewing. Some advocates of qualitative research believe that a single interview is sufficient to capture comprehensive information from individual informants about a cultural domain especially at the cultural level. We don't agree, since single interviews have problems in full saturation and validity; conducting repeated interviews with the same individuals builds trust and reflective capacity as well as producing consistency of account. In addition, saturation sampling does not apply solely to individual respondents. Sampling units can be specific events,

event sequences, classroom activities, or observations at scheduled time points. The most important consideration is not whether the sampling unit is an individual or some other unit in time and space, but on what basis the sampling unit is determined in relation to overall research design and methods.

One of the common alternative forms of universal interviewing is interviewing the entire population of consensus experts for a particular cultural domain (i.e., interviewing anyone who is identified by the community as an expert in a particular area of culture). This approach has been the norm in small community research projects involving prolonged stays and repeated exposures to most individuals in that context. It is also used when the number of people (cultural experts) in a study setting is small enough so that each individual can be interviewed/observed at least once and a portion can be interviewed multiple times. Interviewing the whole population on a particular topic is an alternative for ensuring a representative sample and eliminates the need for complicated random or selective sampling designs.

A second form of saturation sampling is interviewing to "sufficient redundancy." This involves reviewing interviews and determining that there is very little variation in response, requiring a small number of interviews. Alternatively, where issues are complex with wide divergence in viewpoints, researchers may interview until there are obvious diminishing returns on new thematic discoveries with each subsequent interview (Polkinghorne 2005). We would not assume that the full scope of responses has been covered in a multiethnic or multigenerational community, for example, unless we were sure that our sampling procedure covered all known or suspected sources of significant variation on the topic. What we cannot know is the range of variation among individuals in the population in terms of how they relate to that cultural domain. Answering that question falls within the scope of probability sampling. The classic approaches to ethnographic sampling are well explained by Johnson (1990), who thoroughly explores the similarities and differences between probabilistic sampling used in surveys and experimental designs compared with the purposive sampling strategies necessary for successful qualitative research.

Nominated Expert Sampling

Nominated expert sampling is a classic ethnographic or qualitative approach to exploring culture and social meanings in various populations, communities, and cultural groups. It is theoretically supported by a consensus theory approach to sampling and sample size (see Romney et al. 1986). The sample recruitment process is to identify all of the consensus experts (i.e., those nominated by multiple other individuals in a community) who have the most extensive expertise in a specific area of social or cultural knowledge. The gold standard is to recruit the entire expert sample to provide a saturation level of information about the targeted research topic. Since experts tend to agree about the vast majority of their subject area, and provide virtually the entire explanation of the variability in expert views (they know each other's agreements and disagreements), this provides an in-depth investigation of a topic that is qualitatively valid, reliable, and culturally generalizable. J. Schensul et al. (1999) suggest that a sample size of between 12 and 20, if properly selected, is sufficient to provide a valid and reliable explanation for most cultural phenomenon.

Snowball Sampling and Respondent-Driven Sampling

In snowball sampling, each person interviewed connects the researcher to the next person or persons, based on a designated set of criteria. The result is the continuous accrual of related research respondents. It is an important instance of chain analysis (Bieleman et al. 1993; Diaz et al. 1992). This technique allows the researcher to build a sample of individuals with one or more common characteristics within a large known or unknown universe of individuals, all of whom may not, as a group, share the behavior or cultural element in question. As an example, it has been used to study drug subcultures such as injection drug users in the northeast (Mosack et al. 2005) or cocaine users in the Netherlands (Bieleman et al. 1993). In many of these studies, drug users served as case-finding agents, introducing to the researchers to a growing sample of other users.

A special case of snowball sampling, respondent-driven sampling (Heckathorn 1997, 2002; Scott 2005) is now in wide use for creating samples in hidden or hard-to-reach populations. One of the strengths of these forms of nominated sampling is that they can be designed (Snidjers 1992) to be statistically sound approaches for estimating large population characteristics and comparing those conditions to conditions derived from probabilistic/random samples.

Targeted Sampling

Targeted sampling is designed for situations where it is difficult to identify the universe of units from which to draw a sample (e.g., commercial sex workers, homeless youth, undocumented household workers, or school dropouts). In these examples, key parameters—including the need to remain hidden—prevent the use of traditional random sampling procedures. In such cases, targeted sampling (Watters and Biernacki 1989) is an appropriate substitute.

Targeted sampling is a systematic technique for creating a proxy sampling framework that ensures that the major divisions or categories of the population being studied are systematically sampled in theoretically correct portions. It uses all of the available secondary data relating to the population to create geographically focused targeted sampling areas. These data may include health information, social service data, and ethnographic knowledge of the population, observations, or any secondary data sources that describe some important segment of the target population. New advances in respondent-driven sampling have been amalgamated with basic targeted sampling strategies to advance appropriate sampling in hidden populations (Heckathorn 2002; Scott 2005).

METHODS IN APPLIED ANTHROPOLOGY

Anthropological research typically uses a variety of data collection techniques—including observations, interviews, focused life stories, discussion groups, the analysis of social networks, decision modeling, projective techniques, and household surveys—to gain detailed knowledge about cultural contexts, patterns of social behaviors, sequences of events, and cultural norms or beliefs There are many resources on methods of ethnographic data collection and analysis. The classics include Pelto and Pelto's (1978) pioneering work, *Anthropological Research: The Structure of Inquiry*; Bernard's (2011)

Research Methods in Anthropology; the two-volume series by Werner and Schoepfle (1987) entitled *Systematic Fieldwork*; Weller and Romney's (1988) *Systematic Data Collection*; Strauss's (1985) *Qualitative Analysis for Social Scientists*; and Strauss and Corbin's (1990) *Basics of Qualitative Research*.

These works contain descriptions of research design and methods for participant observation and advanced ethnographic data collection. They are complemented by Miles and Huberman's (2002) *Qualitative Data Analysis*. Many specific ethnographic methods—decision tree modeling, cognitive methods (pile sorts, triad tests, etc.), the long interview, the life history—are described in a continually expanding series of monographs published by Sage Publications. The most in-depth general anthropological methods publications are Schensul and LeCompte's *Ethnographer's Toolkit* (2010/2012), and Bernard's *Research Methods in Anthropology* (2011). The following sections identify the methods commonly used in applied anthropology, especially educational, medical, business, and urban anthropology.

Analysis of Culturally Defined Cognitive Systems

Cognitive anthropologists have developed methods that allow us to explore how people think about and locate meaning in the world around them. As we noted earlier, it is frequently important to consider cognition and behavior in applied contexts since the relationship between them is not always predictable. Change agents often recognize the need to simultaneously influence behavior by changing attitudes, beliefs, norms, values, motivations, and intentions. There is a well-developed set of basic cognitive anthropology techniques that have been used in cross-cultural research. In this section, we discuss cognitive research methods that: (1) assist in determining the content and limits of cultural domains; (2) help us analyze the structural elements of cultural domains; (3) portray a domain from a consensual framework; and (4) identify key informants and domains or population sectors for future research (Kostick et al. 2011).

Cultural Models Approaches

The cultural models methods of Quinn and Holland (1987) and Kleinman (1980; Kleinman and Benson 2006) are solid starting points for cross-cultural cognitive research. These approaches provide systematic questions to investigate broad cultural domains, such as models of health conditions, policy issues, and values systems. Other ethnographic cognitive methods include systematically administered, semistructured, and open-ended (qualitative or ethnographic) interviews analyzed through hierarchical coding and pattern recognition of themes and conceptual linkages (Weller and Romney 1988; Werner and Schoepfle 1987) and systematic data collection techniques (sometimes referred to as elicitation techniques) such as pile sorts and triad tests, borrowed from cognitive psychology and linguistics (Bernard 2011; J. Schensul and Lecompte 2010/2012).

Determining the Content and Limits of Cultural Domains

Free listing is the technique most commonly used to begin the exploration of cognitive domains. The basic format is to ask a set of respondents to list and describe all the

things that are part of a particular domain. The ethnographer records and probes unexpected or unfamiliar responses in detail (including new words and phrases or words used in new ways) since these labels provide a window into unknown concepts, beliefs, or behaviors. Free lists provide information and local vernacular that can be used in culturally specific questionnaire construction, written educational materials, or behavioral exercises that are being constructed to meet intervention or health education goals. They also allow us to differentiate between key subdivisions in the populations since the domains can differ significantly by gender, ethnicity, age, and cultural expertise. This gives researchers the ability to assess intra- and intercultural variation within the same geographic region, across the nation, or around the world. Some of the more sophisticated uses of free-listing data treat these nominal or categorical data as variables that can be used in statistical procedures to provide more extensive explorations of the relationships among informants or among the elements in a cultural domain (see Bernard 2011; Weller and Romney 1988).

Techniques similar to free listings, such as exploratory open-ended questions, Spradley's domain analysis techniques (1979), or sentence-completion processes (D'Andrade et al. 1972) can also be analyzed using the approaches described for free listings. These rapid-scanning techniques can be used as an individual exercise in a face-to-face interview or in group settings (as a form of focus group). Empiricists tend to use the individual interviewing technique so as to avoid contamination by other informants, while constructivists often use the group interview (including the focus group) to enable observation of negotiated meaning.

Techniques to Define and Analyze the Structural Relationships among Elements in a Cultural Domain

Research methods in cognitive anthropology that allow a researcher to explore the relationships among the elements of a cultural domain include pile sorts (Weller and Romney 1988), triads tests (Weller and Romney 1988), and sentence frame techniques (D'Andrade et al. 1972; Weller and Romney 1988). Each of these techniques begins where free listings leave off. They start with the elements of a well-defined cultural domain (explored through free listings). The researcher explores the relationships among the key elements of that domain by asking informants to make judgments about the similarities and differences of the items in the domain to one another.

One such technique is a pile sort, a rapid assessment technique that uses visual aides to let informants create either free or constrained (predefined) classifications of elements within a cultural domain.

The most common method is to place pictures, real objects, written labels, or combinations of the three on cards. Each card represents one element in the domain being studied. The researcher asks the informant to classify all the elements by stacking the cards into piles defined by one or more common elements. The final groupings represent each individual's classification system for items in the domain. Weller (this volume) describes the pile sort method in detail. Handwerker and Borgatti (this volume) describe multidimensional scaling and cluster analysis, two of the methods most commonly used in analyzing pile sort data. Weller and Romney (1988) and Bernard (2011) show how these techniques can be integrated into ethnographic research. The

most commonly used computer programs for the analysis of pile sort data are ANTHROPAC (Borgatti 1990), UCINET (Borgatti et al. 2006), and both SPSS and Excel.

Consensus Modeling

In consensus modeling, an ethnographer can identify a consensus-based description of a cultural domain while simultaneously assessing individual informant's expertise in that domain (Romney et al. 1986) based on the assumption that "cultural truth" and informant accuracy are derived from a probabilistic model of culture. Investigators need to know the accuracy of the information they receive in self-reports from informants, and consensus theory provides one type of answer to these questions. Consensus theory is designed to work with a set of questions, all in the same format, all on the same topic, and all at the same level of difficulty. The goal, then, is to estimate the best set of culturally appropriate answers to the questions. The formal model (Romney et al. 1986) can accommodate categoricaltype responses: single words or short-phrase responses to openended questions, or closeended multiple choice responses (including true/false or yes/no). An informal version of the model can accommodate interval or fully ranked data. For an example of the use of the formal model with yes/no responses, see Weller et al. (1993); for the informal model with ranked responses, see Chavez et al. (1995).

Analysis of Social Structures

Anthropologists and other social scientists have long been interested in the effects of social structure on human survival and social interaction. The anthropological literature is filled with information about kinship organization, voluntary associations, and formal organizations found in cultures around the world. Modern network analysis is a set of techniques for expanding our knowledge of the effects and dynamics of human social organization. These techniques are used in the study of kin-based and nonkin-based networks (see Edwards [2010], Marsden [1990], and Scott[1991] for reviews of methods and analytical issues in network analysis). Increasingly, applied anthropological research has involved the examination of informal and formal human networks. Ethnographic research in this area commonly focuses on three kinds of networks: specialized interactive networks (e.g., sex or drug use/risk networks), ego-centered networks, and full relational networks. Each involves different methods of data collection. Research questions drive the choice of which type of network to investigate and which type of data to collect.

Ethnographic Data on Specialized Networks

Since social networks are the basis for social activity in a community or institutional setting, one effective method for identifying local social networks is through ethnographic interviewing. Interviewers ask respondents to identify clusters, networks, cliques, or other kinds of groups in which individuals are related to one another (see Bott 1957) or are connected by some form of cultural interaction. The characteristics of the networks defined through ethnography can be used to create a typology or classification of the types of social relationships that exist in a culture and the groupings by size, class, gender, ethnicity, income, family, or other demographic characteristics that they represent.

Curtis et al. (1995) used ethnography to define initial networks in their study of urban street-level drug markets. Ethnography was used to describe the activities of network members and to contextualize networks in the street drug economy. They followed up with a formal survey to confirm social ties among network members to assist the development of street based drug interventions. Another applied example of this kind of research in an industrial/business context involved the ethnographic and social network analysis of industry–university research partnerships (see Briody and Trotter 2008; Trotter et al. 2008 for models of successful partnership interactions). A summary of qualitative network approaches and comparative qualitative methods that are useful for applied projects can be found in Fischer (2011).

Ego-Centered Network Data

Ego-centered network analysis is based on an individual's definition of the individuals connected to him or her by specified social relationships which are assessed as network attributes (Knoke and Yang 2008). The attributes of ego-centered networks (size, gender and ethnic composition, etc.) and characteristics of those networks themselves (density, intensity, etc.) can be incorporated into "typical" network profiles, which can then be analyzed in association with other psychosocial variables (Wasserman and Faust 1994; Watts 1999). Ego-centered networks can provide the basis for determining specific influences on ego, which can then be used in interventions. The social support literature examines ego's networks to manage chronic health problems as well to understand risk-taking behavior and to provide direction for drug and HIV intervention programs (Latkin et al. 1995).

Full Network (Relational) Data

Ethnographic and ego-centered network approaches provide valuable baseline data for intervention strategies (Trotter et al. 1996), but they don't always provide detailed information about the type, strength, or direction of relationships within networks. This type of data emerges from the analysis of reciprocal relationships among all members of a network. Scott (1991) describes macro-network data collection, analysis, and use. The collection of data on full or macro-networks is costly and time consuming, so there is continuing interest in the development of techniques to approximate full networks from data on partial networks. Klovdahl (1989), Klovdahl et al. 1994, and McGrady et al. (1995) discuss procedures, advantages, and disadvantages of sampling in constructing macro-networks.

THICKER DESCRIPTION

Applied anthropologists use many other approaches for collecting data. Here, we review several approaches, including sociogeographic mapping, group interviews, ethnographic surveys, and rapid assessment.

Sociogeographic Mapping

Anthropologists have always used maps in field research in part, at least, because early fieldwork was often conducted in places where there were no maps. It was important to bound communities and demarcate residential and other structural units in

relation to one another. Mapping "the community"—whether a classroom, organization, neighborhood, or invasion—is still highly recommended. The process of making a community map helps researchers draw a household sample, generate hypotheses about social relationships among households and between households and other social units, and observe changes over time, especially with respect to household/land and other environmental use patterns. Computerized mapping programs and national and state GIS (geographic information systems) allow for relatively quick mapping of virtually any data across space and over time.

Geographic mapping of social networks by residence of network members in relation to primary points of interaction in the community (defined through ethnographic observation) can be used to frame the location of interventions based on natural patterns of spatial use. As an example, the Institute for Community Research was able to show patterns of intra-neighborhood, inter-neighborhood, and intercommunity mobility for each of Hartford's neighborhoods by mapping residential locations over time. The demographic data, portrayed visually, were immediately usable by educational policymakers for school-based planning (ICR 1993). GIS applications are useful for describing the arrangement of social variables in geographic space, for hypothesis testing, and for eliciting cognitive responses to research-driven questions reflected in such data. A number of emerging software resources allow researchers to overlay social and cultural information on traditional geographical maps and variables, which provides for some very interesting interactive analytical capabilities using spatial statistics in conjunction with common demographic analysis (J. Schensul et al. 1999).

Group Interviews

Group interviews yield text data for coding and analysis, which can be treated quantitatively and qualitatively. Group interviews can be used for many purposes—for example, to collect information on a cultural domain, to develop listings for pile sorts, to identify the range of variation in opinions or attitudes on a set of topics, to collect simple numerical data on reported experiences, or to react to the results of previously collected data. We use the term "focused" to refer to formal and informal interviews that are intended to gather ethnographic information on any topic that lends itself to group discussion. More recently, focus groups have been used to study knowledge, attitudes, and beliefs in a many social situations.

One disadvantage of group interviews is that they are limited to topics that people are willing to discuss in public. Topics considered personal or intimate should be avoided in group interviews or depersonalized. However, focus group interviews are useful for orienting yourself to a new field of study, for generating hypotheses based on informant's insights, for evaluating different research sites or study populations, for developing individual questions for interview schedules and questionnaires, and for getting participants' interpretations of results from earlier studies (Khan 1991). They can produce a lot of data in a short time from a larger number of people than would be possible by interviewing key informants. They tend to produce good "natural language discourse," which allows the researcher to learn the communication patterns in the community rapidly. Krueger and Casey (2000) and Onwuegbuzie *et al. (2009) offer new methodological considerations for optimizing information flow in group interviews.*

The focus group technique appeared in the 1930s as an alternative to direct interviews and became popular as method for qualitative research in marketing. Technically, focus groups are used to obtain audience response to designs, products, interventions, or data dissemination. Anthropologists are more likely to use more informal, open-ended, and exploratory approaches to group interviews, including interviews with groups in the field, than to use formal group interviews to test ideas, interventions, and products.

Ethnographic Surveys

Ethnographic surveys are often an integral part of strong mixed methods approaches to applied research, and have a couple of advantages over generic surveys applied to special groups (Creswell 2009). First, ethnographic surveys are based on prior experience in a specific field situation. They may incorporate instruments or questions drawn from other studies, including nationally validated instruments, but their strength is their validity in relation to local culture and the construction and testing of midrange theory. Thus, ethnographic surveys measure constructs known to be relevant to, or understood by, the study population. Second, they are most commonly administered in a face-to-face interview (preferred because it is more intimate). Self-administration is not possible with nonliterate respondents or to those unfamiliar with answering written questions.

Rapid Ethnographic Assessment

Rapid ethnographic assessment techniques have been developed for situations where there is a strong need for ethnographic data but little time to conduct a full ethnography. These "rapid scanning" techniques are also called rapid ethnographic procedures, rapid rural appraisals, focused ethnographic studies, and brief ethnographies (Handwerker 2001; Scrimshaw 1992; Scrimshaw and Gleason 1992).There have been a number of critiques of the original rapid assessment approaches, which have led to substantial improvements in the basic methodological design of rapid assessment, response, and evaluation designs (Needle et al. 2000; Trotter et al. 2001; Trotter and Singer 2005). Most of these techniques share the following characteristics:

1. They are narrowly focused—for example, one disease category, or one cultural domain.
2. They are problem oriented—intended to provide time-sensitive evidence to address a current issue.
3. They are participatory; local partners include potential users, who, at the same time, can provide ethnographic insights otherwise obtained through more time-intensive participant observation and in-depth interviewing.
4. They provide techniques for rapid sampling of representative sectors.
5. They use small sample sizes and fit community contexts and conditions.
6. They do not pursue intracultural complexity or range of variation; instead, they focus on cultural patterning and on gross differences across sectors of populations and service providers.
7. They use a systems perspective, making sure to collect information from all relevant sectors of the community.
8. They use cognitive techniques to identify and assess cultural domains.
9. They generally do not (but can) make use of quantitative sampling or survey techniques.

Typical rapid ethnographic assessments are modest in cost and duration The assessments include mapping, brief participant observation in targeted cultural domains and spaces, free listing and pile sorting or other systematic elicitation methods, key informant interviewing, and group interviewing (Trotter et al. 2001). Rapid assessment and focused ethnography requires extensive prior knowledge of the culture in question as well as a prior determination of all of the important sectors contributing to the problem, from which researchers can draw representative samples of key informants and focus group respondents. This determination can be made either by ethnographers familiar with the setting or by the interdisciplinary/intersectoral team responsible for the study and its uses.

Challenges include the need to develop an accurate understanding of the problem and its context in a relatively short and cost-effective period of time, the need for systems for transforming the data into satisfactory solutions, and the need to produce socioculturally acceptable solutions (Needle et al. 2000). These three requirements characterize much of applied research, but the protocols for the conduct and utilization of brief ethnographies are still not widely known and accepted. Thus, both researchers and contractors/clients take risks when using brief ethnographies for programs, and especially for policy-related purposes.

RESPONDENT ACCURACY—VALIDITY AND RELIABILITY

Informant accuracy is a critical issue for designing and conducting ethnographic research. In survey research, data reliability and validity depend on the consistency of self-report data and studies in which survey responses are checked against sources of information that are known to be correct (laboratory tests, health records, or mechanically measured data). The validity of the responses of ethnographic informants i.e., cultural experts) is assessed by other criteria (Bernard 2011; Bernard et al. 1984; Kirk and Miller 1986). Ethnographic field research depends on developing close personal relationships with members of a community over time. It emphasizes the rapport established between the researcher and the respondent. Multiple interviews with the same individual, as well as the increasing intimacy of the ethnographer–informant relationship, is expected to produce increasingly accurate information, although in some cases cultural values interfere with this process (Blimes 1975; Nachman 1984).

Field research offers the potential for repeat interviews with the same respondent during the study period. These interviews, both formal and informal, are opportunities to look for narrative inconsistencies, recheck and verify data, and clarify previous statements. Ethnographic data are heavily based on individual perception, memory, and self-report through life histories, cultural process interviews (Pelto and Pelto 1978), narratives, or stories (Florio 1997) as well as elicitations (J. Schensul and LeCompte 2010/2012). Each approach raises challenges to questions about the accuracy of recall and the veracity of individual informants. Individuals vary in their level of expertise and in their ability to accurately recall information about the things that have happened to them. Some are highly accurate in describing unique events; others are more accurate in describing repeated events. Some informants have narrowly defined or specialized expertise; others are knowledgeable about a range of cultural domains but their depth of knowledge on any single topic is limited. Sometimes it is important to

interview "special" people in a culture; at other times, it is best to talk to "typical" or representative samples of people. (Bernard et al. 1980, 1982; Freeman and Romney 1987; Romney et al. 1986; Weller 1984).

We believe that the most effective way to ensure reliability and validity of ethnographic data is to obtain comparable, confirmatory data from multiple sources at different points in time, and through the use of multiple methods. This is the process of triangulation. Many investigators, however, now consider ethnographic self-reporting as a form of narrative or storytelling in which the individual interviewed is attempting to convey a particular impression or image to the researcher (Marcus and Fischer 1986). The story itself must be situated historically, contextually, and in the life of the storyteller to understand it as data. Extensive and informative discussions of qualitative reliability, replicability, validity, and generalizability have been introduced in recent publications on systematic qualitative research that are also valuable to applied anthropological methods (Morse et al. 2002).

ETHNOGRAPHIC FIELD TEAMS AND CROSS-SITE/CROSS-NATIONAL APPLIED RESEARCH

Ethnographic teamwork requires proper and constant management of team members and the data they are collecting. Some of the best examples for ethnographic team development come from multisite medical anthropology projects for the Centers for Disease Control and Prevention and the National Institutes of Health (Gust and MacQueen 2008). These projects demonstrate that proper management calls for attention to comparability of interview and observation skills across interviewers, careful group construction of coding systems related to the theoretical framework of the study and the field situation, regular monitoring and feedback with respect to field notes, and attention to entering and coding of data. Furthermore, since good field research involves interaction with the data and both deepening and expanding of text codes, continuous analysis of incoming data with the field team is important. Ethnographic field teams encounter situations comparable to cross-national ethnographic research when team members work in settings marked by differences in ethnic culture. In both instances, meaning systems, contexts, and social interactions may vary, reducing the comparability of coding systems.

Investigators who engage in cross-site or cross-national studies need to pay very close attention to the construction of comparable coding categories across settings and to the possibility that some phenomena may be unique to each setting (MacQueen et al. 2001). One solution to the problem of cross-site comparability is to assume that *common* research *methods* will produce *unique cultural responses* in each setting that point to differences as well as possible similarities in approach. Most of these projects also utilize ethnographic computer data management and analysis software, which has been available for some time now to assist in these processes and to give teams of researchers the ability to systematize the collection, coding, data retrieval, and basic analysis of text data (MacQueen et al. 1999; McClellan 2003). The most popular current programs are NVivo, NUD*IST, and ATLAS-ti. However, new ones are added frequently, old ones change or are eliminated, and there is a consist evolution of available software packages that should be evaluated for each new applied ethnographic project.

SUMMARY AND CONCLUSIONS

We have presented an overview of the theories, informant selection processes, and research methods used in applied anthropology. Though our examples are based primarily on applied research conducted in the United States, several are drawn from other countries, and the methodology we outline is relevant in a global setting. Many of the methods are common to all cultural anthropology, but some, like rapid assessment, consensus theory modeling, cultural models, social network analysis, and systems theory are more commonly used in applied anthropology.

All applied methods must have a strong theoretical foundation that relates to the purpose of an applied project, to the theory of cultural meaning that is intended to guide the project, and to the plan for change being attempted. Applied research methods start with this theory and evolve through the interaction between expressed needs in the field, the literature on the issue, and the deepening research experience of the anthropologists and their partners in the field. The evolution of the theory, by definition, involves the collaboration of "partners in change," for without partners for whom the designated direction of change is centrally meaningful, the research will remain on the shelf.

We have argued for consideration of the appropriate selection of individuals who will be able to access data critical to the success of the project. Sometimes such individuals come from the community wishing to initiate cultural change; sometimes they are from the same designated group but from another geographic location; more often than not, they are other anthropologists of different backgrounds who are committed to sharing their research and social skills to improve the quality of life in a community. Each of these individuals can serve an applied research project well. Once the initial stages of project development have occurred, a multifaceted set of research and development methods driven by clearly articulated theory can be put into place. These methods are intended to do two things simultaneously: (1) produce sound data using rigorous research methods that are convincing and can guide change efforts; and (2) maintain close working relationships with partner communities committed to the change process. Both are necessary. The means should always be consistent with the desired ends to avoid the contradictions that can so easily destroy a project even before it begins. Whenever possible, there should be a full partnership of researchers and interventionists or change agents in all aspects of the research. This is important to ensure full use of the results and to ensure that people who know best how to make and act on decisions to bring about the desired change are also intimately familiar with the research that is intended to guide it.

Finally, as applied anthropologists, we should never forget that in addition to methodological flexibility, the greatest strength of our field is that it provides ethnographers with the methods and tools to understand culturally based needs, values, perceptions, beliefs, knowledge, models, and reasons for behavior—and to use these, preferably in partnership with those whose issues are of concern, for designing programs of change. Even with the best intentions of all partners to change, it is only with the use of sound research methodology that a change effort is likely to result in long-term success.

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