Part VII: Review of Methods Customarily Used in Postsecondary Educational Research

Background

Graduate surveys. The scope of graduate surveys employed by universities and colleges is wide, ranging from a surveying only a handful of former students of one institution to thousands of former students from a range of institutions. The purposes of such studies can be characterized by the distinction in focus: most of the surveys deal with employment or postgraduate education to describe educational outcomes, but many of the surveys include alumni opinion, perception, or self-reports of effects of the educational experience. When this is the case, another distinction in the tradition seems to be whether the survey is intended in any way to be evaluative of the institution or documentary of educational effects.

Some universities survey graduates as a matter of course and have maintained fairly large bases of response data, which are useful in the documentation of trends and for other longitudinal research.

The graduate survey is an important part of program evaluation, but this may account for the fact that although graduate surveys appear to be completed quite regularly, they are often not reported in the academic literature and their distribution appears to be for the most part local.

The most common research method used in graduate surveys is the mail survey, but telephone surveys and interview are used extensively, often as complementary to the mailed survey.

Questionnaires. Major issues in design of mail survey in graduate research involve sample selection, questionnaire design, response rates, and triangulation or complementarity with other methods.

A standard for mail survey research for many people in education is Dillman's (1978) *Mail and Telephone Surveys,* which specifies attention to the detail of planning and suggests strategies for improving response rates. Response rate is the metric of success in Dillman's method. The summary judgment in the literature in interpreting results in the light of low response rates is that a judgment must be made about the reason for nonresponse and whether this factor is related to the research question. There is no agreement in the literature about the effect of increasing response rates through incentives (including small money incentives), but it appears that telephone or mail follow-up to nonrespondents generally improves response rates. Prenotification has influenced response rates in only a few reported cases.

A major question is how to design the questionnaire instrument. It appears that open-ended or free-response questions, although they may take more time and effort to code and interpret, are good in exploratory research or in cases where the object of the research is to have an in-depth knowledge of respondents' reports. Some researchers have attempted to create an empirically verifiable metric for the complex issues involved in questionnaire design, but aside from very basic directions there seems to be little agreement between experts about the specifics of questionnaire design. The two researchers who have published the most evaluative work in this area in the 1980s, Judith Boser and Sheldon Clark, have stated finally that it is the nature of the population being questioned that dictates how a questionnaire should be constructed, and that questionnaire design is an "art" more than it is a "science." One rule is that the questionnaire should "engage" the respondent. Research about questionnaire format and appearance is inconclusive as to the effect of format on response rates.

Focus groups. This technique was developed in sociology, but its effectiveness has been demonstrated in marketing research where it has become a popular research tool. Its use is motivated when a range, not a mode nor a norm, is the research objective. Its power is said to lie in *explanation*, not *description*. Groups are asked by a trained facilitator to discuss a focused question, the discussion is recorded (written notes or electronic recording), and the discussion is subjected to thematic or content analysis. There are some techniques for quantifying values found in interviews and those techniques may be useful in focus group discussion analysis. The definition of the groups who discuss in this research is based on homogeneity: they must be homogeneous with respect to the salient identifying factor of the research question.

Sensitive questions can be dealt with in focus groups if the group itself is defined in such a way that social desirability does not become an inhibiting factor. It has been claimed that the use of focus groups has been useful in many diverse populations and is particularly useful in traditions where orality has been the usual mechanism for cultural transmission.

There is an applied aspect to focus group research: because participants become engaged with the topic, focus groups can be included in participatory research.

The Nature and Scope of University and College Graduate Surveys

Most of the reports of graduate surveys that appear in the available literature deal with high school graduates. Other common areas in which graduate surveys appear to be useful are (a) evaluations of special programs at the elementary to secondary level; and (b) vocational programs. Like the latter, surveys of graduates of universities and university-level institutions and programs tend to focus on employment, though information collected for university follow-up studies often begins with questions of employment but then focuses more coherently on graduates' opinions and attitudes.

Thus the information that is customarily collected in survey studies of university and college graduates may be broadly categorized as demographic and attitudinal. The demographic information often includes gender, ethnicity, employment status, and factors associated with employment (e.g., salary and level), further education, and codification of data relating to institutional entry, such as level of education prior to attendance. The attitudinal and opinion questions usually consist of evaluative statements about experiences during postsecondary education and evaluation of former students' perception of benefits of their university education.

Graduate surveys may refer to single institutions (e.g., a single university), large public jurisdictions (e.g., an entire province, or even country), or a single program in an institution. In the latter case, graduate surveys are often included as integral parts of program evaluation research projects. Even when that is not the case, the objective of institutional evaluation is often part of these surveys: most of the reports that are available include attitudinal data and institutional-evaluative questions. It is surprising, given that so many graduate surveys include some aspect of evaluation of the institution, and given that evaluative projects often include graduate surveys, that the literature search turned up no use of graduate surveys in projects that assess the cost-effectiveness of programs.

Analysis of data is almost always descriptive and documentary: it is surprisingly quite rare that any kind of analysis based on social science theory informs the study, explains the configuration of the data, or is used to address a particular theoretical construct.

Except for the very few large-scale studies found in the literature, which are entirely descriptive, the audiences for reports of graduate surveys appear to be local and the reports usually have limited distribution. Given the number of studies completed, it might be expected that more reports would appear in appropriate specialized journals. Yet for the most part the available literature consists of institutional reports, with a few journal articles that are remarkable for the way that they appear to be truncated summaries of obviously much more comprehensive research reports. We assume that the relatively small number of more or less publicly available reports (e.g., only 24 abstracts were generated in the ERIC database where the descriptors *graduate surveys* and *college graduates* are concatenated) reflects a pattern. It is clear from the literature detailing how such reports should be done that a considerable body of research is actually undertaken. Most of it must be completed for client institutions or agencies. Even though almost all the projects are reported in summative terms, it might be said that the intent of the tradition as a whole is more nearly formative.

The scale of reported projects varies: the smallest graduate survey in this review focuses on nine Black graduates of North Carolina University (Allen, 1985a), and the three largest are US's *1985 Survey of 1983-84 College Graduates* (National Center for Education Statistics, 1985), a machine-readable data file with related tabular summaries, a database that includes 18,000 graduates who were mailed a 39-item questionnaire; and Ontario's

Employment Survey of 1982 Graduates of Ontario Universities (Davis et al., 1984), repeated in 1985 (Denton et al., 1987). Ontario's studies include field work as well as questionnaires and are addressed to all university graduates for a given year within one year of graduation. In smaller scale studies the reports vary on the basis of sample selection and sample type. In many studies as many graduates as can be identified constitute the sample; in others random samples or stratified random samples are defined; and in yet others the graduate population is represented by a sample of convenience. The sample is often defined by a single year of graduation; samples defined over more than five-year periods are much less common.

Most projects oriented toward graduate follow-up are designed as surveys. The term *survey* is usually associated with two data collection methods, questionnaire and interview, which appear to be the techniques most often used in university graduate follow-up studies. The questionnaire is by far the most common. Records review sometimes complements the questionnaire; interview is the second most popular method and is sometimes used to complement the questionnaire. A small proportion of this literature employs the method of secondary analysis of existing data or secondary analysis of other reports.

Examples of university and college graduate surveys. The above discussion presents several possibilities for ways to categorize the literature about graduate surveys. Examples are provided here based on the following typology. First, some reports are presented as models for specific methods or research strategies, and the report of findings is of secondary focus. The second and third categories are derived from a fundamental distinction, one not often made in the reports themselves, about the extent to which the questions of the survey relate to employment. This distinction may reveal the substance and intent of a study more clearly than the explicit research question. A significant number of studies are focused exclusively on employment. These seem to be fundamentally different from the studies in that graduates are invited to express opinions. A few studies which invite opinions are focused on graduates' self-assessments of some kind, but a larger number ask graduates to express opinions about their perceptions of the relationship between the quality and nature of their post-graduation experiences and their university education. Many studies are focused directly back to the institution and ask graduates for evaluative statements and judgments about programs, services, and the general institutional climate while they were attending university.

Examples of reports that demonstrate research methods. Reports of graduate surveys are often presented to demonstrate research strategies and techniques, not to report substantive findings. Bender and Cockriel (1983) illustrate how alumni associations' databases can be used to maximize response rates in studies of alumni perception of association activities and for other "market" research. The authors demonstrate their techniques for obtaining a 76.8% response rate from 1,743 alumni of the University of Missouri.

A model for continuing institutional assessment is provided by the University of Illinois, which has been systematically studying its graduate outcomes since 1972 (Dodd & Duff, 1986). A computerized data system has allowed for generalizations over an 11-year period about demographic information relating to employment and postgraduate educational experiences. Half of the questions on the graduate surveys, however, relate to graduates' assessments and attitudes about the University and its programs.

Sagaria et al. (1985) completed a project in which the research objective, like the project for which this review is prepared, was to create a model for evaluation. Their survey "assessed student characteristics, activities during college, endeavors after graduation, and attitudes, goals, and values" in order to "evaluat[e] whether the college is accomplishing its mission and [to] provid[e] a management tool to evaluate the effectiveness of specific programs" (Sagaria et al., 1985, ERIC abstract). The authors describe the administrative set-up for the survey (a management committee with subcommittees to oversee specific evaluative components, follow-up, and implementation) and also present their project management plan for the survey as an appendix to the report.

Secondary analysis of existing data allows for yet another valid survey method, one exemplified in Frankel and Stowe's (1990) study of several hundred thousand newly qualified teachers. They found that only 61% of American newly qualified teachers were in fact employed in teaching. Another survey that began with a secondary analysis of existing data was the study completed by Pavel (1991), who used the US database provided in the High School and Beyond study (Center for Education Statistics) to evaluate Tinto's model for institutional departure. Pavel sampled almost 400 American Indians and Alaskan Natives to find factors and patterns for either staying in postsecondary education or dropping out. Secondary analysis may be done of other research reports: Evers and Gilbert (1991) conclude, after review of two other independent studies, that Canadian university education does not "add value" on such dimensions as "social skills, supervisory skills, conflict management, and creativity."

Examples of reports that focus on demographics and employment. In Maryland's 1981 survey of bachelor's degree recipients (Maryland State Board, 1984), the focus was almost entirely on postgraduation demographic variables such as employment, and the attitude component related to graduates' perceptions of the relationship of their undergraduate education to their employment.

Johnes and Taylor (1991) compared demographic information (e.g., family background, labor market experience, etc.) in a survey of a group of 149 former University of Lancaster (UK) students, 95 of whom graduated and 49 of whom did not. The study is unusual in that it uses salary differential between the two groups as an independent variable.

Chizek and Miller (1984) surveyed 539 graduates, from 1964 through 1981, of Iowa State University Agricultural Education Department, and the questions were related to the demographics of employment patterns and professional associations in the field. A cohort of one-year bachelor's graduates' employment status was the focus of Braddock's and Hecker's (1984) analysis, and an unusual aspect of the Ontario studies (Davis et al., 1984; Denton et al., 1987) is that the report documents not just employment status and variables, but the various methods that graduates used to obtain their jobs.

Borgen's (1988, 1990) work in university graduate surveys focuses on employment, but is based on in-depth interview with relatively small numbers of graduates (e.g., 12 to 15): life history data and the graduates' reported feelings constitute the data.

Example of reports that focus on graduate attitude. Duvall et al. (1985) analyzed questionnaire responses from 242 graduates of education programs at Indiana University over a 14-year period ending in 1983, to find out what kinds of positions the graduates held in education. The focus of the study was to ask for graduate evaluation of their training at Indiana in both specific and general terms: the questionnaire invited address even to specific courses, but also to general areas (e.g., effects in awareness of disabilities and cultural differences).

A combination of interview and questionnaire was used by Glencke-Hall and others (1985) to get at graduates' self-evaluations of self-sustained learning after graduation and self-assessments relating university experience to personal goals: graduates' from 1978 (*N*=56) and 1980 (*N*=63) completed questionnaires and were interviewed, both in 1978 and 1980, and the two cohorts were compared.

Sixty-eight percent of the Saint Mary's College (Indiana) graduates from 1985 provided data about their employment or further education in a survey completed the following year (Lester, 1986). The focus of the study was on employment, but an important aspect of it was graduates' assessments of the relationship between their employment and their program majors, evaluation of their degrees, comments about the atmosphere at the college, and recommendations. A similar focus on employment was the object of Allen's (1985) survey of 765 graduates of North Carolina University, 325 of whom responded. In addition to demographic information about employment, Allen asked for evaluations of satisfaction levels with graduates' education and for self-assessments about the personal effects of their education. Unlike Lester, Allen did not ask for more specific evaluative statements about the institution.

A study that is focused entirely on attitude, not employment status, compared psychology graduates with other graduates in terms of attitudes about their work and interests and assessed the comparative likelihood of entering graduate education (Finney et al., 1989). Another narrowly focused study is exemplified by the University of Nebraska's survey of 1,358 graduates from 1986, simply to relate age at entry to the time it takes to complete a degree (Crawford, 1989). An unexpected finding of that study was a difference between minority and mainstream student groups along gender lines, and Crawford's recommendation was for more studies of ethnic minority students, comparing those who graduate with those who do not.

The object of Mendocino College's 1990-1991 graduate survey was to get former students' impressions of the educational growth and change they experienced in the institution (MacMillan, 1991). The study combined records review (N=156) with questionnaires (N=73), to compare demographic and quantifiable variables with the former students' assessments. MacMillan found that 50% of the respondents rated the college's resources as "very" to "somewhat" helpful, and documented that the students reported the most development in the area of "scientific and critical thinking," with lower development in "maths proficiency" and "aesthetic awareness."

Hunziker's (1991) survey of 3,016 of the 1989-1990 graduates of the University of California, Davis (53% response rate) focused on employment status, continuing education, and other demographic variables such as salary, but included institutional assessment as a major part of the study. Preparation for graduate studies received a high mark from students (4.22 on a 5-point scale), and there was general satisfaction with the academic environment and with university programs and services. Significantly, however, graduates were unhappy with their perceptions of the measure of racial harmony on campus.

Wright and Weasel Head (1990) conducted a survey of graduates of Montana tribal colleges; they reported that a majority of the graduates found employment or continued their education and also reported high levels of satisfaction with the educational institutions from which they had graduated. Rindone's (1988) questionnaire survey of 107 randomly selected Navajo college graduates, although it is based on demographic description of the group, is oriented toward the graduates' explanations of their success, which appear to be confirmed by the demographic data: student motivation and family support are important factors in achieving college graduation.

Wilson (1983) combined graduate surveys (N=214) with interview (N=189) to identify factors that contributed to completion of college degrees in her study of opinions about Wisconsin Indian postsecondary education. Richert (1987), in a report prepared for the Gabriel Dumont Institute about the Saskatchewan Urban Native Teacher Education Program, included evaluative responses by school principals and superintendents, along with a summary of responses from the 88 graduates of the program. Though employment status is a baseline, the focus of the report is evaluative of the competence of the graduates, based on their own assessments and confirmed by the assessments of the administrators.

Saskatchewan Indian Federated College is presently compiling results of a survey based on a questionnaire sent to the 800 who have graduated since 1976. Its focus is employment and postgraduation experience, but two questions solicit open-ended evaluative statements about general aspects of SIFC's programs.

The evaluation of the Native Indian Teacher Education Program at the University of British Columbia (Pepper, 1988) included a graduate questionnaire survey (*N*=44, a 46.5% response rate of 94 sent to graduates), as well as a survey of former registrants (*N*=50, a response rate of 24.1% of 207 sent out). It included an instructor questionnaire component to professors and interviews of administrators and others associated with the program. Due to the nature of the research question, the questionnaire relied heavily on graduate assessment, attitude, and opinion.

Summary. A limited number of methods are used in university graduate surveys, the predominant one being the questionnaire. With larger numbers of study participants, the fact that they are graduates dictates that the questionnaires be distributed by mail. Numbers of participants range from below 20 to several thousand, and populations of graduates may be sampled on a number of bases. Though this kind of survey seems to focus on questions of employment, a number of such surveys include graduate opinion and attitude, and there is often a component of institutional evaluation in these studies. The publicly available literature in this area is more than likely not representative of the work that is in fact completed in the area.

Mail Surveys and Questionnaire Design

Mail surveys are closely associated with market research, and some of the refinements of the technique have been developed in that field. The research strategy has an important place in educational research, particularly in program development and program evaluation. On the following page are some examples of the application of mail survey research reported over the past 10 years in education. (The first statement in each description identifies the population that was surveyed, and following the colon is a short statement of the research objective.)

The range of research questions addressed with mail surveys is quite broad and the populations are diverse. That observation raises the issue of what aspects of the technique are common requirements in design and implementation, and what aspects are dictated by the specific research condition. Review of what researchers say about methodological requirements followed by summary comparison of reports of how people have

Examples of survey research using questionnaires

- College students and alumnae: attitudes toward loan debt (Bodish & Cheyfitz, 1989).
- Doctoral program graduates: assessments of program's instructional systems (Redfield & Dick, 1984).
- 46 Black student drop-outs at Indiana University: factors, attitudes contributing to attrition (Sailes, 1990).
- Associate degree graduates of Howard Community College (58% response rate for 253 responses), followed by telephone calls: personal goals (Frank, 1991).
- 1000 public administrators in Indiana (24% response rate): opinions about issues in graduate education in public administration (Mohapatra et al., 1991).
- 800 vocational graduates in North Dakota (61% return rate, for 486 responses): impact of vocational education and perception of effects on employability (University of North Dakota, 1989).
- Graduating seniors at Columbia and Barnard College, questionnaire with follow-up mail survey: comparison between initial professed enthusiasm for teaching, with one-year postgraduation perspective (Kane, 1989).
- Mail survey of business programs in community colleges: program description and program demographics (Florida State Board, 1988)
- Personnel and students in postsecondary occupational education delivery at 384 institutions (over 6000 responses): student motivation and instructional decision making (Hollenbeck, 1987).
- Graduates of Wayne State University instructional technology programs: student characteristics, self-assessments, assessments of academic preparation (Richey, 1988).
- Student loan borrowers, random sample of 2000 with response rate of 70%: demographics and opinions about loan process (Baum & Schwartz, 1988).
- All 425 students in learning assistance classes at Mt. San Antonio College: self-assessments about reaching educational goals (Hall, 1987).
- 1,200 vocational employers in South Carolina: assessment of vocational educational (South Carolina State Council, 1986).
- 740 beginning vocational teachers from 50 US states: the process of competency testing (Pratzner, 1987).
- 1,682 graduate students in science and 758 faculty at University of Texas (30% response rate): library needs assessment and characteristics of users (Lawrence, 1983).

actually completed the research brings out the following observations and generalizations.

1. The mail survey, by its nature, automatically raises the issue of questionnaire design.
2. One characteristic of mail surveys is that people need not respond, and nonresponse is a major issue in mail survey research:
   a. does the rate of response (which varies in studies which have been reviewed here from a low of 20% to over 90%) bias research findings, and if so, how? and
   b. what can be done to increase response rates? what are acceptable response rates?
3. Selection of subjects is a research problem, whether or not sampling procedures are involved in the definition of a study population: who receives the questionnaire?

4. It is fairly common to combine mail survey techniques with other techniques, particularly telephone surveys; quite often interview research techniques are used in addition to mail surveys.
5. Responses are more easily generalized if the variables are at least ordinal, and it may be that sometimes responses that may be more appropriately expressed as nominal are forced into an ordinal scale. This is related to the next item.
6. Analytic techniques with mail surveys are often based on questionnaire design which anticipates generalization or inference from responses that can be scaled: techniques for dealing with open-ended questions raise some of the same problems as analyses of semistructured interviews. The size of the sample or study group, as well as location, sometimes motivate mail surveys with open-ended questions when semistructured interviews might provide a wider range of data categories.
7. There are several different varieties of mail surveys:
   a. a group of authorities or experts may be surveyed about consensus in a field, or to document a range of expert opinion in a field;
   b. mail surveys often focus on demographic data, in order to provide a description of a population on some axis;
   c. evaluative research sometimes involves mail surveys;
   d. mail surveys often deal with respondents' opinions and attitudes.

One kind of mail survey is directed to institutions. Examples of some of the recent research that has used questionnaire survey techniques in the area of First Nations postsecondary education are shown below.

One authority who appears to be favored as a standard by several education researchers is Dillman, whose 1978 text, *Mail and Telephone Surveys*, details research strategies for ensuring that there is coherence between research objectives, questionnaire design, strategies to improve response rates, complementary data collection techniques, and interpretation of results in light of actual responses. There are reports of projects in which the adequacy of Dillman's "total design approach" itself is evaluated. Brady (1989), for example, says that the 90% response rate in a study with 50 subjects was due to the use of Dillman's approach, which includes pilot testing of the instrument and the use of the telephone. Smith and Bers (1987) conceived of their own study of college alumni as a test of Dillman's techniques to improve response rates. Dillman himself (Dillman et al., 1984), on the basis of a large comparative study, attempted to demonstrate empirically that attention to the *detail* of "total" design in mail surveys was of primary importance.

Questionnaire design. Recent extensive methodological discussion is provided by Oppenheim (1992) for questionnaire design and assessment of attitudes; and Moorthy (1991), who contrasts responses in which overall judgments are made, with judgments of attributes, in order to raise as salient the order in which the contrasted kinds of judgments are made. Converse (1986) takes the researcher through steps involved in creating survey questions, and Berdie (1986), though his work is focused on psychometrics, has provided a kind of standard for questionnaire design. Questionnaire design in social science is treated comprehensively by Sudman (1982; Sudman & Bradburn, 1984).

Given such a range of authorities, one expects a kind of orthodoxy for the technique. Yet agreement between authorities is only at the most basic and general level. During the past few years Judith Boser and S. Clark have researched the issues involved in questionnaire design, through application of techniques as well as through soliciting evaluations (through mail survey questionnaires) from recognized authorities and experts. In three of their reports (Boser & Clark, 1990a, 1990b; Clark & Boser, 1989), they tell of various attempts to establish some objective measure of characteristics common to mail questionnaires, and their review of literature showed that the common concerns were with (a) general appearance; (b) instructions; (c) choice of items; (d) order of items; (e) item format; (f) choice of response options; and (g) wording. This should surprise no one. Identifying areas of concern is perhaps important but provides little in the way of direction for good or even adequate design. Boser and Clark's search was for a set of objective standards. Their painstaking survey of experts, through two rounds of analysis and validation, provided no consensus. They found that the experts could not agree with each other except on the most fundamental issues and concluded that the characteristics of the population being surveyed by mail will dictate the "tailoring" of questionnaires to the population that is of interest in the project, and that questionnaire design is as much an "art" as a "science."

Whether or not the questions are open or restricted-choice is a concern, because open-ended questions take longer to answer. They also make analysis and generalization of results much more difficult. For information that can be scaled or quantified, or for information for which the responses are restricted to few reasonable choices, precoded items with restricted-choice responses are possible and usually preferred. A motivation for open-ended questions is summarized by Sudman and Bradburn (1982):

Institutional questionnaires about First Nations issues

- Questionnaire, interviews, with 129 "information gatekeepers" in ethnic communities, including First Nations communities, in California: characteristics of gatekeepers (Metoyer-Duran, 1991).
- 79 colleges and universities in First Nations areas in US (33 responses): assess access to information; demographics; and institutional responses (Wells, 1989).
- 47 child-welfare officials participating in related workshops in Montana: perceptions of needs and appropriate processes (Dull Knife Memorial College, 1986).
- 18 public higher education institutions in Arizona: extent of First Nations services and personnel in higher education in Arizona (McIntosh, 1987).

> the open format allows and encourages respondents to give their opinions fully and with as much nuance as they are capable of. It also allows respondents to make distinctions that are not usually possible with the precoded formats ... and to express themselves in language that is comfortable for them and congenial to their views. In many instances it produces vignettes of considerable richness and quotable material that will enliven research reports. It is an invaluable tool when you want to go into a particular topic deeply; it is an absolutely essential tool when you are beginning work in an area and need to explore all aspects of an opinion area. (pp. 150-151)

Sudman and Bradburn also remark that open-ended questions take much longer to code and analyze, and that open-ended questions entail more time and cost.

Some of the literature focuses narrowly on specific aspects of questionnaire design and their effects on both the sincerity of responses and response rates. Pitiyanuwat and Phattharayuttawat (1991) compared the effect of ink color on the questionnaire (as well as the effects of prenotification and return deadlines). Ink color and prenotification had a positive effect on returns in their large sample (800 public school teachers in Thailand): their lowest response rate was 71.4%, their highest, 94.9%. Israel and Taylor (1990) measured the effect of question order in mail survey questionnaires, and found no effect for single-response items, and in interaction of question order with any of these categories: question complexity, social desirability, and inter-item association.

Boser (1990a) studied questionnaire format (folder vs. booklet; typed vs. laser printed, etc.) with medium-sized samples (100 and 297) of alumni groups in Tennessee and found no significant differences in response rates with different formats, nor in fact with questions of different length.

In a study involving 288 individuals who had completed teacher education, Boser (1990b) also reported the results of a cost-effectiveness survey, comparing prenotification strategies; postcard versus letter reminders, by one versus two weeks postquestionnaire mailing; and the timing of mailing of duplicate questionnaires. She found that preliminary letters are not cost-effective, but that reminders and follow-up with duplicate questionnaires are. On the issue of cost effectiveness, comparing the mail survey with telephone interviews, on the basis of time spent and return rates, James et al. (1984) telephoned 161 individuals and mailed questionnaires to 728, all of whom had been accepted at university but failed to register. They found that the mailed questionnaire is better when time is not important, because it reduces investigator distortion and avoids bias with issues involving social desirability; a telephone interview is not a good method for sensitive questions, but with nonsensitive questions, when time is of the essence in a research project, they concluded that telephone surveys could be cost-effective.

This review found no discussion in the literature about any special consideration that should be taken into account when using questionnaire research techniques with First Nations people, though there are many

Examples of questionnaires with First Nations peoples

- First Nations associate degree recipients from Montana's seven tribal colleges, to find educational outcomes (employment and education); most respondents had either continued their education or found employment, and were satisfied with their educational experiences (Wright & Weasel Head, 1990).
- First Nations high school graduates in the US Pacific Northwest: find positive factors that influenced outcomes (Coburn & Nelson, 1989).
- Navajo college graduates (n=107): factors contributing to educational motivation (Rindone, 1988).
- 32 First Nations teachers who had participated in special program to become principals: program evaluation (Lujan et al., 1985).
- Graduates of four Alberta First Nations teacher education programs: retention of graduates in First Nations communities (Martyn, 1984).
- Representative sample of 200 American Indian women (114 respondents): job satisfaction and ethnic and sex role stereotyping (Warner, 1991).
- 710 First Nations people in a three-state area, about sexual activity, alcohol, and drug use: assess HIV risk (Hall et al., 1990).
- 87 First Nations college students in Montana: closeness to tradition and attitudes about college (Lin, 1990-Percep).
- Secondary analysis of comprehensive US Census supplementary questionnaire (Crook et al., 1986).
- 64 male First Nations students, compared with 354 male White students in Montana: attitude differences (Ruey-Lin, 1985).
- Micmac heads of household: attitudes about education (Murphy, 1984).
- 214 Wisconsin Indian college graduates (a 27.8% return rate of those distributed): attitudes, positive factors in college completion (Wilson, 1983).
- 198 Cherokee children (questionnaires not mailed, of course) between ages of 5 and 14: language proficiency in Cherokee (Berdan et al., 1982).

examples of the use of questionnaires in research in First Nations postsecondary education.

Response rates. One of the most interesting questions in the literature is whether incentives (e.g., small cash gratuities) are effective in increasing response rates. In a series of research projects with students and alumni, Denton and Tsai (1991; Denton et al., 1985; Denton et al., 1987; Denton et al., 1988) found that they have not increased their response rates with small cash gratuities ($0.25, $0.50, $1.00) nor with $50 raffle entries, nor with multiple mailings, but they did so when they established a newsletter for communication between respondents. Yet Hopkins and Gullickson (1989), reviewing other studies, said that the literature demonstrated that even small cash gratuities increased rates of return among both professional and nonprofessional respondents. Wilde et al. (1988), found as well that an in-hand monetary incentive (ranging from a stamped envelope, through a 50-cent gratuity, to a chance at a $50 drawing) increased response rates among scientific professionals and college instructors; the overall response rate was 46.95%, but with the stamped envelope the return was 63.9%. They also maintained that time spent on developing a pleasing presentation style for the questionnaire was well spent, as they found that a questionnaire that engaged the respondents brought responses from people who had had no previous interest in their subject.

The danger in nonresponse is aptly stated by Passmore (1981), that differences between return and nonreturn on unmeasurable axes create inconsistent estimates of population parameters and/or values. Of the several ways to deal with the problem Johnson (1991) reviews five, noting that ignoring nonresponse is the least reliable, and that double sampling is the most reliable. On the other hand, when the demographic data were compared for respondents and nonrespondents, through a records review of teacher education graduates, Boser (1988) found no difference between respondents and nonrespondents in two groups where return rates were 88.6% and 78% respectively. In a survey of 540 newspaper editors, telephone follow-up confirmed that nonresponse does not show severe or significant bias, even with a fairly low return rate (Chang et al., 1989). Aiken (1988) reviews statistical procedures for dealing with nonresponse or low return on mail surveys.

How does a researcher know when a response rate is sufficient? Though the question is more compelling when a population is sampled rather than surveyed, and when parametric inference is made, the questions raised are important in the present study. Predicting response rates is difficult. In one large study (comparing groups of 810 and 2549 college-bound students, distinguished on the basis of declared majors) Webb (1989) attempted to predict response rates on the basis of academic ability, demographic data, and choice of major, but had identical response rates (40.7%) in each group. In terms of analysis, Johnson (1991) cautions that the main consideration is to assess the relationship between the tendency to respond and the items of interest on the questionnaire.

The factors that influence response are varied. The reason that many of the journalists in Chang et al.'s (1989) large sample did not respond was simply lack of time. In a survey of doctors, Sobal et al. (1990) found that the more homogeneous the group, the greater the response rate. When Green (1991) assessed late and nonresponders, through interview, in a study involving 600 elementary and secondary schoolteachers with a response rate of 71.2%, she found that delay in response is associated with lower interest in the topic and lower self-perception in terms of skills examined in the research. Tailoring interest to specific groups may be one strategy involved in the multiple matrix survey sampling suggested by Munger and Loyd (1988), when a large questionnaire can be segmented and subgroups receive different questions.

Summary. Mail surveys are effective (and cost-effective) research strategies for finding out about attitudes and opinions, for collecting certain kinds of demographic information, and for various kinds of follow-up studies. The objectives of the specific project; the nature, size, and location of the population involved in the study; and the relationship between the way the population is defined and the study objectives all conspire to make a very complex task of the creation of an appropriate questionnaire, and further to relate those questionnaires to other techniques used in the study.

Questionnaires should be engaging; prenotification appears not to be as important as follow-up and mailing duplicate questionnaires (though surely this must vary by population and perhaps even by each project); and response rates, while problematic, must be evaluated post hoc to see whether specific questions might relate to nonresponse.

Mail survey and questionnaires have been used in First Nations groups, though there appears to be no discussion in the literature of specific issues involved in using questionnaires or mail surveys in First Nations research.

Focus Group Research

Focus group research was developed in sociology in the 1940s and 1950s, but adopted in the field of marketing, where it has become one of the most popular of techniques (Lindsay, 1979; Merton, 1987; Ryan & Martinson, 1990). It is apparent that its use in educational research has increased over the past seven years. Its use is appropriate when an in-depth explanation is necessary; when a *range* (as opposed to a norm or mode) of attitude, reported experience, or perception is required by the research question; when other methods show relationships that are inexplicable or paradoxical, and a broader context is needed for explanation; when data is about sensitive issues, or from groups of people might address a question in discussion that they might deal with only obliquely—if at all—if requested in some other format such as a questionnaire.

In general, more or less homogeneous groups (homogeneous on axes identified as salient with respect to the research question) are interviewed, or have a focused discussion, with a facilitator or moderator who is trained to keep the discussion focused on the question at hand, and not to impose judgment or topical structure other than in the maintenance of focus. The discussion may be recorded and transcribed, or a recorder may make notes (or both), and the records are then subjected to content or thematic analyses. It is usually thought of as a "qualitative" research method, but Krahn (1990) has provided a method for scaling and quantification of semistructured interviews, which may have some application in focus group research. Simard's (1988) framework for analysis of focus group research is based on quantification of the "qualitative" discussion of the group.

The kinds of research questions that are addressable with this strategy are wide, but include questions in which the range, not mode, of attitudes, values, and perceptions of an identified group relates to the research question. Depending on the nature of the research question, focus groups may be the sole research strategy in a project, but it has become fairly

Examples of focus group research

- Middle school principals and media coordinators in North Carolina: role of the library in instructional programs (Lewis, 1991).
- Military populations: HIV studies relating to patient participation in treatment (Carey & Smith, 1992).
- Thai individuals: beliefs and attitudes about the proper age of marriage (Pramualratana, 1985).
- Six groups of women experts in applied women's areas: needs assessment of women and girls in the Kansas City area (Noble & Klein, 1992).
- Five focus groups of adult literacy programs in Philadelphia: effects of literacy in terms of empowerment (though the data indicate that these adult learners' self-determination motivates their participation, rather than being an effect of it (Novek, 1991).
- Focus group on the use of computers in religious education (James T. Roberson, Jr., in Miller, Ed., 1991).
- The use of student portfolios in teacher education (project involves questionnaires, classroom observation, and content analysis of student portfolios) (Wolf, 1991).
- Beginning teachers: following telephone survey, sought perceptions and evaluation of Connecticut's mentor-induction program into the teaching profession (Yosha, 1991).
- 80 junior and senior high school students in Ontario: racial and cultural bias in Canadian learning resources used in schools (Johnston & Crawford, 1988).
- Members, active in civic affairs, of Canadian visible minorities: issues involved in civic participation for members of visible minorities (Bancroft, 1990).
- Two small groups of vocational teachers from 3 American states: comparison of problems faced by teachers in traditional education routes and those without formal teacher training (Camp & Heath-Camp, 1989).
- Wide range of focus groups from constituent groups in education in British Columbia: complementing large survey and interview strategies, focus groups addressed effects of province-wide Grade 12 examinations (Bateson, 1990).
- 75 females, 13-19 years old, at risk of dropping out of school in Philadelphia: perceptions of race, gender, and class among drop-outs and at-risk female teenagers (NOW, 1988).

common in the past five years to combine focus group research with survey research.

The issues raised by the technique may be summarized: (a) criteria for composition of groups; (b) criteria for size of groups; (c) the role of the moderator/facilitator/researcher; (d) data recording; (e) complementarity of techniques with other research strategies; (f) analytic techniques for data reduction and generalization (e.g., Byers & Wilcox, 1991); (g) issues of validity and reliability, and to a lesser extent (h) inference to populations defined in terms of the axis on which the focus group may be said to be homogeneous.

The kinds of data that can be collected with focus groups, as Byers and Wilcox (1988) point out, could not be collected through questionnaire response nor observation: it is possible to get at underlying attitudes and behaviors that would not be forthcoming with other methods. They say that the format may allow respondents to be less inhibited in response

Institutional/individual relationships with focus groups

- Various library user groups: assess how the libraries' business services were being used (Baker, 1991).
- Focus groups in public relations: a department of mental health attempting to reduce stigma of mental illness (Grunig, 1990).
- Admitted postsecondary applicants: evaluate recruitment campaigns (Miles, 1988).
- Focus groups of employers, students, college personnel: employer needs, labor market experiences, and the place of community colleges, along with large-scale (1,151 students, 8 colleges) survey (Seppanen, 1991).
- "Nontraditional" students as a community college: student perception, institutional effectiveness (Bers & Smith, 1988).
- Members of various technical training stakeholder groups in 6 regions in Australia: substantive problem issues in technical training in Australia (Navaratnam, 1992).
- 11 focus groups representing all segments of the college community in a 2-day retreat: revision of institutional goals of a community college (Marrow & Reed, 1991).
- 114 fourth-year university student "persisters": factors critical to long-term retention of university students in a study that also involved records review and other quantitative methods (Lyons, 1991).
- Community members (constituents of public schools): following content analysis of written school communications, groups confirmed analysis that the school's written communications were inappropriately constructed and oriented (Hanson et al., 1991).
- 40-60 community members in several different communities in Idaho: definition of issues and solutions in retention of Hispanic youth in school (Idaho State Department of Education, 1990).
- Focus groups of constituents complemented surveys, interviews, and commissioned research papers to assess current status of Ontario's university system and to project future dimensions and needs (Pascal et al., 1990).
- Project review of pilot project to strengthen basic competencies of vocational program students using observation and focus groups (Watkins, 1990).
- Focus groups of students at Syracuse University: comprehensive information about quality of student life relative to use of student center (Peters & Yonai, 1989).
- Administrators, counselors, and teachers from 12 schools in Dallas: to recommend change following large-scale survey of Hispanic dropouts in Dallas (Dallas Independent School District, 1989).
- Former community college students: definition of instructor attributes and behaviors that contributed to student success (Elliott, 1989).
- Constituents in community colleges: evaluation of lecturing and preparation for lecturing at the community college level (Engleberg & Boileau, 1989).

than they would be in semistructured interview or in questionnaires, and the range of responses is greater. They point out as well that a major danger is that of biased results.

A standard reference for the technique is the second edition of *The Focused Interview: A Manual of Problems and Procedures* by Merton, Fiske, and Kendall (1990). Stewart and Shamdasani (1990) and Morgan (1988) have written basic texts about the strategy; Morgan's, one of the Sage Publications series in qualitative research, was favorably reviewed (Bryman, 1988) and provides comprehensive treatment. Some of the anthropological interview techniques discussed in Weller and Romney (1988) are applicable to focus group interviewing as well.

The record of reported research results demonstrates that the venues, populations, and applications of the research strategy represent a wide range of research questions. Cumulatively, the literature shows that focus group research in education has increased remarkably since around 1985. It appears to have been particularly useful in institutional and program evaluation, program planning, and in needs assessments. Its cost-effectiveness relative to other techniques has been remarked on.

There is some implication, but no explicit claim, that focus groups are an effective data collection strategy in populations in which access is otherwise problematic, in which prestructured formats exclude salient "cultural" data, or in which bases for interpretation of participant input may be a problematic issue. Simard (1988), in a review of research about the family in Francophone Africa, claims that focus groups are particularly effective in oral societies, and particularly when the researchers are members of those societies as well.

In that vein, it might be said that the first motivation for the use of focus groups with other than Anglo populations relates to the quality of data that can be obtained with the method. For example, the study of the needs of the Black communities in 118 US cities, reported by the National Urban League (1990), noted that both large-scale survey techniques and focus group techniques were valuable in documenting the needs and problems facing Black youth. In the Washington, DC area, four focus groups totalling 58 employed and unemployed Black men and women discussed whether they felt they could get themselves out of poverty through working: the appendix containing quotes from the group illustrates that focus groups provide the kind of information that could not possibly come through survey (Foster, 1988). Focus groups with a cross-section of Latino community leaders in Los Angeles complemented broader community surveys of needs and issues of Latinos in that community (Tomas Rivera Center, 1989).

Focus groups may be used with ethnic minorities when the research topic is sensitive. Singer (1992) reports their use with Latinos in five US states and Puerto Rico in a project aimed at judging and enhancing the effectiveness of health agencies in education about HIV risk. The technique was used because it was thought that survey techniques would not get at the "nuances of constructed sociocultural meaning" that had to be understood in order to make the agencies' approach to the problem meaningful to their constituents.

The second motivation for the use of focus groups in cross-cultural situations has to do with validity: Harari and Beatty (1990 say that their quantitative results were inexplicable without the use of focus groups in a study of Blacks and whites in work relationships in South Africa.

Yet another use of focus groups in cross-cultural study is illustrated in one of the rare references to the use of focus groups with First Nations groups, and that use is in manifestly comparative research. Shively (1991) wondered why westerns (movies) were popular among First Nations peoples because those films were about an era that, in Shively's words, "celebrates their destruction." She showed such a film to matched groups of Anglo and First Nations reservation residents and then collected data with written questionnaires, individual interviews, and focus groups. She said that comparisons between groups showed that First Nations people responded in terms of values (e.g., autonomy, closeness to nature) and Anglos responded in terms of their group identity and its historical association with the process of imposition of their own values.

Methods. In addition to the classic and comprehensive text by Merton et al. (1990), and texts by Morgan (1988), Stewart and Shamdasani (1990), and Krueger (1988), comments on method are provided by Lederman (1990) and Sevier (1989). Basch (1987) includes a theoretical justification for the use of the technique, relating theory to method.

Zimmerman (1989) includes instructions for focus group research as a component of a general guide for creation of learning materials in health for "low-literate" populations. Two discussions of research methods are of special interest to this study. Brodigan's (1992) brief description of the use of focus groups in research about universities and colleges is complemented by the text by Bandura (1992), who assesses the shortcomings of relying on surveys in studies of minority student retention in higher education, and demonstrates the advantages of using focus groups. Brodigan's criteria for the motivation of the technique are (a) in new research; (b) when combined with quantitative studies; (c) to provide a context for interpretation of survey results; and (d) as a means of investigation. The use of focus groups is included in a manual that details how continuing education units can involve themselves in market research in program planning (Campbell, 1990). The technique seems to be so closely associated with marketing in some discussions that Deatrick and Knox (1989), who are involved in the design of "client-centered" sexuality education courses, propose focus groups as a "market research technique" to inform the improved design of the courses to attract young males to the course.

Cohen and Engleberg (1989), noting some of the problem issues in focus group research, provide some cautions for the use of the technique in postsecondary institutions. They comment on the difficulty of interpretation of the results of focus group research and specify guidelines for its use. They think that because its use is problematic, institution-wide protocols should authorize only specified individuals in the institution, who have demonstrated proficiency, to moderate focus group discussions, to recruit members, or to interpret results. They caution that market researchers and consultants do not know the college institutional environment, and so may misinterpret responses. This is part of a general caution in the literature about who should moderate the sessions and analyze results. Nelson and Frontczak (1988), for example, evaluated effects of analyst identity and whether or not focus group participants were acquainted with each other. Their metric was idea quantity and quality, and they evaluated the process of scoring discussion transcripts. They found little interaction between variables on the basis of acquaintanceship, but found that analyst identity had moderate to large effects.

Bertrand et al. (1992) discuss the relative merits of working from transcripts, tapes, notes, or combinations (e.g., notes, amplified by reference to audiorecording).

Complementarity with other methods. Validity is said to be enhanced by combining focus group research with other kinds of research. The argument in Glik et al. (1986) is typical of this discussion. About their study in Rwanda of mothers' actions when children have diarrhea or malaria, they said that combining focus groups with interview and questionnaire methods allowed them to express findings in both quantitative and qualitative terms, and the triangulation of methods demonstrably increased the validity of the study. Harari and Beaty (1990) report a cross-cultural study of workers in South Africa: survey instruments from studies in 1946 and 1980, used in a 1987 study, had suggested that there was consensus between white managers and Black blue-collar workers on workplace issues. Focus groups revealed a different story, and the authors are clear that quantitative measures in cross-cultural research of this nature are inexplicable and misleading without a technique such as focus groups.

A project in Conakry, Guinea assessed child immunization services. It was designed to triangulate methods with a combination of two surveys (one of mothers and another of immunization facilities), key informant interviewing among health care providers, and focus group discussions with parents. This research model has now been adapted by the Centers of Disease Control for assessment of American child immunization programs (Glik, 1991).

Three studies of medical sterilization as a component of birth control in Central America and Africa are reported by Ward, Bertrand, and Brown (1991), who found that focus groups provided similar results to their survey results except on questions of parameter and inference. It is combined with survey techniques in Widdows et al.'s (1991) study of the perceptions of the users of a university library; Krugman and Johnson's (1991) study of movie rental versus television viewing; Noble and Klein's (1992) survey (686 respondents) on which to base a needs assessment of women and girls in Kansas City. Fox Valley Technical College (1991) used focus groups to explain the context of the results of their random sample of college records, telephone survey (N=300), and individual interviews with employers, in their assessment of the position of the aging worker.

Focus groups were used in connection with a survey study of 1,114 gay men in South Africa, to try to find out why for some of them AIDS-risk behavior did not seem to be related to their knowledge of risk (Schurink & Schurink, 1990). It was used by Basch et al. (1987) to complement semantic-differential values assessments of youth about impaired driving; and at Virginia Commonwealth University, 31 students in focus groups generated a range of values, orientation statements, and descriptions of valuing processes that allowed a research team to create a 95-item survey questionnaire for administration to another 210 students (McMillan, 1989).

Focus groups may be used to explain results of quantitative measures. Several focus group sessions were used to verify and contextualize findings, and to project outcomes, after a psychometric instrument selected impulsive, high risk-takers among undergraduates (Valenti & Ferguson, 1991); and in a study in Singapore on learning styles, measures based on scales of cognitive and affective learning were qualified with the use of focus groups (Cheung, 1991).

In a curriculum policy analysis in language arts involving 300 schools, the place of focus groups was in the initial stages of research, when the technique was used to develop the survey instrument (Hough, 1991). Buttram (1990) uses a needs assessment in education to demonstrate that focus groups are particularly useful in improving survey design, in that the objective is not to document consensus but to document variety.

Hugentobler et al. (1992) combined focus groups with survey, field study, and semistructured individual interview in a study of work stress and health, and discuss the contribution to construct validity that the combination of techniques provides. Roy (1991) discusses focus groups combined with case studies and oral histories, and Johnson (1989) reports the combination of focus groups of migrant families, combined with ethnographic studies, in a research project oriented toward school recruitment of migrant children. Records review and on-site observation, in a national study of volunteers and teachers in adult basic education and English as a second language instruction, were combined with focus group research at nine training sites in a comprehensive examination of the nature of teacher and volunteer training in these areas (Kutner et al., 1992). Another large-scale study of the processes involved in becoming a vocational teacher, comparing groups by entry route to the profession, combined large-scale survey techniques with ethnographic study, program evaluation, and focus groups in eight regions of the US (Heath-Camp et al., 1992).

Beyond research: Focus groups as interventions. Focus groups involve subjects more coherently in the research process, and Jacobi (1991) cites this as an advantage in institutional research. She remarks on the cost-effectiveness of focus group research, and cites as another advantage the area of *explanation,* not simply description.

Bers (1989) discusses problems and advantages as well, but the advantage that Jacobi sees in involving subjects integrally in the process is a characteristic of focus group research that in some cases gives the research a kind of participatory research thrust: when four focus groups consisting of 60 managers and employees in a large teaching hospital addressed the common needs and problems, the focus group itself was seen as place for change through the improvement of communications in the institution (Capps, 1991). In a large scale study involving four American states and dealing with the ability of the states to manage economic change, focus groups were built into the design as a mechanism for "citizen input" (Jobs for the Future, 1991). The technique may be used concurrently with research as an instructional development technique, as it was in two computer-assisted university courses (Kubota, 1991). In an applied project with at-risk youth in a school system, Kleiner (1990) saw the focus group and a "School System Empowerment Report Card" as strategies to keep the youth in school.

Focus groups are used not only in research in education, but in applied situations. Connors et al. (1991), for example, suggest using focus groups to share information with parents and stakeholders in the process of building community support for schools. In the volume edited by Topor (1992) focus group research is discussed as marketing strategy and as a research tool in higher education.