

Methods Taught In Public Policy Programs: Are Quantitative Methods Still Prevalent?

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ABSTRACT

This paper presents the results of a content analysis of the titles and descriptions of methods courses offered in 44 graduate programs in public policy at universities and colleges in the U.S., and compares the results to those of an earlier survey on the methodological preferences of policy professionals. The rationale for classifying methods courses as quantitative and qualitative and the results of the past research on methods courses are discussed. The results of the analyses show that quantitative methods are used in a large majority of the courses studied and that they are prevalent in the practice of policy professionals. The authors question whether the prevalence of a quantitative/positivist methodological approach in public policy programs and practice is a good match for the demands of today's complex world of governance.

INTRODUCTION

There have been sporadic studies and debates on what types of methods policy analysts use (quantitative or qualitative), and the practical and epistemological implications of these usages since the 1970s. To some, the observed prevalence of quantitative methods in the practice and education of policy analysis is reflective of the ongoing dominance of positivist epistemology (e.g., Amy, 1984; Ascher, 1987; Brunner, 1991; Durning, 1999; Fischer, 1995, 2003; Torgerson, 1986); to others, this association between quantitative methods and positivism is false and/or the discussions of what kind of methods are used are immaterial (Lynn, 1999; Weimer, 1999). In this paper we aim to contribute to these discussions by presenting the results of a content analysis of the titles and descriptions of courses taught in public policy programs at educational institutions in the U.S.

DEBATES ON POSITIVISM AND QUANTITATIVE VS. QUALITATIVE METHODS

The role of positivism in the social (human or cultural) sciences has been debated for a long time. One can trace the source of these debates back to the social constructionist critique of the 1960s and 1970s, or farther back to the phenomenological and hermeneutic critiques of the over-quantification of human sciences in the 19th century. In the public policy/policy sciences/policy analysis literature, Lasswell's observation that policy scientific knowledge is contextual and temporal and therefore difficult to quantify and generalize (Lasswell, 1971; Lasswell & Kaplan, 1950, pp. xiv-xxiii) may be considered the earliest critique of quantitative methods. A full-blown critique in the public policy/policy analysis literature was launched in the 1980s and 1990s (Amy, 1984; Torgerson, 1986; Ascher, 1987; Brunner, 1991; Fischer, 1995; Durning, 1999). In the first decade of the 21st century, the critique of quantitative methods turned into protest movements among some academics in two disciplines neighboring public policy/policy analysis: (a) The "post-autistic economics" movement in economics, and (b) the "Perestroika" movement in political science. Both have challenged the quantitative methodological orthodoxy and made significant inroads in their respective fields.¹

To better understand the issues involved in these debates, the terms *quantitative* and *qualitative* need to be defined and some questions need to be answered. Are these two, meaningfully distinguishable categories? Are there necessary connections between quantitative methods and positivism? As a reviewer of an earlier version of this paper pointed out, there are no universally and clearly accepted definitions of these concepts, but the terms are used quite commonly, particularly in research methods textbooks (e.g., Berg, 1998; Creswell, 2009; King, Keohane, & Verba, 1994; Rubin & Rubin, 2005). Despite the lack of universal definitions, we think the terms quantitative and qualitative are meaningful signifiers of two different orientations in research methodology. In the following paragraphs, we summarize discussions on these concepts in existing literature and present the conceptual framework we used in our research.

There are two general approaches to defining the terms quantitative and qualitative. In the first approach, merely technical distinctions are made between quantitative and qualitative forms of research. Qualitative research is either defined as small-*n* research and is contrasted with large-*n* (quantitative) research (e.g., King, Keohane, & Verba, 1994), or the term qualitative is used for nominal-level measurements and is contrasted with higher levels of measurement, particularly interval and ratio levels (e.g., Rice University, n.d.).

The second approach follows the differentiation made by 19th-century hermeneutic scholars. They argued that the methods of natural sciences could not be used in the human (social, cultural) sciences, because human beings were meaning-making and interpreting entities, and the meanings they make and their actions could be understood only in their own contexts. Following this tradition,

Berg (1998) and Creswell (2009) define qualitative research as a collection of methods that can be used to understand human meanings (concepts, metaphors, symbols, descriptions, etc.) in their historical contexts, and point to the flexible and emergent nature of qualitative research designs. They contrast this research approach with quantitative research, which aims to make generalizations about objectively existing phenomena by using numbers and calculations, and following predefined procedures. In their conceptualization, quantitative research is closely related to positivist epistemology and natural sciences, hence its appropriateness for social/human sciences is considered questionable.

The dichotomous conceptualization of quantitative versus qualitative research used in this paper is based on the second approach. We will elaborate on our conceptualization, but, before we do that, we need to address two issues discussed in the literature: (a) Whether there is a necessary distinction between quantitative and qualitative methods, and (b) whether epistemological and general methodological debates apply to policy analysis and policy research.

Those who agree with the fundamental premise of the hermeneutic divide between the natural and social sciences tend to view quantitative and qualitative methodologies as two distinct paradigms and question the applicability of the former in the social sciences (e.g., Guba, 1978; Patton, 1975). According to Porter (1995), even if there is no clear paradigmatic distinction between the two, there is a phenomenological one: “[Q]uantification is a technology of distance” and it “minimizes the need for intimate knowledge and personal trust” (p. ix), whereas qualitative methods reduce the distance between the researcher and the subjects being studied. Reichardt and Cook (1979) disagree with this notion of paradigmatic distinction and take a pragmatic position: Qualitative and quantitative methods can be chosen and mixed depending on the purposes of a study. King, Keohane and Verba (1994) reject the notion of paradigmatic distinction on the grounds that there must be a unified inferential logic for all scientific inquiry, and they stress that qualitative research can, and should, emulate quantitative research in deriving valid causal inferences, which is the ultimate goal of science (p. 3).

Yanow (2007) and Yanow and Schwartz-Shea (2006) argue that both quantitative and qualitative methods are interpretive forms of inquiry; both types of researchers interpret and count. But there is a philosophical divide, according to Yanow, who says the terms “quantitative” and “qualitative” have become shorthand proxies for positivism and interpretivism, which are vastly different in their approaches to inquiry (p. 406). According to Yanow and Schwartz-Shea, positivists assume that data are given; interpretivists, on the other hand, think that data are made sense of or interpreted. In the former, words are translated into numbers, because numbers are assumed to be superior to words. In the latter, words (descriptions) are equally valuable; numbers are not rejected, but they are explicitly interpreted (p. xix). Yanow and Schwartz-Shea go on to argue that there are qualitative methods based on positivistic principles, and they make

a tripartite categorization: quantitative, positivist-qualitative, and traditional-(interpretivist-) qualitative methods.

We agree with Yanow and Schwartz-Shea's (2006) differentiation between interpretivist research and positivist research, but we do not find their tripartite categorization meaningful. An elaborate discussion of their categorization is beyond the scope of this paper, but we should note that they define "positivist-qualitative methods" as a residual category and do not show any good examples of methods that would fit into this category. Therefore, we will use the more commonly accepted nomenclature "quantitative versus qualitative," with the latter referring to Yanow and Schwartz-Shea's "traditional- (interpretivist-) qualitative methods" (p.xvi).

In the public policy/policy analysis literature there has been some discussion about the influence of positivism on policy analysis practice. Interpretivist, post-positivist, social constructionist, and critical policy theorists argue that policy analysis practice is positivistic for the most part, and point to the pervasive use of quantitative methods as evidence of the dominance of positivism (e.g., Amy, 1984; Ascher, 1987; Brunner, 1991; Durning, 1999; Fischer, 1995, 2003; Torgerson, 1986). In policy analysis, Fischer (1995) cites the widespread use of cost-benefit analysis, quasi-experimental design, multiple regression analysis, survey research, input-output studies, operations research, mathematical simulation models, and systems analysis as the manifestation of the dominance of positivist epistemology (pp. 10-11). Lynn (1999) and Weimer (1999) do not think that there is a connection between positivism and quantitative methods. They also point out that the positivist philosophy of knowledge and related methodological practices were widely criticized in the 1960s and 1970s and consequently abandoned by social scientists in general, and policy analysts in particular.

DeLeon (1994) concedes that positivism suffered some setbacks, but it has survived, if not thrived, particularly in the practice of policy analysis (e.g., DeLeon, 1994). Heineman, Bluhm, Peterson, and Kearny (1990) observe that positivistic/quantitative methods have remained prevalent throughout the history of policy analysis, despite fluctuations in their popularity over time. In support of this observation, study results indicate that policy analysts largely held positivistic views in the 1990s (Morçöl, 2001).

Radin (2000) points out that, in the 1960s and 1970s, policy analysts favored using economic models and cost-benefit analysis methods, whereas in the 1990s, they preferred a diversified approach that included both quantitative and qualitative methods. Yang (2007) concurs that quantitative methods dominated during the 1960s, because most policy analysts held degrees in economics. In the 1970s and 1980s, quantitative methods lost their predominance in policy analysis, mainly because of the critiques of positivism in that period. Quantitative methods re-emerged in the 1990s, due partly to the wider availability of statistical software and computers. Yang points out that this re-

emergence can be observed in the educational program curricula, conference paper presentations, and journal articles of the 1990s.

Heineman, Bluhm, Peterson, and Kearny (1990) claim that the prevalence of quantitative methods in policy analysis is because the utilitarian value of efficiency has been a central value of mainstream policy analysis, and the measurement of efficiency requires quantitative methods (p. 39). Stone (2002, pp. 163-177) explains this prevalence with the nature of power relations in political systems: Powerful political actors use numbers to bolster their authorities, create illusions, and elicit desired outcomes.

OUR CONCEPTUALIZATION OF QUANTITATIVE AND QUALITATIVE METHODS

The conceptualization we used in this study is summarized in Table 1. This conceptualization is based on the previously explained differentiation between quantitative and qualitative (interpretivist) methods. We compiled the methods listed in the table from (a) the contents of well-known policy analysis textbooks (Dunn, 2008; MacRae & Whittington, 1997; Patton & Sawicki, 1993; Quade, 1989; Weimer & Vining, 1992), (b) literature with critical assessments of mainstream policy analysis methods (Dryzek, 1993; Fischer, 1995, 2003, 2009), and (c) general social science methods literature (Berg, 1998; Creswell, 2009; Lewins & Silver, 2007; Silverman, 2006; Yanow, 2000; Yanow & Schwartz-Shea, 2006). [*See Table 1*]

Some of the names and categorizations we used in Table 1 need clarification. We first categorized the methods listed into *methods of empirical inquiry* and *methods of decision-making and planning*. Policy researchers and analysts use both, but for different purposes. We categorized the methods of empirical inquiry into three subcategories: *Design*, *data collection*, and *data analysis*. There are some methods, particularly qualitative ones, which require holistic approaches and do not fit any of these subcategories. For instance, in many qualitative methods of inquiry, design may not be a distinct step — a design emerges during the process of inquiry, and data collection and analysis may not be separate processes — and information may be constructed and interpreted interactively (Creswell, 2009). Because of these holistic characteristics of qualitative inquiry, we created a subcategory of *combined* methods and placed a large majority of qualitative methods there.

We included names of all the methods we found in our literature searches, although this created some redundancies, and some of the methods listed are obviously inclusive of others (e.g., statistical methods include regression analysis). We preferred to list all of them, because, as explained in the following methods section, the names listed in the table became keywords in our database queries, and we did not want to miss any of them. We chose to list the names in alphabetical order, although some of the methods in each category that are relatively close to each other, logically could be listed one after another (e.g., content, discourse, and narrative analyses have commonalities). We preferred

Table 1.
A Classification of Methods of Social Empirical Inquiry and Decision Making and Planning

QUANTITATIVE	QUALITATIVE
A. METHODS OF EMPIRICAL INQUIRY	
Design Methods	
<ul style="list-style-type: none"> ● Cross-sectional ● Experimental ● Longitudinal ● Panel Studies ● Repeated Measures Designs ● Quasi-Experimental 	
Data Collection Methods	
<ul style="list-style-type: none"> ● Data-mining ● Secondary Data ● Surveys (Sample Surveys) ● Focus Groups ● Participant Observation 	<ul style="list-style-type: none"> ● Qualitative (long, in-depth, semi-structured) Interviews ● Unobtrusive Methods
Data Analysis Methods	
<ul style="list-style-type: none"> ● Regression Analysis (all types) ● Statistical Analyses (general) ● Time-series Analysis (ARIMA, Smoothing) ● (Dynamic) Systems Analysis (Modeling) ● Game Theory/Games ● Geographic Information Systems ● Input-output Analysis ● Meta-analysis ● Mixed Methods ● Simulations (Optimization, Computer Modeling) ● Geographic Information Systems ● (Social) Network Analysis ● Sociometry 	<ul style="list-style-type: none"> ● (Computer Assisted) Qualitative Data Analysis
Combined Methods	
<ul style="list-style-type: none"> ● Action research/ Collaborative (Participative) Inquiry ● Appreciative Inquiry ● Archival/Documentary Research ● Case Study ● Category Analysis ● Content Analysis ● Conversational Analysis ● Critical Theoretical Analysis ● Deconstruction ● Discourse Analysis ● Dramaturgical Interviewing & Analysis ● Ethical Analysis ● Ethno-methodology ● Ethnographic Semantics ● Ethnography, Ethnoscience ● Feminist Analysis ● Frame (reflective) Analysis ● Grounded Theory ● Hermeneutics ● Historical Method (Historiography, Genealogy, Life History, Oral History) ● Legal Analysis ● Metaphor Analysis ● Myth Analysis ● Narrative Analysis ● Phenomenological Methods ● Post-structural Analysis ● Semiotics ● Social Constructionist/Constructivist Analysis ● Sociodrama ● Space Analysis ● Storytelling Analysis 	
B. METHODS OF DECISION-MAKING AND PLANNING	
<ul style="list-style-type: none"> ● Cost-benefit Analysis ● Cost-effectiveness Analysis ● Decision Analysis/Decision trees ● Linear Programming ● PERT/ CPM ● Time-series Forecasting 	<ul style="list-style-type: none"> ● Assumptonal Analysis ● Brainstorming ● Deliberative Inquiry ● Delphi ● Judgmental Forecasting ● Nominal Groups ● Political Feasibility (PRINCE) Analysis

Note: The methods that are highlighted with boldface and italics are both quantitative and qualitative. Each of these methods is placed in either a quantitative or a qualitative column, depending on whether it has more of one of the other quality. Our judgment on whether a method is more quantitative or more qualitative is based on our readings of the literature and own experiences. *Mixed methods* is placed in a quantitative column, because in the literature we are familiar with, the quantitative components are emphasized more. But after a more comprehensive review of the mixed methods literature, we think this item may be placed in either column.

alphabetical order, not only to make it easier for the reader to find methods in the table, but also to avoid controversies over the literature's different definitions and usages of methods (e.g., not everybody agrees on the differences between content and narrative analyses).

Some of the methods listed in Table 1 were more difficult to categorize as quantitative or qualitative. We designated these as *both quantitative and qualitative*, and highlighted them in ***boldfaced italics***. We listed these methods in one of the quantitative and qualitative columns, based on our judgment about whether a particular method was more quantitative or more qualitative. An example of this is content analysis. As Berg (1998) points out, the term may be used for both quantitative and qualitative forms of analyses. Although the terms *narrative analysis* or *discourse analysis* may be more appropriate for the latter, as Silverman (2006) observes, the differences between content analysis and these two are not always clear or agreed upon by all researchers. Although one easily can make some conceptual distinctions (i.e., in quantitative content analysis, the researcher assumes that the meanings expressed in words are stable and understood roughly in the same manner by the author and the reader, and counts them as equivalent units; whereas in qualitative forms of content analysis, the researcher treats meaning-making and interpretation as complex processes and aims to understand meanings in the historical, cultural, and political contexts of the authors), in order to avoid difficulties in interpretation, we categorized content analysis as both quantitative and qualitative. We should note here that the queries we conducted in our research are examples of quantitative content analysis.

The distinction we made between surveys and qualitative (long, in-depth, semi-structured) interviews also need to be explained. Although there may be some qualitative elements (open-ended questions that require contextual interpretations) in a particular questionnaire, survey research is far more quantitative than qualitative. Even when open-ended questions are included in a questionnaire, most of the time the responses are coded, in order to be analyzed quantitatively; they rarely are contextually interpreted. Part of the reason for this is that a major objective of survey research is to make generalizations from a sample to a population, which requires quantification. Survey research is classified as quantitative research by its proponents and field experts (e.g., Czaja & Blair, 2005; Fowler, 2008).

The concerns and issues of qualitative interviews are very different. Books on qualitative interviewing focus on concerns and topics, such as understanding conversations, interviewing as a craft (not science), interviewing as social production of knowledge, power asymmetries in interviewing, thematizing an interview, meaning-coding and meaning-interpretation, social construction of validity, listening/hearing, and conversational partnerships (Gubrium & Holstein, 2003; Kvale & Brinkmann, 2008; Rubin & Rubin, 2005).

We also should note that we consider brainstorming, Delphi, political feasibility analysis, and assumptional analysis as qualitative methods, because although each one may involve some counting, they primarily are verbal and interpretive. Brainstorming and Delphi are highly interpretive and interactive methods. Political feasibility analysis involves some quantification, but it clearly is judgmental at its core (Dunn, 2008). Assumptional analysis is based on linguistic structural analysis (Dunn, pp. 111-114), and, as such, is interpretive.

RESEARCH ON METHODS TAUGHT IN EDUCATIONAL PROGRAMS

Studies conducted since the 1980s on the methods taught in educational programs for political science and public policy indicate that quantitative methods have been prevalent. In a survey conducted among 71 “leading American graduate programs” in public policy, Jenkins-Smith, Mitchell, and Silva (1999, p.7) found that about two-thirds of the programs offered advanced statistics, but only two-fifths of them offered courses on qualitative methods. Bennett, Barth, and Rutherford (2003) found that, although qualitative research methods quite frequently were used by political scientists, they frequently were not taught in political science programs at universities. Schwartz-Shea (2003) made similar findings in the U.S. among 57 “leading doctoral programs” (p.379) in political science: Whereas a large majority of the programs require quantitative methods courses, a very small minority require qualitative methods courses or courses in the philosophy of science. In their content analysis of 14 research methods textbooks used in social science, political science, and public affairs programs, Schwartz-Shea and Yanow (2002) found that “interpretivist qualitative methods” (p.xx) were not mentioned in them at all, whereas what they call “positivistic qualitative methods”(p.xx) found moderate treatments and positivistic quantitative methods were given the most space.²

In a series of studies from different time periods, Hy, Nelson, and Waugh (1981); Hy, Waugh, and Nelson (1987) and Waugh, Hy, and Brudney (1994) found that the frequency of quantitative methods taught in public administration and political science graduate programs increased during the 1970s and 1980s. LaPlante (1989) found that in Master’s of Public Administration (MPA) and Master’s of Public Policy (MPP) programs, the breadth and depth of course offerings in both quantitative and qualitative methods had increased in the 1980s.

The picture that emerges from the studies cited here is somewhat mixed, but the commonality is that quantitative methods are taught far more frequently in the educational programs studied by researchers. In our research, we aimed to find if this also is true for public policy/policy analysis programs. Like Jenkins-Smith, Mitchell, and Silva (1999), our study focused on programs in public policy and policy analysis, but, unlike these researchers, we did not survey program administrators. Instead, we conducted searches at the programs’ Web

sites. This methodology parallels Schwartz-Shea (2003), but our study and hers differ in their targets: Her study exclusively focused on political science programs. In our study, to provide a background and context, we compared our findings from Web site searches with findings of an earlier survey that one of the authors of this study conducted among public policy professionals. In the survey and in Web searches, we primarily focused on U.S. educational programs, because policy analysis practice and education are far more widespread in this country than in other nations, and because the number of public policy educational programs in other countries was too small for meaningful comparisons. We describe our methods in more detail in the next section.

METHODS

To measure the prevalence of quantitative and qualitative methods courses, we searched the Web sites of graduate programs in public policy, policy analysis, and related topics at 44 universities and colleges in the U.S., in 2008 and 2009. The names of the universities and the specific programs included in our study are listed in the Appendix. We identified the universities and colleges included in our study from the programs listed on the Web sites of the National Association of Schools of Public Affairs and Administration (NASPAA; www.naspaa.org) and the Association for Public Policy Analysis and Management (APPAM; www.appam.org). At the NASPAA Web site, we identified universities that offered MPP programs. At the APPAM Web site, we selected the academic entities that were listed as “institutional members.” We then combined the NASPAA and APPAM lists for our study.

Because we wanted to find out what methods are being taught to future public policy/policy analysis practitioners, we primarily concentrated on master’s level programs. There are so few public policy-related programs at the undergraduate level that they do not allow for meaningful comparisons or analyses. We did include doctoral programs at these universities, but our main focus was master’s-level courses. In many programs, graduate-level courses are offered to both master’s and Ph.D. students, and there also are Ph.D.-only courses. We sorted out the Ph.D.-only courses and analyzed them separately for comparison, as discussed next.

MPP programs were the primary focus of our searches. We also included programs with similar names, like the Master of Public Administration in Public and Nonprofit Management and Policy program at New York University, the public policy concentration in the Master of Public Affairs program at Indiana University, and the Master of Public Affairs program with Policy Concentration at the University of Wisconsin. We specifically did not include MPA programs in our study, but we included programs where no clear differentiation could be made between the MPA and MPP — as in cases of the MPA/MPP program at Rutgers University, and Carnegie Mellon’s Master’s of Science (MS) in Public

Policy and Management Program. We also included programs that specialized in environmental policy, social policy, health policy/public health, international policy, education policy, and urban affairs/planning/policy. Examples of such programs are the Master's of Arts (MA) in Energy and Environmental Analysis at Boston University, and the Sustainable International Development program at Brandeis University, as well as its programs for an MS in Health Policy and Management and MA in Sustainable International Development.

Our inclusion of these specialized programs is justified because, as Radin (2000) points out, after the 1960s and 1970s, the practice and education of policy analysis became specialized in these areas. These specialized programs proliferated in recent years, along with core public policy programs like MPPs.

Once we identified the universities and their programs, we searched their Web sites and downloaded titles and descriptions of courses on methods. We identified courses with clear methods components, and defined *methods* as tools of empirical inquiry and tools of decision-making and planning. In searching methods courses, we used the specific names of methods that were listed in Table 1. We also included courses that contained generic methods-related names, such as microeconomics, macroeconomics, decision (making), analysis, analytic(al), research, design, method(s)/methodology, technique(s), inquiry, policy (or program) evaluation, data, statistics/statistical, and assessment. We then checked the descriptions of these courses for clear statements regarding methods components; if there were none, we left them out.

All of the programs we investigated had required methods courses; some also offered elective methods courses. We included in our analyses the elective courses that students were most likely to take because of the way corresponding programs were structured.

In our searches, we initially identified 332 master's-level methods courses. We entered information on these courses into a Microsoft Office Access (MS Access) database. When we could not obtain descriptions for some of these courses, we did not exclude them if the course titles provided valuable information about their contents.

We conducted three groups of analyses. First, we read the titles and descriptions of both the master's and Ph.D.-level courses, to determine whether they were quantitative, qualitative, or both. When a course title clearly stated that it was quantitative or qualitative, we classified it as such. When the contents of a course were not self-classified as quantitative or qualitative, we read the titles and descriptions and made a determination using the conceptualization in Table 1. The results of our analyses are presented in Table 2 (see next section).

In the second group of analyses, we used the MS Access "query" function to identify the specific methods mentioned in course titles and descriptions, based on the names of methods listed in Table 1. After each query, we double-checked all course title and description fields for possible errors. For instance, a description

saying “This course surveys methods of...” might have been misclassified as “survey research methods” rather than the specific method being taught. The results of our query analyses are presented in Table 3 (see next section).

Finally, we compared results from the second group of analyses with those from a survey that one of this paper’s authors conducted among policy professionals in 1998. Details of survey methods can be found elsewhere (Morçöl, 2001). Briefly, the survey was conducted via e-mail, among policy professionals whose names and e-mail addresses were listed in the *APPAM Membership Directory* (APPAM, 1996) and the *Policy Studies Personnel Directory (PSPD)* (Nagel & Quandt, 1996). The e-mail survey also was sent to a sample of professionals whose e-mail addresses were retrieved from the Web sites listed in the *Think Tank Directory* (Hellebust, 1996). The author received 79 completed questionnaires from the *APPAM* list, 59 from the *PSPD* list, and 233 from the think tank list (for a total of 371 responses). Survey results are presented in Table 4 (see next section).

RESULTS

Results from the first group of analyses are presented in Table 2. We classified methods courses according to the criteria described in the previous section. When unable to determine — from either the title or the description of a course — whether its methods were quantitative, qualitative, or both, we classified it as uncertain. [See Table 2]

Table 2.
Quantitative and Qualitative Courses Taught in Master’s and Ph.D. Programs

	Master’s Programs		Ph.D. Programs	
	Frequency	Percentage	Frequency	Percentage
Quantitative	248	88	77	79
Qualitative	19	7	15	15
Both	15	5	6	6
Subtotal	282	100	98	100
Uncertain	50		20	
<i>Grand Total</i>	<i>332</i>		<i>118</i>	

Note. Pearson’s chi-square = 6.80, *df* = 2, *p* < 0.05

Table 2 shows that quantitative courses constitute very large majorities of methods courses taught in both the master’s programs (88%) and the Ph.D.

programs (79%). However, there is a noteworthy increase from the percentage of qualitative courses taught at the master's level (7%) to those taught at the Ph.D. level (15%). These differences between the percentages of quantitative, qualitative, and both kinds of courses are statistically significant, at the 0.05 level.

The results of our queries in the MS Access database are presented in Table 3. In this table, each method is listed according to its frequency count in course titles (*T*) and in course descriptions (*D*). Note that because we found courses whose titles and/or descriptions included the names of multiple methods, the frequency counts in the table exceed 332, which is the number of total master's-level courses in the database. [*See Table 3*]

Because of redundancies in the counts (e.g., regression analysis is a statistical analysis) and the inclusion of multiple methods in a single course, this table should be cautiously interpreted. Still, the table unmistakably shows that quantitative methods are mentioned many more times than qualitative methods in the titles and descriptions. The methods with the highest frequencies in the table are statistical analyses, regression analysis, surveys, and cost-benefit analysis. It can be concluded from the table that experimental and quasi-experimental designs are the top designs, surveys are the top data-collection methods, and statistical analyses — particularly regression analysis — are the top analytical approach. These quantitative methods are followed by ethical analysis, which in this table has the highest frequency count among the qualitative methods.

It also should be noted that several of the qualitative methods shown in Table 2 are not listed in Table 3, because they have zero frequencies. Whereas only two of the quantitative methods did not appear in Table 3 (input-output analysis and PERT/CPM), it is lacking three of the combined quantitative and qualitative methods (content analysis, Delphi, and political feasibility analysis), and 28 of the solely qualitative methods. More specifically, most of the “combined qualitative methods” did not qualify for Table 3, and it contained none of the “qualitative decision-making and planning methods.”

A comparison of the results shown in Table 3, with the results of a survey by one of the paper's authors — conducted among policy professionals in 1998 (shown in Table 4) — is interesting in two respects. First, there is a remarkable consistency in the top-ranked quantitative methods of Tables 3 and 4. Excluding the broad category of statistical analyses, one can observe that the top three methods are surveys, regression analysis, and cost-benefit analysis. Second, neither the qualitative methods (brainstorming and assumptional analysis) nor the “both qualitative and quantitative” methods (political feasibility analysis and Delphi) listed in Table 4 are observably taught in any of the educational programs we studied (Table 3). The absence of brainstorming in the curricula of policy programs is especially noteworthy, because it is the top qualitative method in the field (57% of policy professionals use it). [*See Table 4*]

Table 3.
Rankings of Methods in Their Respective Categories

QUANTITATIVE	QUALITATIVE
A. METHODS OF EMPIRICAL INQUIRY	
Design Methods	
1. Experimental/ Quasi-Experimental (T: 5; D: 29) 2. Cross-sectional (T: 1; D: 3) 3. Longitudinal (T: 1; D: 3) 4. Repeated Measures Design/ Panel Studies (T:0; D: 9)	
Data Collection Methods	
1. Surveys (Sample Surveys) (T: 12; D: 28) 2. Secondary Data (T: 0; D: 2) 3. Data-mining (T: 0; D: 1)	1. Qualitative (long, in-depth, semi-structured) Interviews (T: 1; D: 6) 2. Focus Groups (T: 0; D: 4) 3. Participant Observation (T: 0 ; D: 3)
Data Analysis Methods	
1. Statistical Analyses (general) (T: 43; D: 107) 2. Regression Analysis (all types) (T: 20; D: 78) 3. Time-series Analysis (ARIMA, Smoothing, Forecasting) (T: 3; D: 17)	1. (Computer Assisted) Qualitative Data Analysis (T: 0; D: 3)
Combined Methods	
1. Geographic Information Systems (T: 4; D: 4) 2. Game Theory/Games (T: 2 ; D: 5) 3. Simulations (Optimization, Computer Modeling) (T: 1; D: 10) 4. Mixed Methods (T: 1; D: 1) 5. (Dynamic) Systems Analysis (Modeling) (T: 0; D: 3) 6. Meta-analysis (T: 0; D: 2) 7.(Social) Network Analysis (T: 0; D: 2)	1. Ethical Analysis (T: 7; D: 13) 2. Case Study (T: 1; D: 6) 3. Legal Analysis (T: 1; D: 3) 4. Archival/Documentary Research (T: 0 ; D: 2) 5. Ethnography, Ethnoscience, Ethnographic Semantics (T: 0; D: 2) 6. Grounded Theory (T: 0; D: 1) 7. Phenomenological Methods (T: 0; D: 1)
B. METHODS OF DECISION-MAKING AND PLANNING	
1. Cost-benefit Analysis (T: 12; D: 28) 2. Cost-effectiveness Analysis (T: 2; D: 6) 3. Decision Analysis/ Decision trees (T: 1; D: 5) 4. Linear Programming (T: 0; D: 5)	

Note. In the table, each method is listed according to its frequency count in course titles (T) and in course descriptions (D). *Mixed methods* is both quantitative and qualitative. It is placed in a quantitative column because, in the literature we are familiar with, the quantitative components are emphasized more. But, after a more comprehensive review of the mixed methods literature, we think this item may be placed in either column.

Table 4.
Rankings of Quantitative and Qualitative Methods Used by Policy Professionals (1998 Survey)

Ranking	Quantitative	Qualitative	Frequency	Percent of Total (n=371)
1.	Surveys		295	(80%)
2.	Cost-benefit analysis		256	(69%)
3.	Regression analysis		244	(66%)
4.		Brainstorming	210	(57%)
5.	Cost-effectiveness analysis		203	(55%)
6.	(Quasi-)experiments		186	(50%)
7.	Simulations		162	(44%)
8.	Time-series analysis		160	(43%)
9.	Decision analysis		146	(39%)
10.		<i>Political feasibility analysis</i>	141	(38%)
11.	Input-output analysis		99	(27%)
12.	Game theory		84	(23%)
13.		<i>Delphi</i>	67	(18%)
14.	Linear programming		62	(17%)
15.		Assumptional analysis	59	(16%)
16.	PERT/CPM		33	(9%)

Note. The methods that are highlighted with boldface and italics are both quantitative and qualitative. In our judgment, the two methods are more qualitative, which is why they are placed in the qualitative column. This is based on reading the literature and our own experiences in using them.

CONCLUSIONS

The results of our study show that quantitative methods are prevalent in the education of policy analysis professionals. These findings are consistent with those of Bennett, Barth, and Rutherford (2003); Jenkins-Smith, Mitchell, and Silva (1999); Schwartz-Shea (2003); and Schwartz-Shea and Yanow (2002).

Although the results of a 1998 e-mail survey and 2006–2008 Web site searches are not directly comparable — because we aimed to answer different research questions, used different methods, and there is a time lag between them — some cautious conclusions can be drawn from their comparison. Similarly, some differences exist between the 1998 and 2008–2009 studies in their rankings of methods, which also may be attributed to their different foci or the time lag between them. But the consistency in the highest-ranked quantitative methods of both items is noteworthy: Surveys, regression analysis, cost-benefit analysis, and (quasi-) experiments top both lists. This shows a consistency between the methods used by policy practitioners and those taught by educators.

There is an intuitive connection between the education and practice of policy professionals, but the consistency observed in Tables 3 and 4 does not help us answer this fundamental question: Do policy analysts use these methods because they learned them in school, or are these methods taught because the policy profession demands them? Durning (1999) argues that the dominance of positivism in policy analysis practice is created and perpetuated by the methods professionals learned in the education process. But could there also be a feedback mechanism that signals educational institutions on what methods are demanded in the practice, and therefore should be taught? More focused empirical studies in the future can help illuminate the education–practice connection.

Future studies also may look into some of the discrepancies between our findings and those of other researchers. For instance, none of the qualitative methods used by policy professionals in 1998 — even the most popular one of brainstorming — is listed in the titles or descriptions of the courses we studied in 2008–2009. It seems that the educational programs ignore qualitative decision-making and problem-solving methods like brainstorming, political feasibility analysis, assumptional analysis, and Delphi (unless they teach them in their courses without listing them in titles or descriptions). Instead, some of the programs teach qualitative methods that are more suitable for academic research (qualitative interviewing, case studies, ethnography, phenomenological research, content analysis, and the like). Some of the qualitative methods being taught (focus groups, ethical analysis, and legal analysis) also can be used in decision-making and problem-solving, but the absence of methods like brainstorming in the current curricula is noteworthy.

The overall prevalence of quantitative methods observed in our study indicates that despite claims that qualitative methods have gained some ground in recent decades (e.g., Schwartz-Shea and Yanow, 2002, cite sources who

argue that policy analysis scholarship took an “interpretive turn” (p. 482) in the 1980s), there remains a large imbalance between how many quantitative and qualitative methods are taught in the curricula of public policy and similar programs. One may argue that we studied only the titles and descriptions of the courses, and therefore our results may not be true indicators of the actual course contents (perhaps a larger percentage of these courses included qualitative methods). It is possible that in our content analyses we missed a few methods that actually are taught in the courses, but that are not listed in their titles or descriptions. However, unless there is a systematic bias among faculty members against listing qualitative topics (but not against listing quantitative topics) in course titles and descriptions — which is unlikely — the overall observed imbalance has validity. The imbalance we observed also is consistent with those observed by Bennett, Barth, and Rutherford (2003); Jenkins-Smith, Mitchell, and Silva (1999); Schwartz-Shea (2003); and Schwartz-Shea and Yanow (2002).

The small difference between the percentages of qualitative courses taught at the master’s and Ph.D. levels (7% and 15% respectively, as shown in Table 2) is statistically significant. This may be interpreted as a sign that future master’s programs will offer more qualitative courses. It can be plausibly speculated that at least some of the graduates of these Ph.D. programs will be more accustomed to qualitative methods and likely will teach them in future master’s programs. Future similar studies can show if there are any significant patterns or changes.

What we and other researchers found about the prevalence of quantitative methods in educational programs, and what future studies will find about trends and patterns does matter, because, as Quade (1989), and Hajer and Wagenaar (2003) point out, there are implications and consequences of solely using one method or another. Quade cautions against the simplifying tendencies of quantitative analyses, which can be particularly important in policy analysis: “[I]n order to quantify a model, too many aspects of the problem it seeks to illuminate may have to be suppressed or drastically simplified” (p. 170). Such a simplifying approach is not suitable for governance and policy-making in the dynamic and complex world of today, according to Hajer and Wagenaar (2003). They argue that the qualitative methodological approach and its interpretive, pragmatic, and deliberative applications in policy analysis is better attuned to the “continuous give and take in networks of actors” that populates today’s “decentered world of governance” (p. xiv), whereas the quantitative/positivist methodological approach is more in tune with the bureaucratic institutional arrangements of modern government (p. 6). If Hajer and Wagenaar are right, then the prevalence of quantitative methods in education is a mismatch for today’s decentered and complex world of governance.

REFERENCES

- Amy, D.J. (1984). Toward a post-positivist policy analysis. *Policy Studies Journal*, 13, 210-211.
- Ascher, W. (1987). Editorial: Policy sciences and the economic approach in a post-positivist era. *Policy Sciences*, 20, 3-9.
- Association for Public Policy Analysis and Management. (1996). *APPAM membership directory*. Washington, D.C.: APPAM.
- Bennett, A., Barth, A., & Rutherford, K.R. (2003). Do we preach what we practice? A survey of methods in political science journals and curricula. *PS: Political Science and Politics*, 36, 373-378.
- Berg, B.L. (1998). *Qualitative research methods for the social sciences*. Boston: Allyn and Bacon.
- Brunner, R.D. (1991). The policy movement as a policy problem. *Policy Sciences*, 24, 65-98.
- Creswell, J.W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Los Angeles: Sage.
- Czaja, R., & Blair, J. (2005). *Designing surveys: A guide to decisions and procedures*. Thousand Oaks, CA: Sage.
- DeLeon, P. (1994). Democracy and the policy sciences: Aspirations and operations. *Policy Studies Journal*, 22, 200-212.
- Dryzek, J.S. (1993). Policy analysis and planning: From science to argument. In F. Fischer and J. Forester (Eds.), *The argumentative turn in policy analysis and planning* (pp. 213-232). Durham, NC: Duke University Press.
- Dunn, W.N. (2008). *Public policy analysis: An introduction* (4th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Durning, D. (1999). The transition from traditional to post-positivist policy analysis: A role for Q-Methodology. *Journal of Policy Analysis and Management*, 18, 389-410.
- Fischer, F. (1995). *Evaluating public policy*. Chicago: Nelson-Hall.
- Fischer, F. (2003). *Reframing public policy: Discursive politics and deliberative practices*. New York: Oxford University Press.
- Fischer, F. (2009). *Democracy and expertise: Reorienting policy inquiry*. Oxford, UK: Oxford University Press.
- Fowler, F.J., Jr. (2008). *Survey research methods* (4th ed.). Thousand Oaks, CA: Sage.
- Guba, E.G. (1978). *Toward a methodology of naturalistic inquiry in educational evaluation*. Los Angeles, CA: UCLA Center for the Study of Evaluation.
- Gubrium, J.F., & Holstein, J.A. (Eds.). (2003). *Postmodern interviewing*. Thousand Oaks, CA: Sage.
- Hajer, M.A., & Wagenaar, H. (Eds.). (2003). *Deliberative policy analysis: Understanding governance in the network society*. New York: Cambridge University Press.

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- Heineman, R.A., Bluhm, W.T., Peterson, S.A., & Kearny, E.N. (1990). *The world of the policy analyst*. Chatham, NJ: Chatham House.
- Hellebust, L., (Ed.). (1996). *Think tank directory: A guide to nonprofit public policy research organizations*. Topeka, KS: Government Research Service.
- Hy, R.J., Nelson, P.B., & Waugh, W.L. (1981). Statistical backgrounds and computing needs of graduate students in political science and public administration. *Teaching Political Science*, 8, 201-212.
- Hy, R.J., Waugh, W.L., & Nelson, P.B. (1987). The future of public administration and quantitative skills. *Public Administration Quarterly*, 11, 134-149.
- King, G., Keohane, R.O., & Verba, S. (1994). *Designing social inquiry: Scientific inference in qualitative research*. Princeton, NJ: Princeton University Press.
- Kvale, S., & Brinkmann, S. (2008). *Interviews: Learning the craft of qualitative research interviewing*. Thousand Oaks, CA: Sage.
- Jenkins-Smith, H., Mitchell, N., & Silva, C. (1999). The state of public policy graduate education in leading American political science departments. *Policy Currents: Newsletter of the Public Policy Section of the American Political Science Association*, 9(3-4), 7-10.
- LaPlante, J.M. (1989). Research methods education for public sector careers: The challenge of utilization. *Policy Studies Review*, 8, 845-851.
- Lasswell, H.D. (1971). *A preview of policy sciences*. New York: American Elsevier.
- Lasswell, H.D., & Kaplan, A. (1950). *Power and society: A framework for political inquiry*. New Haven, CT: Yale University Press.
- Lewins, A., & Silver, C. (2007). *Using software in qualitative research: A step-by-step guide*. Los Angeles: Sage.
- Lynn, L.E. (1999). A place at the table: Policy analysis, its postpositive critics, and the future of practice. *Journal of Policy Analysis and Management*, 18, 411-424.
- MacRae, D., & Whittington, D. (1997). *Expert advice for policy choice: Analysis and discourse*. Washington, D.C.: Georgetown University Press.
- Morçöl, G. (2001). Positivist beliefs among policy professionals: An empirical investigation. *Policy Sciences*, 34, 381-401.
- Nagel, S., & Quandt, K., (Eds.). (1996). *Policy studies personnel directory* (2nd ed.). Urbana-Champaign, IL: Policy Studies Organization.
- Patton, C., & Sawicki, D.S. (1993). *Basic methods of policy analysis and planning* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.
- Patton, M.Q. (1975). *Alternative evaluation research paradigm*. Grand Forks, ND: The University of North Dakota Press.

- Porter, T.M. (1995). *Trust in numbers: The pursuit of objectivity in science and public life*. Princeton, NJ: Princeton University Press.
- Quade, E.S. (1989). *Analysis for public decisions* (3rd ed.). New York: North Holland.
- Radin, B. (2000). *Beyond Machiavelli: Policy analysis comes of age*. Washington, D.C.: Georgetown University Press.
- Reichardt, C.S., & Cook, T.D. (1979). Beyond qualitative versus quantitative methods. In T.D. Cook and C.S. Reichardt (Eds.), *Qualitative and quantitative methods in evaluation research* (pp. 32-56). Beverly Hills, CA: Sage.
- Rice University (n.d.). Online statistics: An interactive multimedia course of study. Retrieved July 6, 2009, from <http://onlinestatbook.com>
- Rubin, H. J., & Rubin, I. (2005). *Qualitative interviewing: The art of hearing data*. Thousand Oaks, CA: Sage.
- Schwartz-Shea, P. (2003). Is this the curriculum we want? Doctoral requirements and offerings in methods and methodology. *PS: Political Science and Politics*, 36, 379-386.
- Schwartz-Shea, P., & Yanow, D. (2002). "Reading" "methods" "texts": How research methods texts construct political science. *Political Science Quarterly*, 55(2), 457-486.
- Silverman, D. (2006). *Interpreting qualitative data* (3rd ed.). Los Angeles: Sage.
- Stone, D. (2002). *Policy paradox: The art of political decision making* (rev. ed.). New York: W.W. Norton.
- Torgerson, D. (1986). Interpretive policy inquiry: A response to its limitations. *Policy Sciences*, 19, 397-405.
- Waugh, W.L., Hy, R.J., & Brudney, J. (1994). Quantitative analysis and skill building in public administration graduate education. *Public Administration Quarterly*, 18(2), 204-222.
- Weimer, D.L. (1999). Comment: Q-method and the isms. *Journal of Policy Analysis and Management*, 18, 426-429.
- Weimer, D.L., & Vining, A.R. (1992). *Policy analysis: Concepts and practice* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.
- Yang, K. (2007). Quantitative methods for policy analysis. In F. Fischer, G.J. Miller, and M.S. Sidney (Eds.), *Handbook of public policy analysis: Theory, politics, and methods*. (pp. 349-368). Boca Raton, FL: CRC Press.
- Yanow, D. (2000). *Conducting interpretive policy analysis*. Thousand Oaks, CA: Sage.
- Yanow, D. (2007). Qualitative-interpretive methods in policy research. In F. Fischer, G.J. Miller, and M.S. Sidney (Eds.), *Handbook of public policy analysis: Theory, politics, and methods* (pp. 405-416). Boca Raton, FL: CRC Press.
- Yanow, D, & Schwartz-Shea, P. (Eds.). (2006). *Interpretation and method: Empirical research methods and the interpretive turn*. Armonk, NY: M.E. Sharpe.

FOOTNOTES

- ¹ Brief histories of these two movements can be found at <http://www.paecon.net/HistoryPAE.htm> (post-autistic economics) and http://www.btinternet.com/~pae_news/Perestroika/Miller.htm (Perestroika).
- ² As mentioned, the distinction that Schwartz-Shea and Yanow make between interpretivist and positivist qualitative methods is debatable. In our discussions we ignore this distinction.

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APPENDIX:

Universities and Programs in the Study

	NAME OF UNIVERSITY	DEGREES OFFERED	
		MASTERS DEGREE(S)	Ph.D. DEGREE(S)
1	American University	MPP	
2	Arizona State University	MPP	
3	Brandeis University	MPP Social Policy, MS International Health Policy, MA Sustainable International Development	
4	Brigham Young University	MPP	
5	Brown University	MPP	
6	California Polytechnic State University	MPP	
7	California State University, Sacramento	Master of Public Policy & Administration	
8	Carnegie Mellon University	MS in Public Policy & Management	Public Policy & Management
9	College of William And Mary	MPP	
10	Duke University	MPP	Public Policy
11	George Mason University	MPP, MS Transportation Policy	Public Policy
12	George Washington University	MPP, MS Health Policy	Health Policy
13	Georgetown University	MPP	
14	Georgia Tech	MS Public Policy	Public Policy

Methods Taught In Public Policy Programs

15	Harvard University	MPP	Public Policy, Social Policy, Health Policy
16	Indiana University	Master of Public Affairs (Policy Analysis Concentration)	Public Policy, Education Policy
17	Johns Hopkins University	MA Public Policy	
18	Michigan State University	MPP	
19	Milano (The New School)	MS Urban Policy Analysis & Management	
20	Mills College	MPP	
21	Mississippi State University	Master of Public Policy & Administration	
22	New York University	MPA in Public and Nonprofit Management and Policy	
23	Pepperdine University	MPP	
24	Princeton University	MPP	Public Affairs
25	Rutgers, New Brunswick	MPP	Planning and Public Policy
26	University of California, Berkeley	MPP	Public Policy
27	University of California, Los Angeles	MPP	
28	University of Chicago	MPP	Public Policy
29	University of Kentucky	MPP	Public Policy and Administration
30	University of Maryland, Baltimore County	MPP	Public Policy
31	University of Maryland, College Park	MPP	Policy Studies

32	University of Massachusetts, Amherst	Master of Public Policy & Administration	
33	University of Massachusetts, Boston	MS in Public Affairs	Public Policy
34	University of Michigan	MPP	Public Policy
35	University of Minnesota	MPP	Educational Policy
36	University of Missouri-St. Louis	Master of Public Policy & Administration	
37	University of Pennsylvania	M Ed Education Policy; MS in Policy Research, Evaluation and Measurement; M. Phil.Ed. in Policy Research, Evaluation and Measurement	Education Policy
38	University of Pittsburgh	Master of Public Policy & Management	Political Science (Public Policy Concentration)
39	University of Southern California	MPP	Policy Planning and Development
40	University of Southern Maine	MPP & Management	Public Policy
41	University of Texas, Dallas	MPP	Public Policy
42	University of Texas, Austin	Master of Public Affairs	Public Policy
43	University of Utah	MPP	
44	University of Wisconsin, Madison	Master of Public Affairs	

Note. Master's of Public Policy programs are abbreviated as MPP. Other degrees are spelled out as names used at the programs' Web sites.