

Mixed methods in management research

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Definition

The term 'mixed methods' has developed currency as an umbrella term applying to almost any situation where more than one methodological approach is used in combination with another, usually, but not essentially, involving a combination at least some elements drawn from each of qualitative and quantitative approaches to research. In so doing, it covers multi-method research and triangulation, each of which has a somewhat more restricted meaning.

Most authors trace recent interest in and debates about mixed methods research to the multi-trait–multi-method measurement strategies of Campbell and Fiske (1959), which were designed to ensure that differences in measurement of psychological variables reflected true differences rather than measurement error; the application of the surveyors' concept of triangulation to methods of social investigation by Webb et al. (1966); Denzin's (1978) development and popularization of that concept; and the distinction drawn between qualitative (naturalistic) and quantitative (rationalistic) approaches to research by Lincoln and Guba (1985). Anthropologists and sociologists (particularly those from the Chicago school) had, however, been actively employing multi-method strategies in community settings throughout the last century, often more implicitly than explicitly. The combination of multiple methods 'has a long standing history' also in evaluation research where both formative and summative aspects of a program are considered (Rallis & Rossman, 2003). In contrast, management researchers have remained strongly oriented to employing quantitative data with statistical analyses for the purpose of theory testing, with few adopting qualitative or mixed methods approaches (Currall and Towler, 2003).

There have been many attempts to classify mixed methods designs according to a combination of the purpose of the study, whether a study is single or multi-stage, the sequence and priority given to various components within or across stages, and the point at which integration occurs. Maxwell & Loomis (2003:263) proposed an alternative 'interactive' model which recognised that, regardless of the stated design, 'different components tend to grow "tendrils" backward and forward, integrating both qualitative and quantitative elements into all components of the research' (p.263). Choices in design are dependent primarily on the purpose of the research and must be guided by the demands of the research question.

Multiple or mixed methods might be used when:

- complementary data are sought, either qualitative data to enhance understanding of quantitative findings, or quantitative data to help generalize or test qualitative insights;
- different methods are appropriate for different elements of the project, with each contributing to an overall picture;
- data are sought from multiple independent sources, to offset or counteract biases from each method, in order to confirm, validate or corroborate the results and conclusions of the study.
- the goal of an evaluative study is to understand both process (q.v.) and outcome;
- one method provides data that are useful in preparation for the other, for example, when interviews (q.v.) or focus groups (q.v.) provide the basis for design of survey or scale items, or when a quantitative survey is used to design a sample for qualitative interviewing.

Studies for these purposes are designed to have complementary strengths and non-overlapping weaknesses. Design issues include the staging and sequencing of the components and the relative dominance of the qualitative or quantitative elements. Integration of the different components in these designs typically occurs only at the stage of interpretation or discussion of the results.

Mixed methods might alternatively involve the combination of different data sources in a unified analysis, the conversion of one form of data to another, or the application of both text and statistical analysis techniques to the same data sources (Bazeley, 2006). These studies involve much earlier integration of approaches.

Discussion

Because management research asks a large variety of questions, draws on numerous theoretical paradigms from a range of disciplines, and is characterized by investigations involving multiple levels of analysis, there is benefit in combining the complementary strengths of quantitative and qualitative approaches (Currall & Towler, 2003). '[T]he careful measurement, generalizable samples, experimental control, and statistical tools of good quantitative studies are precious assets. When they are combined with the up-close, deep, credible understanding of complex real-world contexts that characterise good qualitative studies, we have a very powerful mix' (Miles & Huberman, 1994:42).

Of the seven 'exemplary' studies in organization science from the 1980s reviewed by Frost and Stablein (1992), four involved the use of mixed data and/or analysis methods, including statistical hypothesis testing based on coded linguistic features of text; detailed case studies drawing on data from observations, anecdotes, surveys, documents and archives, combined with regression analyses on a larger sample; regression analysis of coded non-participant observational data followed by participant observation; and secondary analysis of archival survey data combined with review of historical sources.

A review of the 16 most recent research articles in *Administrative Science Quarterly* (ASQ: June 2005-March 2006) and 19 from the *Academy of Management Journal* (AMJ:

February and April, 2006) confirmed the continuing predominance of quantitatively based, statistical, hypothesis testing approaches in management studies ($N=21$, see Table 4). Six purely qualitative studies employed, primarily, grounded theory techniques within a case study framework. These, at most, made an occasional reference to frequencies. Eight of the 35 might be classified as using mixed methods, although the most common approach in these was to quantify qualitative data for statistical analysis according to an *a priori* coding scheme, with little or no further reference to the qualitative material. In others, a significant amount of interview data was gathered for use in designing or to supplement quantitative measures, but was referred to minimally, if at all, in elaborating the results or discussion of the statistical analyses.

Table 4 Methodological approaches in a sample of recent management research articles

Method	Source		Total	
	AMJ	ASQ	<i>N</i>	%
Statistical analysis of archival/database, experimental or survey data	12	9	21	60.0
Qualitative data and analysis	3	3	6	17.1
Quantitative analysis of qualitative data	2	2	4	11.4
Preliminary qualitative data but primarily quantitative data and analyses	2	2	4	11.4
Total	19	16	35	100.0

Prospects

Mixed methods are typically employed in applied settings where it is necessary to draw on multiple data sources to understand complex phenomena, and where there is little opportunity for experimentation. The majority of those using mixed methods have consequently adopted a pragmatic (q.v.) position, looking for ‘what works’ in any particular situation (Tashakkori & Teddlie, 2003:680). The social issues or questions to be investigated are seen as more important than ideological arguments which ultimately cannot be resolved (Caracelli & Greene, 1997).

Fielding and Fielding (1986:12) have argued that:

...ultimately all methods of data collection are analysed ‘qualitatively,’ in so far as the act of analysis is an interpretation, and therefore of necessity a selective rendering, of the ‘sense’ of the available data. Whether the data collected are quantifiable or qualitative, the issue of the warrant for their inferences must be confronted.

For the mixed methods researcher to arrive at an interpretation, issues to be addressed include those relating to sampling methods and numbers; the adequacy with which particular methods have been applied, including adherence to assumptions; the appropriate use of data, particularly where conversion from one form to another is involved; procedures for confirmation or validation of results; and appropriate generalization.

The kind of conflicting results which are potentially generated through a mixed methods approach are often welcomed as 'it is in the tension that the boundaries of what is known are most generatively challenged and stretched' (Greene & Caracelli, 1997:12). Jick's oft-quoted (1979) study of the effect of a merger on employee anxiety, early in the history of triangulation, provided a case in point, as does that by Meyer (1982) on unpredicted, organizational responses to environmental jolts. Erzberger and Kelle (2003) offer eight rules of integration for such situations, arguing that they require not only additional analyses, but potentially also the gathering of additional data to test conclusions from abductive reasoning.

The most obvious practical issues to impact on mixed methods research are that the use of multiple methods potentially increases the amount of time required to complete a study and the cost of conducting the study. A more critical practical problem relates to the breadth and level of researcher skills and knowledge available, and/or the ability for those with different perspectives to work together in a team.

Management and organisation research has a distinctively applied focus. Practitioners need to understand the results of research being presented to them. Industry partners, granting bodies, thesis examiners, journal editors and readers each may struggle with particular (but different) elements of a presentation, each bringing their own biases and methodological preferences to colour their understanding of what is being presented. Nevertheless, multiple methods may be employed specifically so that data are available to meet the expectations or 'lenses' of particular or multiple stakeholders.

In order to become interesting to an academic audience, management research needs to be 'counterintuitive', to challenge established theory (Bartunik et al., 2006). Skilful employment of mixed methods can significantly contribute to creating such a challenge. Clearly there is considerable scope for wider adoption of a greater variety of mixed methods techniques within management research studies.

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