

Elicitation Methods in Experimental Design Research

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- 1 See Richard Buchanan's discussion of design studies in, "Wicked Problems in Design Thinking," *Design Issues* 8:2, (Spring 1992): 5–22. See also Gunnar Swanson, "Graphic Design Education as a Liberal Art: Design and Knowledge in the University and the 'Real World,'" *Design Issues* 10:1 (1994).
- 2 Establishment of the Ph.D. program at the Institute of Design, Illinois Institute of Technology, represents an important step toward the development of an experimental branch of visual communication design. The program at IIT primarily is concerned with information theory, advanced communication technology, and human factors issues in the human/computer interface, thereby finding a closer alliance with engineering, computer science, and ergonomics than with the social sciences which are the topic of this paper. The Illinois group has for years been a leading voice for the development of more rigorous testing methods in design. Creation of the Ph.D. program sets a precedent in North America that other top programs should pursue in interdisciplinary areas most appropriate for their programs.
- 3 See Jorge Frascara, "Graphic Design: Fine Art or Social Science?" *Design Issues* 5:1 (1998): 18–29.
- 4 Experimental research in the strictest "laboratory" sense involving hypothesis testing, and the control and manipulation of variables, still is relatively uncommon in social scientific research. Shanto Iyengar and Donald Kinder have conducted mass media research in what are essentially laboratory environments, with the intention of controlling environmental interference to an exceptional degree. See *News that Matters: Television and Public Opinion* (Chicago: University of Chicago Press, 1987). In a more general sense, the term "experimental" applies to any form of original social research in which data are gathered through direct contact with persons identified as representative members of a study population.
- 5 D. Winkler, "Design Practice and Education: Moving Beyond the Bauhaus Model," in Jorge Frascara, *User-Centered Design: Mass Communications and Social Change*, (London: Taylor and Francis, 1997), 129–135.

At a time when public access to visual information is greater than ever before (via compelling print, broadcast, digital, and Internet delivery), it is appropriate that research exploring the influence of visual communication design on people who use, interact with, and depend on it for information is evolving within higher education. In the past decade, the number of individuals engaging in historical design research and critical-theoretical writing about the social impact of design has grown to such an extent that calls for the formalization of design studies as a liberal art¹ are gradually being translated into action by individuals within forward thinking institutions. Less developed in academe are investigations of design as a social science.² This paper discusses the value of undertaking interdisciplinary research involving direct contact with members of prospective audiences as a means of building a knowledge base about user interaction with communication design, with the goal of strengthening both design theory and practice.

Recent conceptions of design research as a *liberal art* and as a *social science*³ are not contradictory or competing ideas, but rather two aspects of the same system—the theoretical and experimental branches of visual communication design research, respectively. Just as experimental physicists provoke, test, and challenge the work of theoretical physicists, and vice versa, so should theoretical and experimental efforts mutually inform and stimulate research in design.⁴ Historically, the dominant conception of our field has been one of a theory/practice dichotomy that has left theorists and practitioners largely uninvolved with the concerns of the other. But commercial design practice more properly could be understood as the *applied* branch of the field, with experimental research balancing theoretical investigation in graduate programs.

The origins of the theory/practice dichotomy in design (with theory being strongly subordinated to practice) are rooted in the pedagogy of the Bauhaus which has, for most of this century, served as the predominant model for both undergraduate and graduate design education in North America. According to Dietmar Winkler,⁵ the limitations of Bauhaus pedagogy with its primary emphasis on formal resolution of visual elements and intuitive problem-solving, derive from its status as:

...a typical German Fachschule, a school preparing students for vocational practice—no more, no less. The student's

education was seriously lacking in intellectual stimuli: no theory was taught, no economic or political history, no natural or social sciences, no music, no formal art history, no literature.⁶

Implicit in the European trade school system of which the Bauhaus was a part is an education removed from the traditions of university scholarship with its concern for veracity and empiricism. At the center of a craft or trade, workshop education is a master/apprentice pedagogy which does not involve questioning sources of knowledge. By virtue of an instructor's stature as a "master," studio instruction has the quality of being unassailable,⁷ with the implication that a student need only absorb lessons through proximity to the master, later generating a personal invention based on the master's teaching. This emphasis on aesthetic and technical knowledge transmitted through a master/apprentice relationship has created a discipline subtly lacking in reflection on *how we know what we purport to know*.⁸

Winkler, among others, has observed that, within our field, the term "design research" traditionally has meant the (usually brief) literature and visual reference search performed by design practitioners as they learn about subjects related to a client's products and services. Remarkably, questions regarding how an end user might interpret, interact with, and act on designed communication objects generally have been presumed to be addressed adequately by the designer's intuition. As Winkler notes

...neither the Bauhaus nor other influential design schools have instilled in the design constituency a disciplined process of research, with the ethical understanding of all necessary skills, including ownership, authorship, verifiability, and assurance of fidelity of information. What most designers understand as research is information gathering, sometimes information synthesis and analysis, but rarely as the testing of conceptual models, or the testing and application of data from findings in sociology or psychology.⁹

However, the philosophical pursuit of "verifiability and assurance of fidelity of information" (or "the search for truth") is at the core of mainstream academic research and pedagogy. As visual communication design researchers become more active in the research community, these questions will need to play a greater role in how we develop plans of study and draw conclusions from our work. The explosion of information that currently defines contemporary life requires a greater humility toward knowledge formation than has been the norm in graphic design practice and education. Visual communication design now enjoys levels of use and potential influence in social culture to the extent that these questions belong at the center of new design research activity.

6 Ibid., 130.

7 Winkler observed, "The Bauhaus faculty assumed themselves capable of furnishing all necessary information" in "Morality and Myth: The Bauhaus Reassessed" in Bierut et al., eds., *Looking Closer: Critical Writings on Graphic Design* (New York: Allworth Press, 1994), 40.

8 Examination of writings regarded as "classics" of graphic design literature are disturbing in this regard. In *The Corporate Search for Visual Identity* (New York: Van Nostrand Reinhold, 1970), 15, Ben Rosen wrote "What is intuition? It is 'immediate apprehension' of an idea, according to the dictionary. In the mind of a skilled practitioner of design, there are built-in intuitive feelings based on talent and experience. Research should not be used to help the designer make his decision...In the end, you know that a design solution is good by taking the word of a specialist." The use of the term "specialist" to refer to someone who relies exclusively on intuition to solve problems would be questionable in most professions.

9 Winkler, in "Design Practice and Education," 133.

The Interrelation of Experimental and Theoretical Research

In the late twentieth century academy, “the search for truth” is not concerned with “absolute truth” as conceived by classical philosophers, but rather with an ongoing engagement in a process for *reducing uncertainty* about subjects or phenomena.¹⁰ A central premise of this position is that any conceptual model or finding represents only a partial explanation of reality which can be usurped by new findings at any time. In this environment, theory and experiment are interdependent processes in formulating bodies of knowledge that can be said to *reduce uncertainty*. Theory remains speculative until tested, and collected data cannot be meaningfully analyzed until subjected to the organizing principles of theory. As methods for critical and theoretical investigation in design evolve, a rigorous experimental branch of visual communication research will be necessary for the field to mature.

A Model of Research

According to a model of research described by David Brinberg and Joseph McGrath, all research activity occurs in three principle domains, the *substantive*, the *conceptual*, and the *methodological*.¹¹

- The *substantive domain* concerns content that is of interest.
- The *conceptual domain* concerns ideas that give meaning to content.
- The *methodological domain* concerns procedures for studying content.

Valid research requires involvement with all three domains but not necessarily at the same time or in a particular order. Relations between these domains define three distinct “study paths”—the *experimental*, the *empirical*, and the *theoretical*—which describe fundamental research orientations. Each path begins with information and tools drawn from two of the domains which are then applied to procedures or phenomena in the third.

- The *experimental path* combines concepts from the conceptual domain with methods from the methodological domain to produce a study plan. Concepts and methods subsequently are brought to bear on phenomena in the substantive domain.
- The *empirical path* combines methods from the methodological domain with substantive phenomena to produce a set of observations to be interpreted with ideas from the conceptual domain.
- The *theoretical path* combines concepts from the conceptual domain with phenomena from the substantive domain to produce an “untested theory,” which can then be subjected to selected methods. If individual concepts are combined with particular phenomena, the products are constructs. If

¹⁰ D. Brinberg and J.E. McGrath, *Validity and Reliability in the Research Process*, (Beverly Hills, CA: Sage Publications, 1985), 13.

¹¹ *Ibid.*, 14.

larger "conceptual relations" are combined with "patterns of phenomena" then the products are hypotheses.

What makes this model particularly appropriate for visual communication design research is that selected methods, theory, and content need not come from the same discipline. As an "integrative" discipline,¹² design is virtually always concerned with problems, subject matter, and methodology from fields outside of our own. How we choose to integrate them will increasingly define what is unique to design research.

According to this model, *experimental research* differs from *empirical research* by the order in which domains are explored. However, for the purposes of this paper, the term *experimental* will be used interchangeably with the term *empirical* to refer to original research activity that involves direct collection of data from human subjects. Both paths are distinct from theoretical research in that information is actively gathered and tested in the substantive domain, rather than formulated from general observation in combination with readings from works by other theorists.

The diagram below provides an example of how the model of Brinberg and McGrath can be brought to bear on problems in communication design. This particular schema comes from my contribution¹³ to a larger traffic safety communication project initiated and directed by Professor Jorge Frascara at the University of Alberta in Edmonton.¹⁴ The questions and subject matter are specific to the traffic safety study, but the basic structure of the investigation could be applied to communication design research across a wide range of content and problem areas. (See Figure 1.)

The goal of the Alberta traffic study was to develop recommendations for a public safety campaign that could potentially, over time, reduce the incidence of traumatic injury-producing motor vehicle collisions among 18–24-year-old male drivers. As the diagram shows, the research questions for the project originated in the *conceptual domain* within the field of visual communication design, but concerned problems from the *substantive domain* of traffic safety. Elicitation research methods were selected from the fields of sociology and marketing for application in the *methodological domain*. Finally, findings from the methodological domain were resubmitted to the conceptual domain for analysis relative to motivational and behavioral theories from the field of social psychology.

The essence of this study, especially its use of elicitation methods, was to explore the "world view" of at-risk young males regarding motor vehicles and their own driving. We found that existing traffic safety literature described the extent of males' involvement in casualty collisions statistically, and provided a demographic profile of drivers most likely to be affected, but failed to explain *why* young males were over-represented in the crashes.¹⁵ With a few notable exceptions,¹⁶ an extensive body of literature

12 See Buchanan, 4.

13 Zoe Strickler-Wilson, *A Targeted Visual Communication Campaign: Safety Communications for 18-24 Year Old Male Drivers in Alberta*, (Masters thesis, 1993, Department of Art, University of Alberta, Edmonton, Alberta), 16.

14 For a thorough description of the study, see Frascara, 61–105.

15 *Ibid.*, 63–69.

16 A unique study, which provided data appropriate for communication strategy development, was described by J.P. Rothe, ed., in *Retinking Your Drivers*, (1987) Vancouver Insurance Corporation of British Columbia. This qualitative study used methods and analytical models from cognitive sociology and phenomenology to study ways in which Canadian teenagers conceptualized and experienced driving and driving-related peer influences. This study is fascinating reading, and provides an excellent model for qualitative methods and analysis applicable to communication design problems.

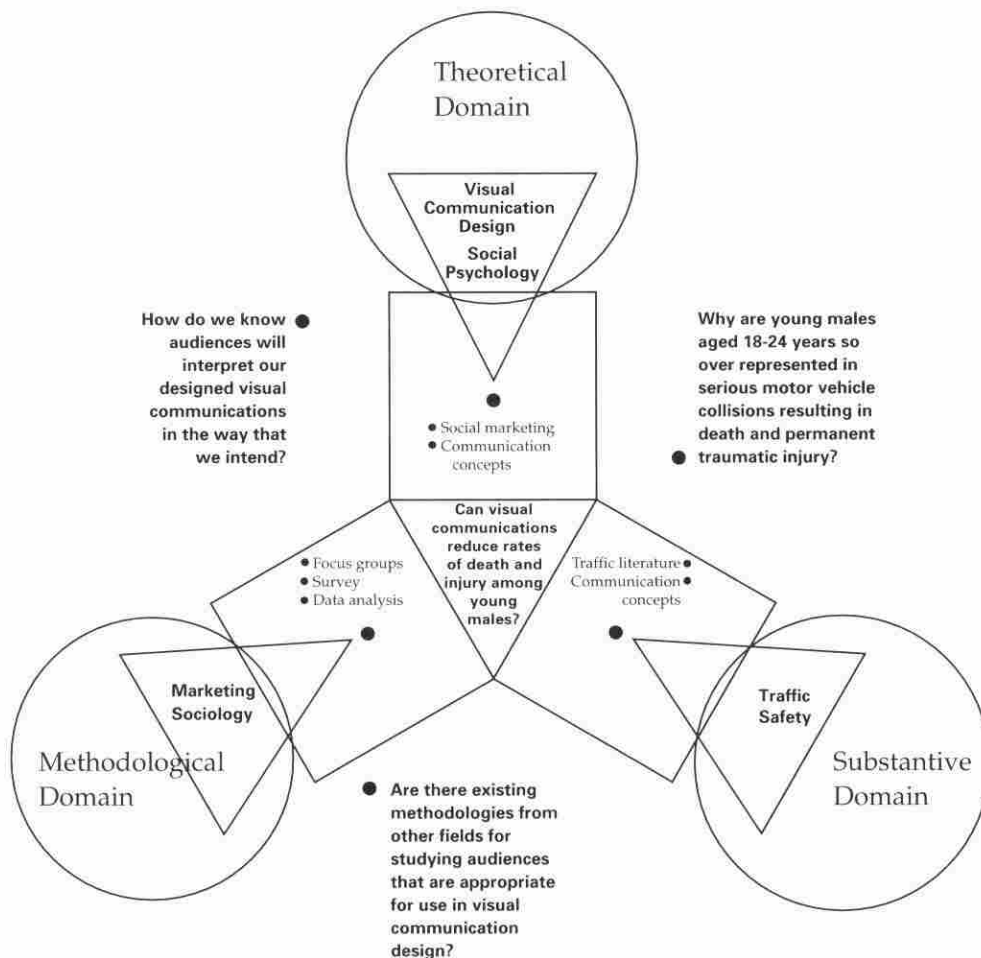


Figure 1

neglected the perspectives and experiences of young male drivers themselves. Yet this information was essential if we were to recommend communication strategies with any hope of changing driving behavior among members of this group. Through structured contact with representative members of the study population, we learned that common institutional definitions of “problem driving” generally conflicted with the participant’s own definitions of problem driving. Speeding and other crash-related driver actions defined as “reckless” by safety authorities were, by and large, regarded by young males as characteristics of a “good” or “highly skilled driver,” with emphasis on the driver’s ability to maintain physical control the vehicle (exceeded, of course, at the moment of crash).¹⁷ In this context, the research suggested that visible and sophisticated public communications should reposition the highly valued concept of driver “control” away from the notion of manual skills and reflexes, and toward (safer) defensive driving “strategies” to be emulated by young male drivers as marks of driver competence and “control.”

Validity

Before describing specific methods, I will discuss the concept of validity as it pertains to social science research in general. Unlike physics or chemistry, where materials can be manipulated as needed, social research involves human subjects who are unique individuals possessed of consciousness and will. In other words, subjects are active agents deserving respect in the research process. The presence of volition in participants requires a researcher to recognize that, any time a person agrees to be studied, he or she will correspondingly study the researcher and the research process.¹⁸ In this context, all responses must be considered first and foremost as expressions of "self-presentation," wherein participants have assessed the level of personal risk involved in divulging information about themselves and have responded accordingly. Most methods in social research are designed, in one way or another, to reduce the perception of risk by the participants and to ensure the protection of their privacy. The less a respondent feels compelled to provide untrue or face-saving responses, the "cleaner" the gathered data will be.¹⁹

Toward the goal of reducing uncertainty, responses which are understood to be expressions of "self-presentation" cannot be assumed to be "true," but must be collected for what they are. For many research questions, this factor can be highly problematic for evaluation and analysis of the data. However, from the perspective of a designer's need to understand people's social motivations within a problem area, expressions of "self-presentation" suggest how a person wants to be perceived by others and, in this context, can have inherent value for analysis using social behavioral theory.

Given these parameters, establishing validity in social research involves resolution of three traditional values of scientific inquiry which are mutually exclusive in practice: *precision*, *realism*, and *generalizability*.²⁰ (Validity in social research is regarded as an ideal to be pursued, but which can never be fully attained²¹). Thus, *precision* is the accuracy of the measurements taken and the extent to which a researcher is able to control variables in the research environment; *realism* refers to social context, or the degree to which the environment in which data are collected reflects normal circumstances under which a behavior occurs; and *generalizability* refers to the extent to which data collected from participants in a sample are applicable to members of the larger population under study.

In most measurement situations, these three values will cancel each other to some extent. A procedure typically is designed to maximize one, or at most two, of these research goals, but it will always maximize one at the expense of another. For example, laboratory methods used in experimental psychology maximize precision by holding environmental influences constant during data collection, but do so at a considerable loss of realism in observing

18 G. McCracken, *The Long Interview*, Sage University Paper Series on Qualitative Research Methods, Vol. 13 (Beverly Hills, CA: Sage Publications, 1988), 26.

19 S. Sudman and N.M. Bradburn, *Asking Questions: A Practical Guide to Questionnaire Design* (San Francisco: Jossey-Bass Publishers, 1982), 9.

20 D. Brinberg and J.E. McGrath, 43.

21 *Ibid.*, 3.

participants in their natural environment. On the other hand, ethnographic observation in the field can yield a high degree of realism, yet will lack both precision and generalizability to a larger population because of the limited ability of a researcher to observe more than a few individuals in depth. Survey research can be highly generalizable to a population by virtue of larger sample sizes, yet it cannot control the context in which data are gathered nor variations in the way material is interpreted by participants.

These limitations are inherent in the methods themselves, and cannot be overcome by improving any single procedure. Their impact revolves around the issue of scope. Methods that pursue a broader scope or applicability will be accompanied by a higher level of *noise*, or factors that pollute the clarity of findings. Methods that seek greater depth of precision will be more limited in scope. Researchers increasingly advocate a pluralistic, or *triangulated*, approach to data gathering to gain perspective from the competing attributes and limitations of individual methods.

What follows are descriptions of several methods of data collection from the social sciences that have potential for adaptation to user-focused, experimental design research in which existing beliefs are a factor in people's receptivity to communication in the subject area. The first three are *qualitative* methods that describe some aspect of the beliefs or behaviors of the study population. The fourth method is *quantitative* in that its goal is numerical or statistical *measurement* of beliefs or behavior. Use of these methods precedes the design of communication prototypes, the effectiveness of which should be evaluated through further user testing.

Participant Observation

Participant observation, or ethnographic observation, is the original qualitative method in the social sciences. The procedures that now characterize ethnographic research were developed early in the twentieth century by anthropologist Franz Boas during his observations of Eskimo villages, and later refined by his students and colleagues including Margaret Mead, Ruth Benedict, and Bronislaw Malinowski.

The distinguishing feature of ethnographic research is the immersion of a researcher in the culture under study for a period of no less than one year. The goal of participant observation is not the elicitation of responses, but rather observance of natural behavior and interactions between participants. Although the method originated with studies of other world cultures, similar principles now are used in studies of organizations and institutions in Western societies. The intent of the participant observation residency is that the researcher becomes involved deeply enough with the culture to discover how members of the culture behave, understand events in their world, and structure relations with one another, while staying far enough removed to record the observations objectively.²²

22 McCracken, 8.

In ethnographic research, the researcher is the main instrument for data collection. The skills required include an anthropological theory of culture, empathy, perception of social nuances, and the ability to discriminate between large patterns of behavior and idiosyncratic ones, as well an ability to take notes, organize them, and condense them into coherent forms for analysis.

Because of the time commitment required from the researcher, participant observation research is the most expensive and time-consuming data collection methodology in the social sciences. Historically, ethnographic data analysis has been subject to criticism of bias because it frequently derives from the experience of a single observer, and thus is viewed as especially subjective. Ethnographic research is now increasingly performed by teams of researchers rather than individuals, and might include other forms of data gathering and testing during the study to verify findings as they are obtained.²³

Focus Groups

Focused group interviewing is of particular interest because of its direct applicability to communication research. Focused group interviewing grew out of techniques developed by clinical psychiatrists for use in group therapy, but now it is most heavily used in market research. In a focused group interview, a neutral moderator sits with a group to guide the conversation with a short list of open questions, but participants are encouraged to discuss the topic among themselves, in their own language, and from vantage points that are relevant to them.

The principal theory behind interviewing in groups is that people are more willing to divulge personal thoughts in the security of a group of strangers than they are in a one-to-one interview, especially if the subject is of a sensitive nature, or where the interviewer is regarded as an authority figure.²⁴ (The analogy of a group of anonymous travelers talking together on a train is sometimes drawn). A second benefit is that the dynamics of a group discussion can stimulate connections in the minds of participants which might not otherwise come out, much the way that brainstorming sparks tangential ideas in group settings.

Because attitudes and opinions are naturally formed during social interaction, group interviewing provides an opportunity to observe the process of attitude formation. People often cannot explain how or why they hold certain beliefs, but interaction with others in a group provides clues as to how they reason through abstract ideas and propositions.²⁵ Group discussion also can reveal the participants' natural vocabularies on a subject, because comments in conversation are less carefully formulated than responses to an interview²⁶—a factor that can be important in determining the language for communication concepts.

23 P.R. Sanday, "The Ethnographic Paradigm(s)" in J. Van Maanen, ed., *Qualitative Methodology* (Beverly Hills, CA: Sage Publications, 1983).

24 D.N. Bellenger, "Qualitative Research Techniques: Focus Group Interviews" in J.B. Higginbotham and K.C. Cox, *Focus Group Interviews: A Reader* (Chicago: American Marketing Association, 1979), 13.

25 A.E. Goldman, "The Group Depth Interview," 44.

26 Bellenger, 27.

Focus group research is a controversial area within social science methodology. It is now the primary method of qualitative research used in marketing, but is little used in traditional social science. The benefits and disadvantages of the method stem from the group environment in which data are drawn.²⁷ Criticism of focused group interviewing centers on the influence that the presence of others might have on responses offered in the group setting. Stronger speakers will influence comments by other group members, and the opinions of one or two people, if not controlled by the moderator, can dominate a session. Furthermore, focus group samples are so small (usually around thirty to thirty-six participants interviewed in groups of roughly twelve) that the results are not quantitatively significant, although the testimony often is so vivid that researchers and clients are tempted to regard them as generalizable to the larger population.

Like other forms of qualitative data, information gleaned from focus groups cannot be considered statistically significant. Focus groups most often are used in combination with other data-gathering methods, and can be valuable exploratory tools for generating questions, categories and appropriate vocabulary, especially when a researcher is new to a subject area. These can later be tested for generalizability in larger-scale quantitative surveys. Focus groups also help to discard or confirm assumptions derived from other sources.

The Interview

There are several different kinds of interviews in social research that serve quite different purposes. Three important versions are the *ethnographic interview*, the *depth interview*, and the *long interview*.

The *ethnographic interview* is an intensive method used in field anthropology which depends on the immersion of the researcher in the culture under study. The ethnographic interview takes place over a number of sittings, with the objective of achieving as much environmental naturalism as possible by allowing time for conversations with the researcher to seem like a relatively normal part of the setting. Ethnographic interview data is descriptive of the cultural values, and the behavior of individuals within specific social structures is often used to support participant observation techniques.²⁸

In sharp contrast, the *depth interview* is similar to techniques used by clinical psychologists that yield a comprehensive psychological profile of an individual. The technique is primarily concerned with identification of personality factors and affective states that cause specific behavior in one person. It is not intended to be generalized to any class of subjects without mediation by other measurement tools.²⁹

The *long interview* is a more economical form of ethnographic interview developed by researchers working within their own

27 D.L. Morgan, *Focus Groups as Qualitative Research*, Sage University Paper on Qualitative Research Methods, Vol. 16 (Beverly Hills: Sage Publications, 1988), 12.

28 McCracken, 9.

29 Ibid., 7.

cultures. Interviews with individual participants can provide an important balance to focus group interviewing in that they eliminate the influence of other people (besides the interviewer) on a respondent's testimony. The long interview allows enough time to be spent with the respondent (six to eight hours broken into two sittings) for primary constructs to be exposed without unduly taxing the respondent.

The long interview provides a structure for revealing the mental world of individuals within a particular culture.³⁰ The technique is intended to expose how individuals define events and objects pertaining to a topic, understand their experiences with it, and explain their logic for the decisions they make. A researcher prepares for long interviewing by drafting a preliminary set of expectations about what the respondent's views might be, based on existing theoretical constructs, but conducts the interviews with an understanding that these could be strongly contradicted by a participant's testimony.

The Survey Questionnaire

The *survey questionnaire* is a quantitative instrument frequently used in combination with other qualitative methods to verify findings. The usual reason for including a survey in a qualitative study is to measure the degree to which assumptions formed during contact with a small sample can be generalized to a larger population.

There are two kinds of questions in survey research: questions that deal with facts or behavior, and those that pertain to attitudes or psychological states. In principle, facts or behaviors are verifiable because they can be observed; however, the notion of tracking a large sample of respondents to observe reported behavior would be absurd in practice, especially if the behavior were a private one. Questions about attitudes or psychological states, on the other hand, are inherently unverifiable because they cannot be observed. The problem for the survey researcher, then, is to be able to establish with some confidence that answers supplied by respondents are "true."³¹

Truth in survey data is vulnerable to a range of sources of human error that can be organized under three questions:

- 1 Has the respondent answered truthfully? (The person does not understand the question or has not thought about the issue, but responds anyway to avoid appearing uninformed or unaware.)
- 2 Does the response truly represent how the respondent thinks or feels? (The person thinks one way, but responds in another, perceiving some form of risk in answering truthfully.)
- 3 Has the respondent interpreted the question correctly? (The person misunderstands the question, and answers truthfully to the question as he or she understood it.)

30 Ibid., 8.

31 Sudman and Bradburn, 19.

A number of guidelines have evolved during the last fifty years for minimizing error in standardized surveys. Key among these are clarity, simplicity, and intelligibility.³² First drafts usually are too long and use vocabulary beyond the respondents' verbal skill levels. Pretesting drafts of a survey with representative members of an audience can ensure that questions do not confuse participants or influence choices, and that all necessary categories for choices are provided.³³

A certain amount of demographic information about the respondent is usually required to analyze collected data meaningfully. However, questions that are in any way threatening should come at the end of a survey. Questions about income, marital status, age, and religion are perceived by some people to be highly personal, and if they appear too early in a sequence of questions, the respondent may refuse to finish the questionnaire. If sensitive questions are placed at the end of a survey, respondents will answer them, skip them, or lie about them; but by then, all other pertinent questions will have been answered.³⁴

Analysis of Qualitative Data

Less has been written about methods of analyzing qualitative data than about their collection. Typically, text books on qualitative methodology devote fewer than five to ten percent of their pages to discussions of analysis, and many completed studies are published without a detailed reporting of the methods used during data analysis.³⁵

Nevertheless, researchers agree on certain points that are central to the assessment of quality in analysis. These include thorough, methodological systems for data transcription; methodical sorting and data review; reduction of data; separation and analysis of key ideas; display of phenomenal relationships; and elegance of summary.

Perhaps the element of greatest importance for guaranteeing validity in analysis is the creation of an accurate transcript. The transcription of interview tapes should be done by a professional transcriber. The researcher should not perform this task, since over familiarity with the material and conscious or unconscious self-editing can lead to error.

A five-step data-analysis process for organizing the raw material of data collection is applicable to most qualitative research problems.³⁶ The process involves the creation of a visible record of sorting and evaluation decisions, such that another scholar will be able to retrace the thought processes that lead to the conclusions. A clear physical record is crucial for ensuring that a study can be cross-checked by other researchers.

The process begins with the identification of "key utterances" in the transcript, which are studied in relation to the immediate context in which they appear. Context can provide clues to

32 J.M. Converse and S. Presser, *Survey Questions: Handcrafting the Standardized Questionnaire* (Beverly Hills: Sage Publications, 1986), 9.

33 R. Platek, F.K. Pierre-Pierre, and P. Stevens, *Development and Design of Survey Questionnaires* (Statistics Canada, Census and Household Survey Methods Division, Minister of Supply and Services: Ottawa, 1985), 34–44.

34 Sudman and Bradburn, 226.

35 M.B. Miles and A.M. Huberman, *Qualitative Data Analysis: A Source Book of New Methods* (Beverly Hills: Sage Publications, 1984), 16.

36 McCracken, 33.

underlying meanings contained in statements. Once these utterances are isolated, the researcher begins to match the utterances with concepts from the literature review to form a set of observations. Finally, relationships between utterances are studied to reveal underlying patterns. Major themes are identified in each separate interview, which are then compared across interviews to produce the conclusions of the study.

Elicitation Methods in User-focused Design Research

Each method described above yields data appropriate for quite different purposes, and all are constrained by inherent limitations, no matter how rigorously they are employed. However, each reveals partial insight into how people in particular circumstances think about, or act on, phenomena in their environment. Conscientious and methodological pursuit of this kind of information has the potential to greatly enrich visual communication design research and practice across our discipline, specifically with respect to deepening our understanding of how audiences derive meaning from their experiences.

Given the ubiquity and apparent power of visual communication in contemporary society, it is not surprising that researchers from a number of disciplines currently study the effects of visual communication on populations from the perspective of problems in their own fields. During the past decade, medical professionals, researchers, and epidemiologists have begun to identify public health and safety communication as a component of preventive medicine³⁷ necessary for sound public health policy.³⁸ Fundamental research in mass communication and recent work in social psychology³⁹ also intersect with problems in visual communication design in significant ways. Areas in which these disciplines connect with ours (where people's interactions with media or visual communications have behavioral consequences) are fertile areas for research collaboration. Design researchers also should be aware that collaborative, user-focused, studies in communication design are currently highly fundable through traditional granting institutions, especially in health and epidemiological areas.⁴⁰

Opportunities for collaborative, interdisciplinary research are growing at this time precisely because scholars from other disciplines are asking questions for which expertise does exist within ours. If designers do not begin to undertake this important work, others will, and without the benefit of a designer's perspective. Recent developments in historical design research and critical/theoretical writing have not been matched by similar growth in experimental design research. If visual communication design is to evolve as an academic discipline (and a respected profession), we need to begin now to look for opportunities to strengthen the experimental branch of our field as an empirical bridge between theory and practice. User-focused research, including elicitation methods for identi-

37 See also L.H. Francescutti, "Working Together to Prevent Injuries," *Injury Awareness and Prevention Center News* 4 (University of Alberta Hospitals, Edmonton, 1990), 5: 3-5.

38 See the letter by editor Kay Rawlings, in *Health Promotion* 27:3, (Winter 88/89): 1.

39 J.D. Fisher and W.A. Fisher, "Changing AIDS-Risk Behavior," *Psychological Bulletin*, 111:3, (1992): 445-474. See especially 464-5.

40 Frascara, 62, and 110.

ifying audience beliefs and behavior, can provide a link between existing methods and bodies of knowledge, on one hand, and the rich but less organized knowledge and orientation that designers possess on the other. We must begin to define, incrementally, *how we know what we purport to know* with greater philosophical discipline. Every effort in this direction is a step toward bringing greater rigor to the field as a whole.