

# First Decade of *Organizational Research Methods*

## Trends in Design, Measurement, and Data-Analysis Topics

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The authors conducted a content analysis of the 193 articles published in the first 10 volumes (1998 to 2007) of *Organizational Research Methods* (ORM). The most popular quantitative topics are surveys, temporal issues, and electronic/Web research (research design); validity, reliability, and level of analysis of the dependent variable (measurement); and multiple regression/correlation, structural equation modeling, and multilevel research (data analysis). The most popular qualitative topics are interpretive, policy capturing, and action research (research design); surveys and reliability (measurement); and interpretive, policy capturing, and content analysis (data analysis). The authors found upward trends in the attention devoted to surveys and electronic/Web research, interpretive, and action research (research design); level of analysis of the dependent variable and validity (measurement); and multilevel research (data analysis). Implications for training doctoral students, retooling researchers, future research on methodology, the advancement of the organizational sciences, and the extent to which *ORM* is fulfilling its mission are discussed.

**Keywords:** *content analysis; quantitative methods; qualitative methods; theory and method; methods training; organizational research; research design; measurement; data analysis*

*Organizational Research Methods* (ORM) was first published in 1998. *ORM* was an outgrowth of a special section in the *Journal of Management* (*JOM*); similar to the field of psychology in which *Psychological Methods* was an outgrowth of a special section

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of *Psychological Bulletin*). The late 1990s marked the beginning of a new era in which the zeitgeist in the management discipline was finally conducive to a stand-alone methods journal. In contrast to journals devoted to methodology in various organizational sciences subfields (e.g., *Applied Psychological Measurement*, *Psychological Methods*) or journals devoted to specific methodological and data-analytic approaches (e.g., *Multivariate Behavioral Research*, *Structural Equation Modeling*), *ORM*'s mission is broader. Specifically, *ORM*'s mission is to bring relevant methodological developments to a wide range of researchers in organizational and management studies and promote a more effective understanding of current and new methodologies and their application in organizational settings (*ORM*, 2008).

In addition to the facts that *ORM* is sponsored by the Research Methods Division (RMD) of the Academy of Management (AOM) and that this unique sponsorship resulted from a vote of the AOM Board of Governors (Williams, 2008), there are several additional indicators of *ORM*'s impact and prestige. For example, consider the following information included in two recent editorials at the time of writing this article (Aguinis & Vandenberg, 2008; Vandenberg, 2008):

- The 2007 Thomson Scientific Journal Citation Reports for 2006 assigned *ORM* an overall impact factor of 1.53, placing *ORM* in the 21st position out of 78 journals (73rd percentile) in the management category. The 2008 impact factor for *ORM* is 2.55, placing it 9th out of 81 journals in management (90th percentile). There is no other journal devoted exclusively to research methodology ranked higher than *ORM* in the management category.
- Seventy-eight percent all articles published in *ORM* from 1998 to July 2007 have been cited at least once. On average, each *ORM* article published during this time has been cited approximately 12 times. Not counting the 38 articles with 0 citations, the average citation per article is 15.
- A survey targeting members of the Society for Industrial and Organizational Psychology revealed that *ORM* is a member of the elite Top 10 most prestigious journals in the field of industrial and organizational psychology (Zickar & Highhouse, 2001).
- *ORM* is highly visible at annual meetings of AOM, and an *ORM* representative is routinely included on the panel of editors organized by the various AOM Divisions.
- *ORM* is enjoying an increasing international reputation, and numerous universities around the world in Australia, Germany, United Kingdom, and the United States include it in the highest quality category of scholarly journals.

## Questions Addressed in Present Study

The present study answers the following four questions about articles published in *ORM*:

- (a) Which are the topical areas that have been consistently popular in the past decade?
- (b) Which are the topical areas that have become increasingly popular in the past decade?
- (c) Is the relative popularity of various topical areas different from what has been reported in previously published reviews of the research methods used in substantive journals? and
- (d) Does the research published in *ORM* have the potential to provide the necessary methodological tools to test influential theories in the organizational sciences? It is important to provide answers to each of these four questions given the potential implications for training doctoral students and retooling researchers, future research on methodology, the

advancement of the organizational sciences, and the extent to which *ORM* is fulfilling its mission. More specifically, answering Questions 1 through 3 will provide information regarding the topical areas considered important and those considered up-and-coming (as well as those that are not), as judged by some of the top methodologists in the field (i.e., authors of the articles published as well as the reviewers, including the editorial team, who decided to accept these articles for publication). Providing answers to these first three questions has important implications for researchers because they will point to the areas that already are, as well as those that are becoming, part of the mainstream methodological toolkit in the organizational sciences. Identifying which are these topical areas will help instructors shape the content of methodology courses targeting doctoral students in the organizational sciences. In addition, having this information will allow researchers to take specific steps toward gaining expertise in these areas so as to become more informed consumers, journal reviewers, and even producers of substantive research conducted using these tools. Answering the fourth question will allow for an assessment of whether *ORM* is producing knowledge that responds to the needs of substantive researchers and whether *ORM* has the potential to help substantive researchers produce significant advances by testing proposed theories empirically. In other words, answering the fourth question will allow for an evaluation of the extent to which *ORM* is achieving its goal of advancing the organizational sciences by bringing relevant methodological developments to substantive researchers.

Next, we provide a summary of previously published reviews of the research methods reported in the organizational sciences literature. This summary is informative and relevant because it will allow us to compare patterns of stability and change in how researchers use methods (i.e., substantive journals) as compared to how researchers develop and improve methods (i.e., *ORM*). Also, this review is informative because it will help us identify the modal design, measurement, and analysis characteristics observed in substantive journals and compare those to the modal design, measurement, and analysis characteristics of articles published in *ORM*. Because our interest is in comparing *ORM* trends with trends identified most recently, we focus our description on sources published in the past two decades (i.e., since 1987).

### **Previous Reviews of Research Methods Reported in the Organizational Sciences Literature**

We focus on four reviews of research methods used in the organizational sciences: Podsakoff and Dalton (1987); Stone-Romero, Weaver, and Glenar (1995); Scandura and Williams (2000); and Austin, Scherbaum, and Mahlman (2002). Other reviews exist, but we do not describe them in detail because they either address specific research domains (e.g., Casper, Eby, Bordeaux, Lockwood, & Lambert, 2007) or they do not address design, measurement, and analysis topics as we do herein (e.g., Dean, Shook, & Payne, 2007; Shook, Ketchen, Cychota, & Crockett, 2003; Taylor, Goodwin, & Cosier, 2003). Next is a summary of each of the four reviews, including their results and main conclusions.

Podsakoff and Dalton (1987) reviewed the research methods and analyses used by authors of all articles published in the 1985 volumes of the following five journals: *Academy of Management Journal* (AMJ), *Administrative Science Quarterly* (ASQ), *Journal of Applied*

*Psychology (JAP)*, *JOM*, and *Organizational Behavior and Human Decision Processes (OBHDP)*. The review included the 193 articles that reported empirically based research. Each of these articles was coded using the following 12 dimensions: primary location of data collection, level of analysis, sample size, type of sample, occupation of subjects, primary means of data collection, type of dependent variable, number of dependent variables, type of analysis, time frame of study, nature of results verification, and nature of construct validation procedure. In terms of design, results showed that a majority of studies relied on surveys (40%) and were cross-sectional (79%). Regarding measurement, a majority of studies focused on the individual level of analysis (73%) and conducted some type of reliability analysis (67%), and very few studies (3%) reported evidence regarding discriminant and convergent validity. In terms of analysis, a majority of studies (i.e., 67%) included more than one dependent variable, but only 6.6% of studies actually used multivariate analytic procedures (e.g., MANOVA, MANCOVA, canonical correlation). The majority of studies used correlations (21%), ANOVA (19%), and multiple regression (14%). The overall conclusion of the Podsakoff and Dalton (1987) review was that there is intransigence in organizational research methodologies, and this is happening because people do what they know, what they have done, what is efficient and easier, and what is rewarded (i.e., published).

Stone-Romero et al. (1995) reviewed all articles published in *JAP* from 1975 to 1993. Their review included a total of 1,929 articles, and each was content analyzed using the following two dimensions:

1. *design*: experimental, quasi-experimental, nonexperiments, and other; and
2. *data analysis*: covariance structure analysis (CSA), classical path analysis, zero-order correlation, multiple regression/correlation, canonical correlation, discriminant function analysis, multiple discriminant function analysis, factor analysis, cluster analysis, analysis of variance, analysis of covariance, chi-square-based tests of association, multivariate analysis of variance, multivariate analysis of covariance, *t* tests of mean differences, and other.

The main question posed by Stone-Romero et al. (1995) was whether the availability of software packages such as LISREL and EQS to conduct CSA-based procedures affected methodological practices regarding design and data analysis. In terms of design, no clear trends were found in the relative use of nonexperimental as compared to experimental designs during the 19-year review period, and each of these categories was implemented by 40% to 50% of studies. However, there was a slight increase in the use of other research designs, such as meta-analysis, narrative literature reviews, and comments, from about 10% to about 20%. In terms of analysis, the majority of studies used correlations (about 40%), the use of multiple regression increased substantially from about 10% to about 30%, and perhaps surprisingly, the use of path analysis was higher than 5% in 1988 only. Also, the use of MANOVA increased over time (from about 5% to more than 10%) but was still far less popular than univariate procedures such as ANOVA (between approximately 30% and 40%) and *t* tests (between 20% and 30%). MANCOVA was used very rarely and did not even reach 5% for any of the 19 years included in the review. An analysis of CSA-based procedures showed a notable increase in the testing of measurement models as well as full models, from 0% until the early 1980s to about 10% in 1993. Although CSA-based

procedures were not nearly as dominant as others, such as ANOVA, correlations, and multiple regression, Stone-Romero et al. concluded that because of the increased use of CSA-based procedures, not knowing these techniques “will leave researchers at a great disadvantage” (p. 155).

Scandura and Williams (2000) compared the methodological strategies reported in articles published from 1985 to 1987 ( $N = 280$  empirical studies) versus 1995 to 1997 ( $N = 334$  empirical studies) in *AMJ*, *ASQ*, and *JOM*. Their review included all articles with formal theory/literature reviews and/or empirical data. Scandura and Williams adopted a slightly different approach than previous reviews and coded articles to understand the degree of triangulation in methods as well as internal, external, construct, and statistical conclusion validity. Specifically, they coded each article using the following 13 dimensions:

1. *research strategy*: formal theory/literature reviews, sample survey, laboratory experiment, experimental simulation, field study (primary or secondary data), field experiment, judgment task, or computer simulation;
2. *substantive content domain*: policy/strategy, organization theory, organizational behavior, human resource management, or research methods;
3. *level of analysis*: individual, group, or organization;
4. *time frame*: cross-sectional or longitudinal;
5. *type of sample*: defined in terms of economic sector and type of student;
6. *primary occupation of participants*: defined based on industry and profession;
7. *nature of construct validation procedure*: exploratory factor analysis; confirmatory factor analysis; discriminant, convergent, or predictive validity reports; or interrater reliability;
8. other reliability estimates
9. *primary type of dependent variable*: supervisory reports of performance, tangible or behavioral outcomes, attitudinal outcomes, or perceptual outcomes;
10. *source of data*: single or multiple;
11. sample size;
12. *number of dependent variables*: one, two, three, four, or more; and
13. *data-analytic approach*: analysis of variance techniques (i.e., ANOVA, ANCOVA, MANOVA, MANCOVA, and *t* tests), linear regression techniques (i.e., simple, multiple, hierarchical, moderated, and mediated regression), correlation techniques, meta-analysis, linear techniques for categorical dependent variables, nonparametric and interpretative techniques, factor-analytic and clustering techniques (i.e., confirmatory factor analysis, multidimensional scaling, and discriminant analysis), structural equation modeling and path-analytic techniques, time series analysis and event history, multiple-levels-of-analysis techniques (i.e., hierarchical linear modeling and within and between analysis), and computer simulation (i.e., Monte Carlo studies).

In terms of design, Scandura and Williams’s results revealed that the majority of articles reported field studies (more than 50% from 1985 to 1987 and more than 60% from 1995 to 1997) including an increase in secondary field studies throughout time, the majority of articles reported cross-sectional studies (including an increase from about 77% to about 86% throughout time), and there was an increase in the number of variables studied at the organizational compared to the individual level of analysis. In terms of

measurement, the vast majority of articles did not include any information about construct validity (about 50% from 1985 to 1987 and about 75% from 1995 to 1997), about 30% of articles reported evidence regarding discriminant/convergent/predictive validity from 1985 to 1987 and this figure decreased to about 3% from 1995 to 1997, and about 40% of articles reported some type of reliability estimate. In terms of analysis, linear regression was the most popular from 1985 to 1987 (about 31%) and became even more popular from 1995 to 1997 (about 42%). The second and third most popular data-analytic techniques were analysis of variance and nonparametric/interpretive techniques. There was an increase in structural equations/path analysis (from about 4% to about 9%), time series/event history (from about 3% to about 8%), and multiple levels of analysis (from 0% to about 2%). Scandura and Williams concluded that

the news is not all bad . . . both the mean and median sample size rose in the 1990s . . . suggest[ing] that issues of statistical power are receiving more attention . . . research in the 1990s was becoming broader, with more dependent variables and content domains being included . . . the types of data analytic approaches also appeared to be moving toward the use of more complex techniques, such as structural equation modeling and event history analysis. (p. 1261)

Austin et al. (2002), the most recent review on which we rely, content analyzed articles reporting empirical studies that were published in every 10th volume from 1920 to 2000 in *JAP*. Their review included a total of 609 articles, which were content analyzed along the following three dimensions:

1. *design*: general setting (i.e., laboratory, field, or simulation), study design (i.e., passive observation, experiment, case study, or archival), and temporal (cross-sectional, longitudinal, or cohort);
2. *measurement*: measures (i.e., self report: test, personality, attitudinal, or behavioral; or behavioral: ratings, outcomes, or physiological), source of measures (i.e., homemade or commercial), reliability estimates reported (i.e., yes or no), validity estimates reported (i.e., yes or no), and test theory (i.e., classical, Item Response Theory—IRT, or Generalizability Theory); and
3. *analysis*: descriptives (e.g., mean, median, standard deviation), primary inferential test used (i.e., ANOVA, *t* test, ANCOVA, MANOVA, confirmatory factor analysis, exploratory factor analysis, multiple regression, path analysis, chi-square, MANCOVA, structural equation modeling/covariance structure modeling, critical ratio, probable error, or correlation), and statistical conclusion validity (i.e., power analysis reported [yes or no], significance reported [yes or no], and effect size reported [yes or no]).

In terms of design, Austin et al.'s results showed that passive observation designs remained the most popular in each decade but two and about 50% or more of articles used this type of design in each decade. Experimental designs were second in popularity, ranging from a low of 15% to a high of about 50%, remaining at about 30% in the past 20 years. In the past 20 years or so, archival designs hover around 10%. In terms of measurement, classical test theory is clearly dominant and includes 100% of articles until the past decade, when IRT was reported in about 3% of articles. In terms of analysis, regression is clearly the most popular technique, reaching a high of about 46% in 2000. ANOVA was

most popular in 1980 (about 51%) but declined to about 28% in 2000. Upward trends were found for confirmatory factor analysis (increasing from about 1% to about 16% over the last two decades), structural equation modeling (0% prior to 1990, and in the low 10s% in 1990 and 2000), and exploratory factor analysis (increasing trend since 1940, reaching a high of about 10% in 1980 and 9% in 2000). Austin et al. (2002) concluded that

the history of I-O research methods contains both positive and negative aspects . . . . Greater attention to innovation will more firmly place I-O as a field on a solid footing for both research and practice . . . . Some problems of misuse could be solved, we believe, by aggressive interventions in dissemination. Potential avenues include pre-convention workshops, computer mediated discussions at a distance . . . journals (*Organizational Research Methods*) . . . . (p. 22)

## Summary of Previously Published Reviews

What did we learn from the four aforementioned reviews of research methods usage in the organizational sciences that were published in the past two decades? First, the adoption of novel methodological practices is very slow. Although some of the reviews refer to “changes,” “improvements,” and “important trends,” a close examination of the data actually show that changes take place very slowly and usually do not happen in less than two to three decades. Specifically, the 10-year span covered by the Scandura and Williams (2000) review revealed few drastic changes. For example, the rank order of the top 6 research strategies is identical during their 10-year span, except for a flipping in order of “field study: secondary” (from second to third) and “formal theory/literature review” (from third to second). The Stone-Romero et al. (1995) review covered 19 years and found virtually no changes regarding design. In terms of analysis, change was very slow in all areas, including for CSA-based procedures, which was still far from being dominant for the past few years included in the review (i.e., reaching a highest level of usage of only 10%). The Austin et al. (2002) review, which included an 80-year time span, found more noticeable changes over time regarding analysis. For example, the use of critical ratio and probability error, which were each about 27% in 1920, were not used by any article since 1970 (i.e., 50-year time span). On the other hand, the use of multiple regression has increased notably from about 8% in 1970 to about 46% in 2000. Similarly, confirmatory factor analysis increased from 0% in 1970 to about 16% in 2000. In short, changes in the use of data-analytic procedures begin to become noticeable when the review period includes at least two to three decades. In contrast, to preview what we describe in detail later in the article, changes in the development and improvement of methodological approaches have a shorter time cycle and are noticeable within shorter time frames (i.e., a decade or less).

Second, because change in patterns of methods use is so slow, the modal design, measurement, and analysis characteristics of an article today have not changed much compared to an article published about 20 years ago. Podsakoff and Dalton (1987) noted that a typical study in the organizational sciences is likely to be a cross-sectional survey or a laboratory study relying on student participants, conducted at the individual level of analysis, and the data would be analyzed using multiple regression/correlation techniques or ANOVA. The

fact that this has continued to be the typical study has been confirmed by results reported in 1995 by Stone-Romero et al., in 2000 by Scandura and Williams, and 2002 by Austin et al. We emphasize that in many cases a simpler and widely used method may be best and may communicate what is important about one's data better and in more accessible ways than occurs when one uses the most novel analytic approach. Nevertheless, if the majority of published research does not take advantage of more modern and novel design, measurement, and analysis tools, it is likely that scientific advancement will not be as fast as it could potentially be.

To summarize, design and measurement practices have not changed much in several decades. Some changes have taken place in the data-analysis domain, but these changes have been slow, and the examination of at least 20 years of published work was necessary to detect them. Next, we describe the content analysis we conducted based on articles published in the first decade of *ORM* to answer each of the four questions posed at the beginning of our article.

## Method

### Overview

We used content analysis, which is defined as “any methodological measurement applied to text (or other symbolic materials) for social science purposes” (Shapiro & Markoff, 1997, p. 14). More specifically, our data collection procedure consisted of content analyzing the design, measurement, and analysis topics addressed in each article published in every issue of *ORM* starting with the first issue (January 1998) and ending with the October 2007 issue (excluding book and software reviews). Content analysis is primarily a qualitative methodology, but it also includes a quantitative component, which provides an advantage over other more purely qualitative methods such as literary interpretation and hermeneutics (Duriau, Reger, & Pfarrer, 2007).

### Content Analysis Taxonomy

Similar to previous reviews of research methods reported in the substantive literature (e.g., Scandura & Williams, 2000; Stone-Romero et al., 1995), the unit of analysis in our study was topical area and not article. The choice for this type of unit of analysis is guided by the fact that numerous articles focus on more than one topic and choosing only one topic per article may lead to underestimates of the relative attention devoted to various areas.

A key component of any content analysis is the taxonomy used. Consequently, we undertook a careful process involving several researchers to create our taxonomy. The starting point was a taxonomy for design, measurement, and analysis topics used by *ORM* from 1998 to 2004 (i.e., under the editorship of founding editor Larry J. Williams) to classify new submissions and also used by reviewers to denote their areas of expertise. This initial taxonomy was expanded in 2004 by an iterative process conducted via e-mail that involved the work of the incoming editor and four associate editors of *ORM* at that time:



Herman Aguinis, Mark Gavin, Charles E. Lance, Karen Locke, and Robert J. Vandenberg. The resulting revised and expanded taxonomy was used by *ORM* from 2005 to 2007 to classify new submissions and reviewers' areas of expertise. After it was developed and because it was the most comprehensive taxonomy of design, measurement, and analysis topics available, it was also adopted by the RMD of the AOM to classify submissions to the AOM annual meetings (Gordon Cheung, personal communication, November 10, 2004). Once the taxonomy was completed, we reviewed Podsakoff and Dalton (1987), Stone-Romero et al. (1995), Scandura and Williams (2000), and Austin et al. (2002) to make sure each of their topical areas was included in our taxonomy. Finally, once this process was completed, we added new categories as they emerged during the coding process.

The final version of the taxonomy represents the most comprehensive and exhaustive classification of design, measurement, and analysis topics in the organizational sciences available to date. The broadest categories are (a) quantitative and (b) qualitative. Each of these broad categories includes design, measurement, and analysis subcategories. Figure 1 includes a graphic representation of the quantitative design subcategories, Figure 2 includes a graphic representation of the quantitative measurement subcategories, Figure 3 (split in two parts) includes a graphic representation of the quantitative analysis category, and Figure 4 includes a graphic representation of the qualitative design, qualitative measurement, and qualitative analysis subcategories.

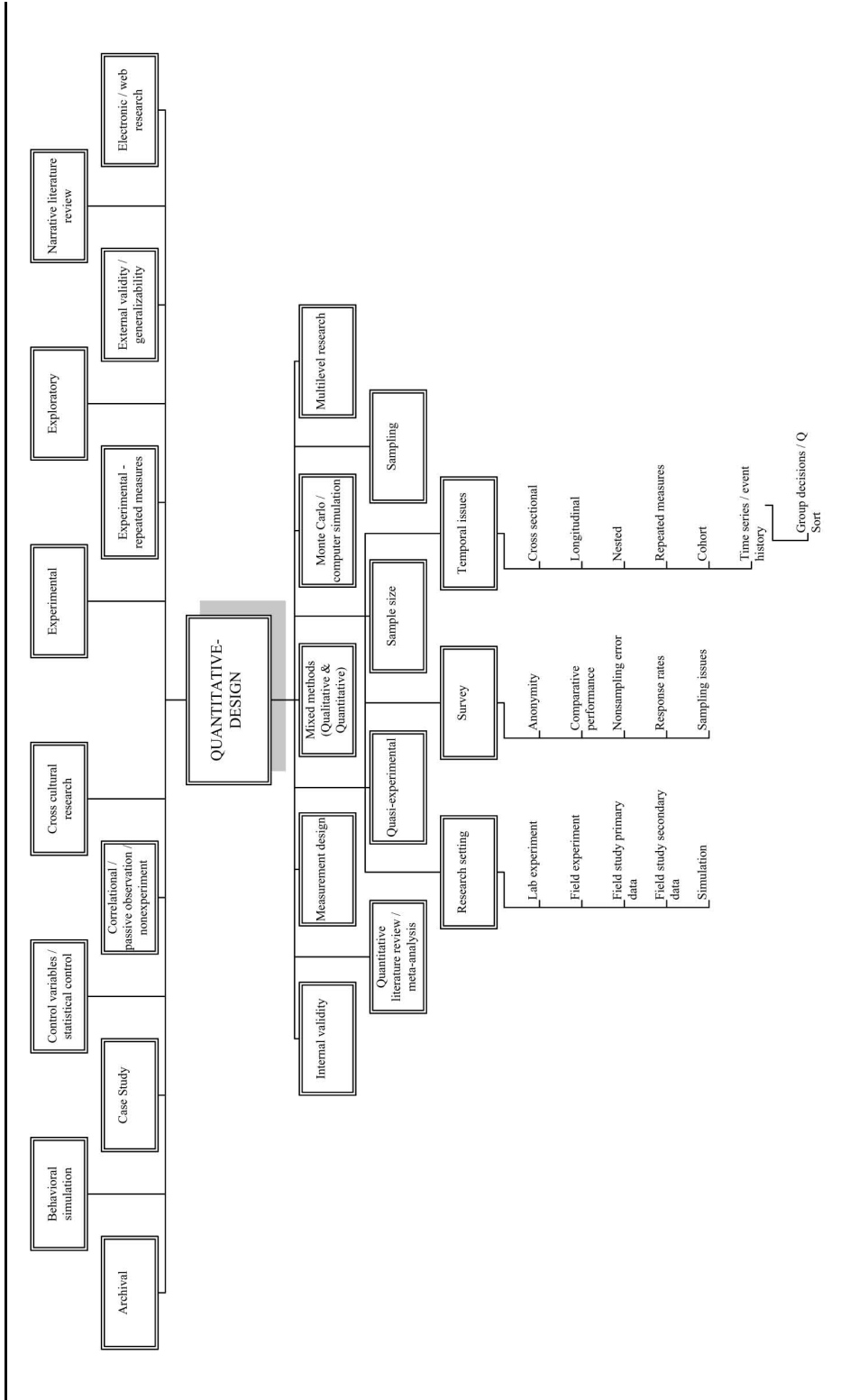
In spite of its comprehensiveness, we acknowledge that, similar to any other taxonomy used in a content analysis, there are relationships and crossovers among design, measurement, and analysis issues. For example, as mentioned by Scandura and Williams (2000), if an article addresses a multilevel design, it is also likely to address multilevel analysis. Second, some methods, particularly newer methods and those that combine quantitative and qualitative approaches, are harder to classify (e.g., content analysis). So in some cases, we had to place the category under one umbrella or the other. We do not see this as an important limitation for two reasons. First, as described next, we obtained very high levels of coder agreement initially, and subsequent consensus was reached in all cases. Second, our coding strategy and taxonomy are fully transparent and, therefore, replicable empirically.

## Coding Process

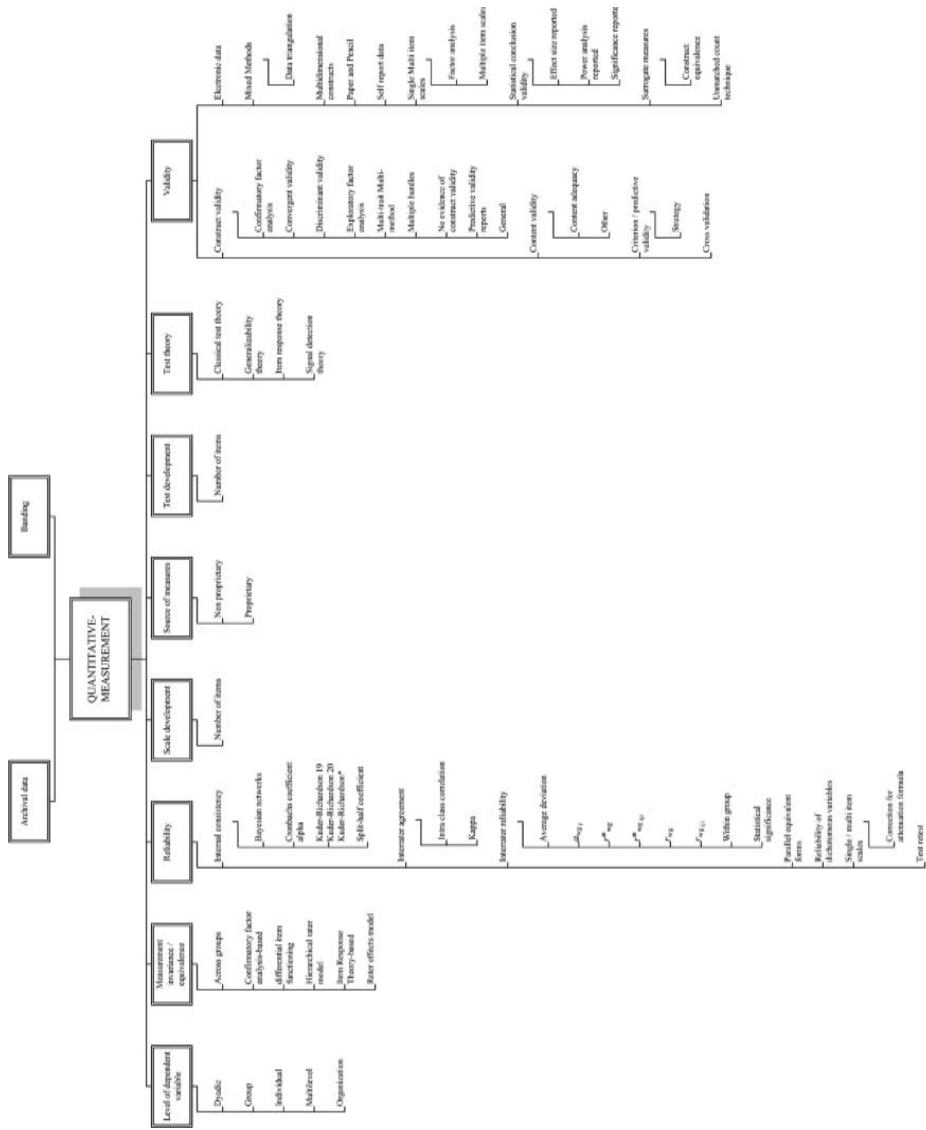
Each article was coded by the third and fourth authors, who at the time of coding were management doctoral students and had successfully completed all their graduate-level coursework in research methods and statistics. To serve as the coders' training and create a common frame of reference before the actual coding started (cf., Aguinis, Mazurkiewicz, & Heggstad, in press), the coders used the taxonomy to code independently the first three issues of *ORM*'s Volume 1. The two coders then met with this article's second author to discuss the degree of agreement between their classifications. After this practice session was completed, each coder independently coded all 193 articles published in Volumes 1 through 10.

For each of the 193 articles, we coded the presence or absence of 405 nominal-level variables using dummy coding (1 or 0; see Figures 1 through 4 for a complete listing of all variables). Upon completion of the coding, the second author compared the two coders' initial classifications of the 405 variables for each article. For each of these 405

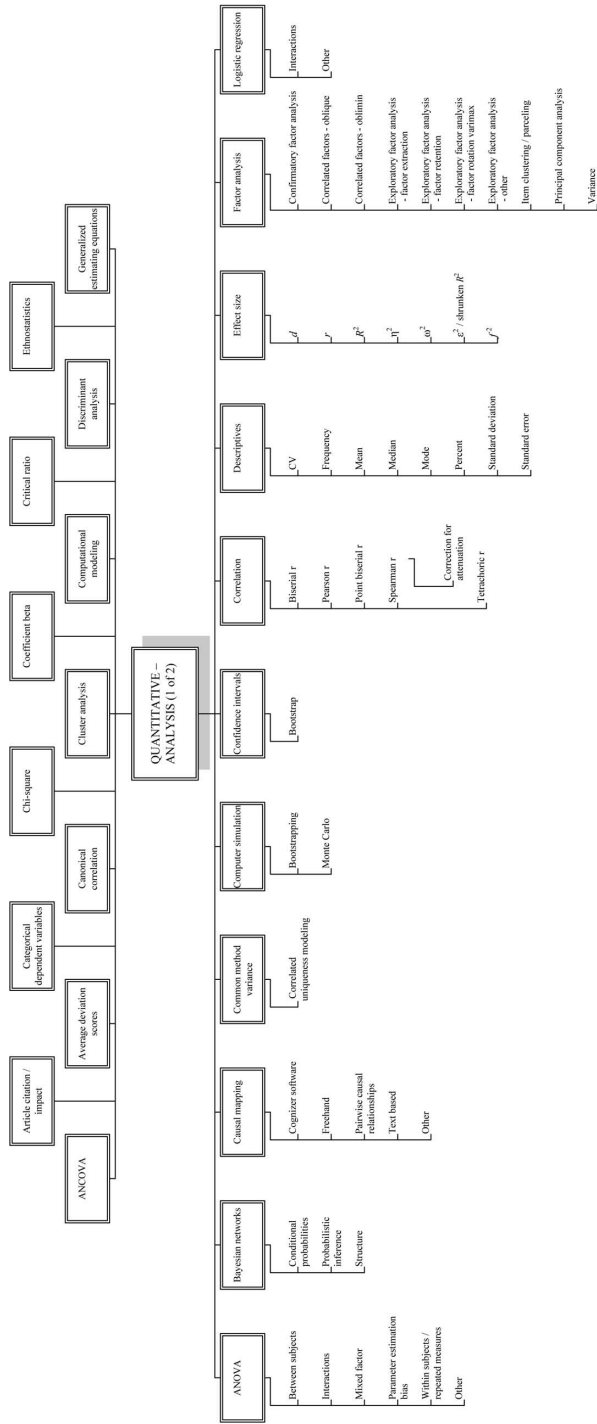
**Figure 1**  
**Taxonomy Used to Classify Typical Areas: Quantitative Design Subcategories**



**Figure 2**  
**Taxonomy Used to Classify Topical Areas: Quantitative Measurement Subcategories**



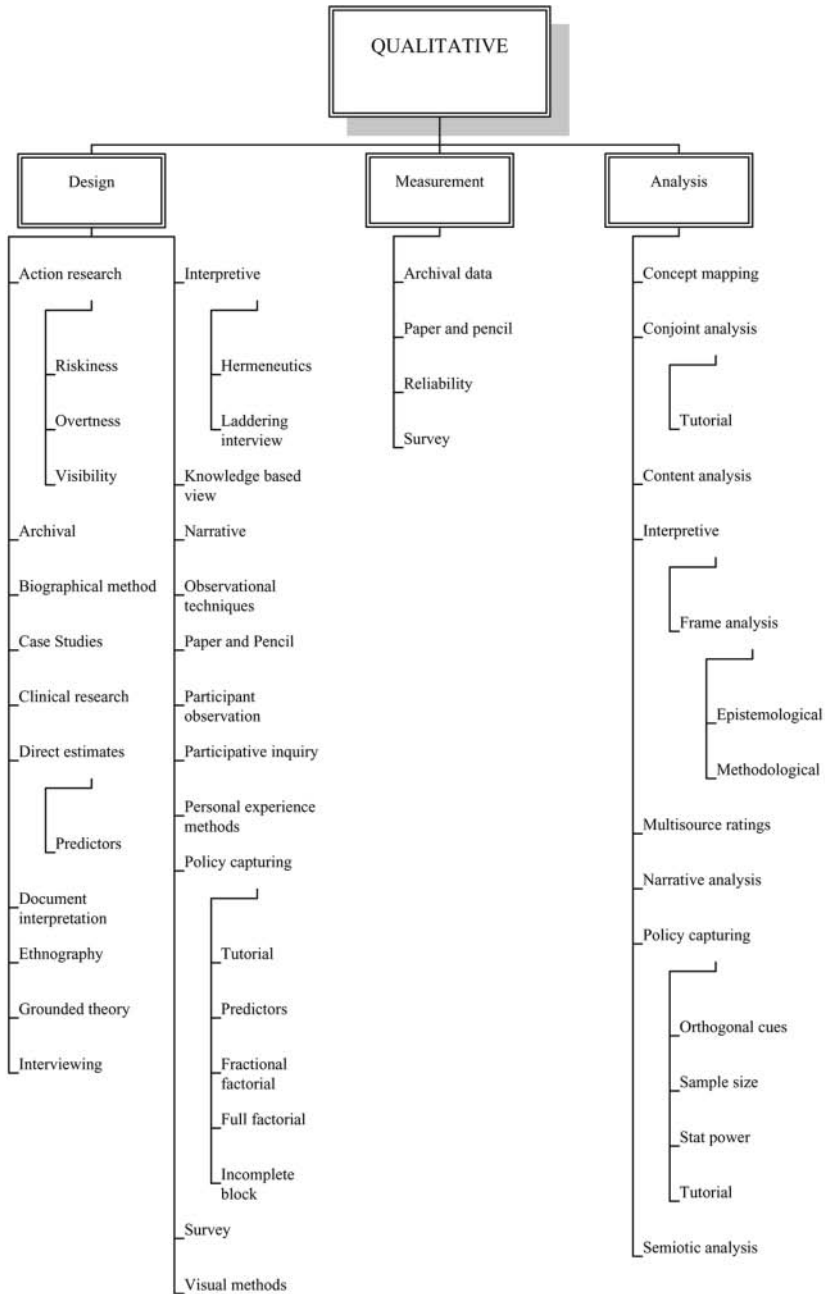
**Figure 3**  
**Taxonomy Used to Classify Topical Areas: Quantitative Analysis Subcategories**



*(continued)*



**Figure 4**  
**Taxonomy Used to Classify Topical Areas: Qualitative Design, Qualitative Measurement, and Qualitative Analysis Subcategories**



variables, we computed Cohen's kappa ( $\kappa$ ) as an index of interrater agreement between our coders. Unlike a percentage agreement index, Cohen's kappa corrects for chance agreement (Cohen, 1960). Kappa values greater than .40 indicate acceptable interrater agreement (Fleiss, 1981). Across all 193 articles, 400 of the 405 kappa values were greater than .40, statistically significant at an alpha level of either .001 or .01, and thus indicate acceptable interrater agreement for each of our nominal-level variables. The following five variables had kappa values slightly less than .40, but the disagreements between coders were easily resolved for the main analyses reported herein: feminism, level of analysis of dependent variable—individual, categorical by categorical interactions, multidimensional scaling, and action research. Any article that initially did not produce identical classifications for all coded variables was discussed between the two coders and second author until a consensus was reached. In short, the coding process followed best practices as recommended by Duriau et al. (2007) and Scandura and Williams (2000), including taking corrective steps when full agreement was not reached initially.

## Results

Tables 1 through 7 provide summaries of the results in counts and percentages of the various topical areas of articles published in *ORM*. At the highest level of analysis, Table 1 shows that during the 10-year period, about 90% of topics are quantitative, whereas only 10% are qualitative. In terms of the quantitative area, about 49% of the topics refer to analysis issues, about 37% to measurement, and about 15% to design. In contrast, the qualitative topics are mostly about design (about 56%), followed by analysis (about 35%) and measurement (about 9%). Figure 5 displays the trends for the data in Table 1 and suggests that the relative frequency of quantitative and qualitative topics remained fairly constant during the 10-year period, except for 2002, which included an issue devoted almost entirely to interpretive genres of organizational research methods, which explains the unusually large number of qualitative articles during this year.

### Quantitative Topics

Table 2 includes results regarding the quantitative design topics. The three most popular topics during the 10-year period are as follows:

1. Survey (32.35%)
2. Temporal issues (i.e., longitudinal designs) (13.24%)
3. Electronic/Web research (10.29%)

Figure 6 (top panel) shows that the relative frequency of these topics changed during the 10-year period. Specifically, there is a clear upward trend regarding the interest in surveys and also in electronic/Web research. The interest in temporal issues, although high during the 10-year period, shows a slight downward trend.

**Table 1**  
**Frequencies and Percentages for Topics**  
**Published in *Organizational Research Methods* (1998 to 2007)**

Topic	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		1998 to 2007	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Quantitative	47	95.92	57	93.44	42	100.00	51	91.07	20	45.45	43	86.00	42	100.00	40	90.91	45	91.84	64	94.12	451	89.31
Quantitative design	8	17.02	10	17.54	12	28.57	11	21.57	3	15.00	5	11.63	2	4.76	2	5.00	5	11.11	10	15.63	68	15.08
Quantitative measurement	13	27.66	21	36.84	11	26.19	23	45.10	5	25.00	18	41.86	15	35.71	25	62.50	13	28.89	28	43.75	172	38.14
Quantitative analysis	29	58.00	32	50.79	19	45.24	20	37.04	14	63.64	20	46.51	28	62.22	13	32.50	27	60.00	27	41.54	229	48.83
Qualitative	2	4.08	4	6.56	0	0.00	5	8.93	24	54.55	7	14.00	0	0.00	4	9.09	4	8.16	4	5.88	54	10.69
Qualitative design	1	50.00	1	25.00	0	0.00	3	60.00	9	37.50	7	100.00	0	0.00	2	50.00	4	100.00	3	75.00	30	55.56
Qualitative measurement	0	0.00	1	25.00	0	0.00	0	0.00	3	12.50	0	0.00	0	0.00	1	25.00	0	0.00	0	0.00	5	9.26
Qualitative analysis	1	50.00	2	50.00	0	0.00	2	40.00	12	50.00	0	0.00	0	0.00	1	25.00	0	0.00	1	25.00	19	35.19
<i>Total for year</i>	<i>49</i>	<i>100</i>	<i>61</i>	<i>100</i>	<i>42</i>	<i>100</i>	<i>56</i>	<i>100</i>	<i>44</i>	<i>100</i>	<i>50</i>	<i>100</i>	<i>42</i>	<i>100</i>	<i>44</i>	<i>100</i>	<i>49</i>	<i>100</i>	<i>68</i>	<i>100</i>	<i>505</i>	<i>100</i>

Note: Topics included are only those for which there is at least one count for the entire 1998 to 2007 review period.



**Table 2**  
**Frequencies and Percentages for Quantitative Design Topics**  
**Published in *Organizational Research Methods* (1998 to 2007)**

Topic	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		1998 to 2007	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Archival	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	20.00	0	0.00	1	50.00	0	0.00	0	0.00	2	2.94
Behavioral simulation	1	12.50	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	1.47
Case study	1	12.50	1	10.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	2.94
Control variables / statistical control	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	50.00	0	0.00	0	0.00	1	1.47
Cross-cultural research	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	20.00	1	50.00	0	0.00	0	0.00	1	10.00	3	4.41
Electronic / Web research	0	0.00	0	0.00	1	8.33	2	18.18	0	0.00	1	20.00	0	0.00	0	0.00	1	20.00	2	20.00	7	10.29
External validity / generalizability	0	0.00	0	0.00	2	16.67	1	9.09	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	10.00	4	5.88
Internal validity	1	12.50	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	1.47
Mixed methods (qualitative and quantitative)	1	12.50	2	20.00	0	0.00	0	0.00	0	0.00	1	20.00	0	0.00	0	0.00	0	0.00	0	0.00	4	5.88
Multilevel research	0	0.00	1	10.00	1	8.33	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	20.00	0	0.00	3	4.41
Quantitative literature review / meta-analysis	0	0.00	0	0.00	0	0.00	1	9.09	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	1.47
Quasi-experimental	1	12.50	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	1.47
Research setting	1	12.50	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	1.47
Sample size	0	0.00	1	10.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	1.47
Sampling	0	0.00	0	0.00	2	16.67	1	9.09	0	0.00	1	20.00	0	0.00	0	0.00	0	0.00	0	0.00	4	5.88
Survey	1	12.50	1	10.00	6	50.00	6	54.55	0	0.00	0	0.00	1	50.00	0	0.00	2	40.00	5	50.00	22	32.35
Temporal issues	1	12.50	3	30.00	0	0.00	0	0.00	3	100.00	0	0.00	0	0.00	0	0.00	1	20.00	1	10.00	9	13.24
General / nonspecified	0	0.00	1	10.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	1.41
<i>Total for year</i>	8	100	10	100	12	100	11	100	3	100	5	100	2	100	2	100	5	100	10	100	68	100

Note: Topics included are only those for which there is at least one count for the entire 1998 to 2007 review period.

**Table 3**  
**Frequencies and Percentages for Quantitative Measurement Topics**  
**Published in *Organizational Research Methods* (1998 to 2007)**

Topic	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		1998 to 2007	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Archival data	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	5.56	0	0.00	0	0.00	0	0.00	0	0.00	1	0.58
Banding	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	4.00	0	0.00	0	0.00	1	0.58
Level of analysis of dependent variable	0	0.00	0	0.00	3	27.27	0	0.00	0	0.00	0	0.00	4	26.67	3	12.00	1	7.69	8	28.57	19	11.05
Measurement invariance / equivalence	0	0.00	0	0.00	2	18.18	0	0.00	1	20.00	6	33.33	2	13.33	0	0.00	3	23.08	1	3.57	15	8.72
Reliability	2	15.38	4	19.05	0	0.00	5	21.74	4	80.00	5	27.78	0	0.00	10	40.00	4	30.77	6	21.43	40	23.26
Scale development	2	15.38	4	19.05	3	27.27	4	17.39	0	0.00	1	5.56	0	0.00	3	12.00	0	0.00	0	0.00	17	9.88
Test development	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	4.00	0	0.00	0	0.00	1	0.58
Test theory	0	0.00	0	0.00	0	0.00	2	8.70	0	0.00	2	11.11	1	6.67	1	4.00	0	0.00	2	7.14	8	4.65
Validity	9	69.23	12	57.14	3	27.27	12	52.17	0	0.00	3	16.67	8	53.33	6	24.00	5	38.46	11	39.29	69	40.12
General / nonspecified	0	0.00	1	4.76	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.58
<i>Total for year</i>	<i>13</i>	<i>100</i>	<i>21</i>	<i>100</i>	<i>11</i>	<i>100</i>	<i>23</i>	<i>100</i>	<i>5</i>	<i>100</i>	<i>18</i>	<i>100</i>	<i>15</i>	<i>100</i>	<i>25</i>	<i>100</i>	<i>13</i>	<i>100</i>	<i>28</i>	<i>100</i>	<i>172</i>	<i>100</i>

Note: Topics included are only those for which there is at least one count for the entire 1998 to 2007 review period.

**Table 4**  
**Frequencies and Percentages for Quantitative Analysis Topics**  
**Published in *Organizational Research Methods* (1998 to 2007)**

Topic	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		1998 to 2007	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
ANOVA	0	0.00	1	3.13	0	0.00	0	0.00	1	7.14	0	0.00	0	0.00	0	0.00	1	3.70	0	0.00	3	1.31
Article citation / impact	0	0.00	0	0.00	1	5.26	0	0.00	0	0.00	0	0.00	0	0.00	1	7.69	0	0.00	1	3.70	3	1.31
Bayesian networks	0	0.00	0	0.00	0	0.00	3	15.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	1.31
Categorical dependent variables	1	3.45	0	0.00	1	5.26	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	3.70	3	1.31
Causal mapping	0	0.00	0	0.00	1	5.26	0	0.00	0	0.00	0	0.00	2	7.14	2	15.38	1	3.70	0	0.00	6	2.62
Coefficient beta	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	3.70	0	0.00	1	0.44
Common method variance	2	6.90	2	6.25	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	3.70	0	0.00	5	2.18
Computational modeling	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	7.69	0	0.00	0	0.00	1	0.44
Computer simulation	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	7.69	0	0.00	1	3.70	2	0.87
Confidence intervals	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	7.69	0	0.00	0	0.00	1	0.44
Correlation	2	6.90	0	0.00	0	0.00	1	5.00	0	0.00	0	0.00	2	7.14	1	7.69	0	0.00	0	0.00	6	2.62
Descriptives	0	0.00	0	0.00	1	5.26	0	0.00	0	0.00	0	0.00	0	0.00	1	7.69	0	0.00	0	0.00	2	0.87
Effect size	0	0.00	7	21.88	1	5.26	2	10.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	10	4.37
Ethnostatistics	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	5	18.52	5	2.18
Factor analysis	1	3.45	1	3.13	1	5.26	0	0.00	0	0.00	4	20.00	1	3.57	0	0.00	5	18.52	0	0.00	13	5.68
Generalized estimating equations	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	3.57	0	0.00	0	0.00	0	0.00	1	0.44
Logistic regression	2	6.90	0	0.00	1	5.26	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	1.31

(continued)

Table 4 (continued)

Topic	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		1998 to 2007	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Longitudinal data analysis	2	6.90	0	0.00	0	0.00	0	0.00	3	21.43	0	0.00	0	0.00	0	0.00	1	3.70	1	3.70	7	3.06
MANOVA	0	0.00	0	0.00	0	0.00	0	0.00	1	7.14	0	0.00	0	0.00	0	0.00	1	3.70	0	0.00	2	0.87
Meta-analysis	0	0.00	3	9.38	0	0.00	0	0.00	0	0.00	1	5.00	0	0.00	0	0.00	0	0.00	1	3.70	5	2.18
Missing data	0	0.00	4	12.50	4	21.05	0	0.00	0	0.00	9	45.00	2	7.14	0	0.00	0	0.00	3	11.11	22	9.61
Multiple regression	6	20.69	4	12.50	3	15.79	5	25.00	4	28.57	1	5.00	9	32.14	0	0.00	5	18.52	2	7.41	39	17.03
correlation	0	0.00	0	0.00	1	5.26	1	5.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	1.31
Multidimensional scaling	1	3.45	1	3.13	1	5.26	0	0.00	1	7.14	2	10.00	3	10.71	3	23.08	1	3.70	12	44.44	25	10.92
Multilevel research	1	3.45	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	7.69	0	0.00	1	3.70	3	1.31
Network analysis	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	15.00	1	3.57	0	0.00	0	0.00	0	0.00	4	1.75
Neural networks	0	0.00	1	3.13	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.44
Nonparametric techniques	1	3.45	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.44
Outliers	1	3.45	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.44
Power analysis	1	3.45	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.44
Probit regression	1	3.45	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.44
Structural equation modeling	3	10.34	5	15.63	3	15.79	8	40.00	1	7.14	0	0.00	3	10.71	0	0.00	5	18.52	0	0.00	28	12.23
Temporal issues	3	10.34	3	9.38	0	0.00	0	0.00	2	14.29	0	0.00	3	10.71	0	0.00	0	0.00	4	14.81	15	6.55
General / nonspecified	1	3.45	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	3.57	0	0.00	0	0.00	0	0.00	2	0.87
Other	1	3.45	0	0.00	0	0.00	0	0.00	1	7.14	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	0.87
Total for year	29	100	32	100	19	100	20	100	14	100	20	100	28	100	13	100	27	100	27	100	229	100

Note: Topics included are only those for which there is at least one count for the entire 1998 to 2007 review period.

**Table 5**  
**Frequencies and Percentages for Qualitative Design Topics**  
**Published in *Organizational Research Methods* (1998 to 2007)**

Topic	1998		1999		2000		2001		2002		2003		2004	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Action research	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	42.86	0	0.00
Case studies	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	1	14.29	0	0.00
Document interpretation	0	0.00	0	0.00	0	0.00	0	0.00	1	11.11	1	14.29	0	0.00
Ethnography	0	0.00	0	0.00	0	0.00	0	0.00	1	11.11	0	0.00	0	0.00
Grounded theory	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Interpretive	0	0.00	0	0.00	0	0.00	1	33.33	3	33.33	0	0.00	0	0.00
Interviewing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	14.29	0	0.00
Knowledge-based view	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Narrative	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Participant observation	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	14.29	0	0.00
Policy capturing	0	0.00	0	0.00	0	0.00	2	66.67	3	33.33	0	0.00	0	0.00
Survey	0	0.00	0	0.00	0	0.00	0	0.00	1	11.11	0	0.00	0	0.00
General / nonspecified	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
<i>Total for year</i>	<i>1</i>	<i>100</i>	<i>1</i>	<i>100</i>	<i>0</i>	<i>100</i>	<i>3</i>	<i>100</i>	<i>9</i>	<i>100</i>	<i>7</i>	<i>100</i>	<i>0</i>	<i>100</i>

Topic	2005		2006		2007		1998 to 2007	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Action research	0	0.00	0	0.00	1	33.33	4	13.33
Case studies	0	0.00	0	0.00	0	0.00	2	6.67
Document interpretation	0	0.00	0	0.00	0	0.00	2	6.67
Ethnography	0	0.00	0	0.00	0	0.00	1	3.33
Grounded theory	0	0.00	1	25.00	0	0.00	1	3.33
Interpretive	2	100.00	1	25.00	1	33.33	8	26.67
Interviewing	0	0.00	0	0.00	0	0.00	1	3.33
Knowledge-based view	0	0.00	1	25.00	0	0.00	1	3.33
Narrative	0	0.00	1	25.00	0	0.00	1	3.33
Participant observation	0	0.00	0	0.00	0	0.00	1	3.33
Policy capturing	0	0.00	0	0.00	0	0.00	5	16.67
Survey	0	0.00	0	0.00	0	0.00	1	3.33
General / nonspecified	0	0.00	0	0.00	1	33.33	2	6.67
<i>Total for year</i>	<i>2</i>	<i>100</i>	<i>4</i>	<i>100</i>	<i>3</i>	<i>100</i>	<i>30</i>	<i>100</i>

Note: Topics included are only those for which there is at least one count for the entire 1998 to 2007 review period.

In terms of the quantitative measurement subcategories, Table 3 shows that the following are the five most popular topics during the 10-year period:

1. Validity (40.12%)
2. Reliability (23.26%)
3. Level of analysis of dependent variable (11.05%)
4. Scale development (9.88%)
5. Measurement invariance/equivalence (8.72%)

**Table 6**  
**Frequencies and Percentages for Qualitative Measurement Topics**  
**Published in *Organizational Research Methods* (1998 to 2007)**

Topic	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		1998 to 2007	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Reliability	0	0.00	1	100.00	0	0.00	0	0.00	2	66.67	0	0.00	0	0.00	0	100.00	0	0.00	0	0.00	4	80.00
Survey	0	0.00	0	0.00	0	0.00	1	33.33	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	20.00
Total for year	0	100	1	100	0	100	3	100	3	100	0	100	0	100	0	100	0	100	0	100	5	100

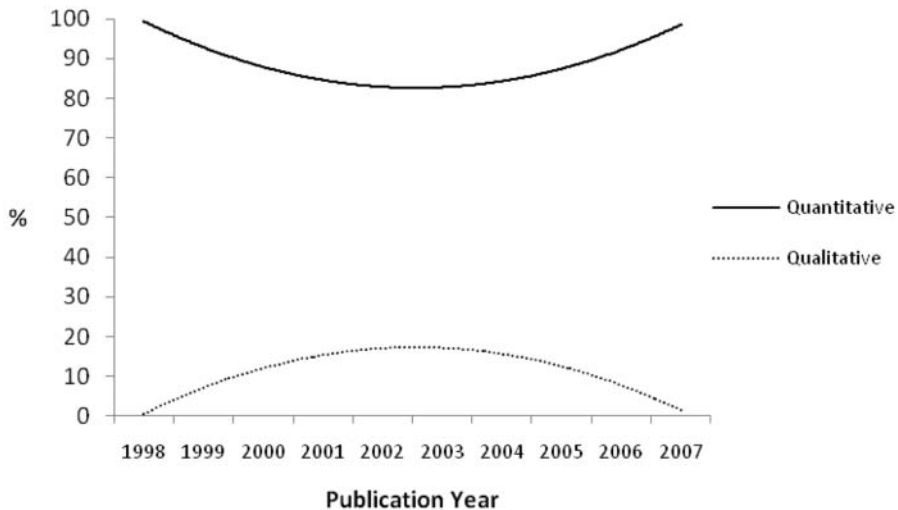
Note: Topics included are only those for which there is at least one count for the entire 1998 to 2007 review period.

**Table 7**  
**Frequencies and Percentages for Qualitative Analysis Topics**  
**Published in *Organizational Research Methods* (1998 to 2007)**

Topic	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		1998 to 2007	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Concept mapping	0	0.00	0	0.00	0	0.00	0	0.00	1	8.33	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	5.26
Conjoint analysis	0	0.00	0	0.00	0	0.00	0	0.00	2	16.67	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	10.52
Content analysis	1	100.00	1	50.00	0	0.00	1	50.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	4	21.05
Interpretive	0	0.00	0	0.00	0	0.00	1	50.00	3	25.00	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	5	26.32
Policy capturing	0	0.00	0	0.00	0	0.00	0	0.00	5	41.67	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	5	26.32
General / nonspecified	0	0.00	1	50.00	0	0.00	0	0.00	1	8.33	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	10.52
Total for year	1	100	2	100	0	100	2	100	12	100	0	100	0	100	0	100	1	100	1	100	19	100

Note: Topics included are only those for which there is at least 1 count for the entire 1998-2007 review period.

**Figure 5**  
**Trends in Counts in Percentages for Quantitative**  
**and Qualitative Topics During the 10-Year Review Period**



Note: Lines were smoothed using a second-order polynomial least squares function.

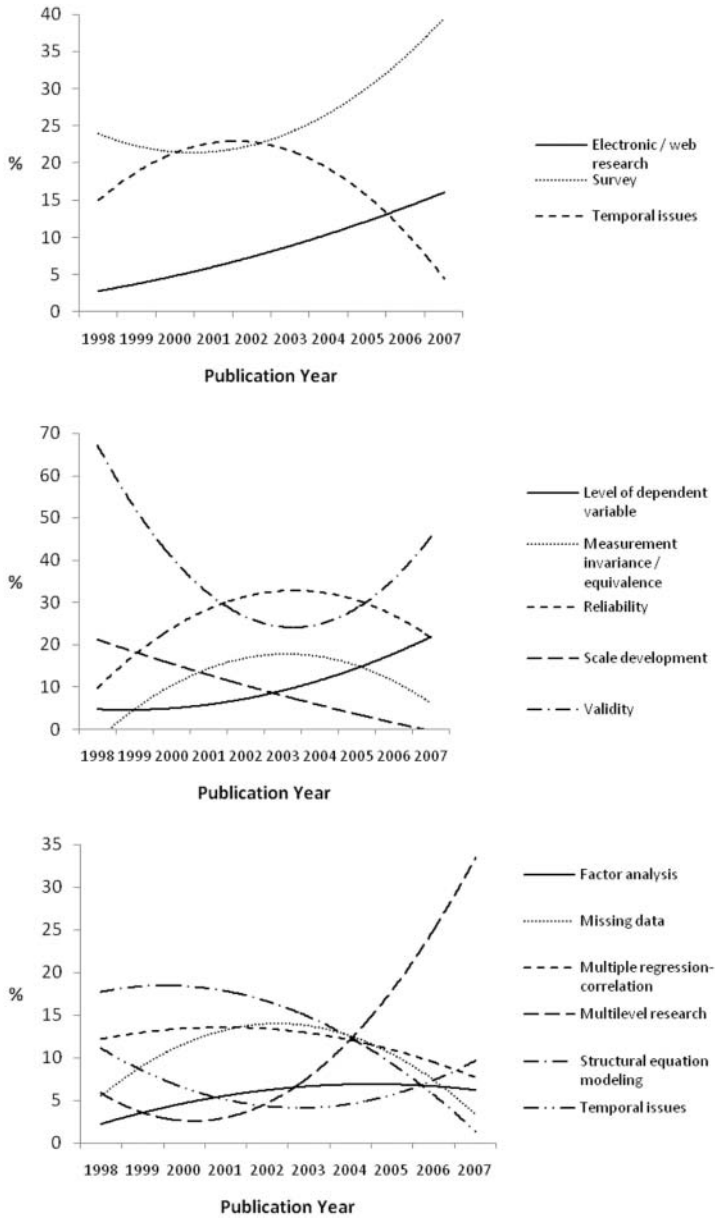
Figure 6 (center panel) shows that the relative frequency of topics changed during the 10-year period. Specifically, there is a recent renewed interest in validity and a clear upward trend regarding measurement issues about level of analysis of the dependent variable. On the other hand, there is a decrease in interest in scale development over time. Alternatively, the relative interest in reliability and measurement invariance/equivalence has remained fairly stable.

Table 4 shows the relative frequency of quantitative analysis topics during the 10-year period. Overall, the most popular topics during the 10-year period are as follows:

1. Multiple regression/correlation (17.03%)
2. Structural equation modeling (12.23%)
3. Multilevel research (10.92%)
4. Missing data (9.61%)
5. Factor analysis (6.68%)
6. Temporal issues (i.e., techniques for analyzing data collected throughout time) (6.55%)

Figure 6 (bottom panel) shows that the relative frequency of these topics has not changed much during the 10-year period, except for two notable exceptions. First, there is a striking increase in attention devoted to multilevel research. Second, there is a decrease in the relative attention devoted to structural equation modeling, which we speculate may be due to the existence of specialized journals devoted to this topic (i.e., *Structural Equation Modeling*). Alternatively, the relative interest in multiple regression/correlation, factor analysis, missing data, and temporal issues has remained fairly stable.

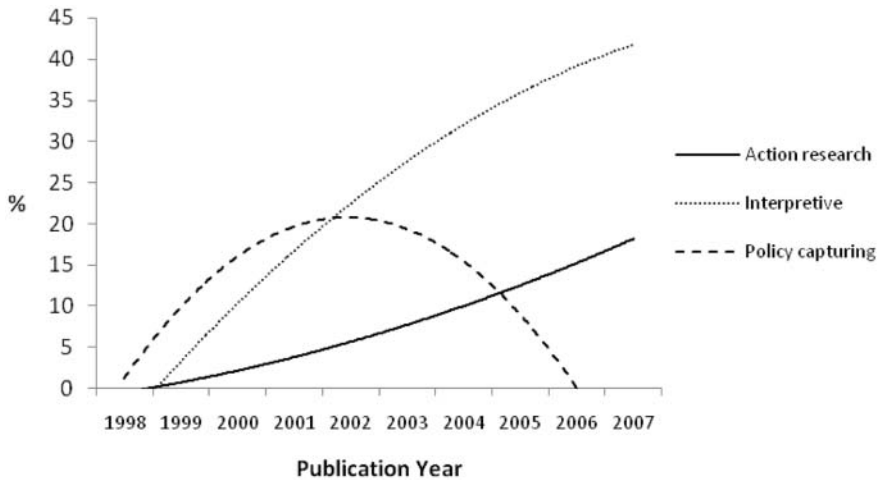
**Figure 6**  
**Trends in Counts in Percentages for the Most Popular**  
**Quantitative Design (Top Panel), Quantitative Measurement**  
**(Center Panel), and Quantitative Analysis (Bottom Panel)**  
**Subcategories During the 10-Year Review Period**



Note: Lines were smoothed using a second-order polynomial least squares function.



**Figure 7**  
**Trends in Counts in Percentages for the Most Popular**  
**Qualitative Design Subcategories During the 10-Year Review Period**



Note: Lines were smoothed using a second-order polynomial least squares function.

## Qualitative Topics

Table 5 shows results pertaining to the qualitative design subcategories. Results show that the most popular areas are as follows:

1. Interpretive (26.67%)
2. Policy capturing (16.67%)
3. Action research (13.33%)

Figure 7 shows that the relative popularity of interpretive and action research has increased with time, whereas the relative attention given to policy capturing has decreased.

Table 6 includes results regarding the qualitative measurement subcategories. The total count for this category during the 10-year period is only 5, and Table 7 shows that 4 of these 5 addressed reliability, whereas 1 addressed surveys.

Finally, Table 7 includes results regarding the qualitative analysis subcategories. Note that the total number of qualitative analysis categories is only 19 during the 10-year period. Nevertheless, the most popular subcategories are as follows:

1. Interpretive (26.32%)
2. Policy capturing (26.32%)
3. Content analysis (21.05%)

Given that for some of the years the total count of qualitative analysis subcategories is 1 or even 0, it is not very meaningful to describe changes in trends throughout time.

## Discussion

The goal of our article was to answer four questions with implications for training doctoral students, retooling researchers, future research on methodology, the advancement of the organizational sciences, and the extent to which *ORM* is fulfilling its mission. We address each question in turn.

### Which Are the Topical Areas That Have Been Consistently Popular During the Past Decade?

Our results indicate that a summary of topics addressed by the most typical (i.e., modal) article published in the first decade of *ORM* is as follows. First, this modal article addresses quantitative instead of qualitative topics. In terms of design topics of this modal quantitative article, these are surveys, temporal issues, and electronic/Web research. In terms of measurement, the topics are validity, reliability, and level of analysis of dependent variable. In terms of data analysis, the topics are multiple regression/correlation, structural equation modeling, and multilevel research. Data analysis topics are dominant (49%), followed by measurement (37%) and, lastly, design (only 15%). If we consider the modal qualitative article, in terms of design, the topics are interpretive, policy capturing, and action research. In terms of measurement, the topics are surveys and reliability. Finally, in terms of analysis, the topics are interpretive, policy capturing, and content analysis. In contrast to the quantitative topics, the most popular type of qualitative topic is design (56%), followed by analysis (33%) and measurement (9%).

### Which Are the Topical Areas That Have Become Increasingly Popular During the Past Decade?

First, in terms of quantitative topics, there are upward trends regarding surveys and electronic/Web research (design), level of analysis of the dependent variable and validity (measurement), and multilevel research (analysis). In terms of qualitative topics, the attention devoted to interpretive and action research has increased with time (design), but trends in terms of measurement and analysis are difficult to identify given that the overall number of articles is relatively small.

### Is the Relative Popularity of Various Topical Areas Different From What Has Been Reported in Previously Published Reviews of Research Methods Used in Substantive Journals?

A comparison of our results with those reported by Podsakoff and Dalton (1987), Stone-Romero et al. (1995), Scandura and Williams (2000), and Austin et al. (2002) indicates that the answer to this third question is both “yes” and “no.” In a way, this could be expected because one function of *ORM* is the introduction of new methods to substantive researchers, so *ORM* should lead the field in this respect rather than simply reflect it. First, it is yes because the most popular topics identified in previous reviews include surveys

(design), reliability (measurement), and multiple regression/correlation (analysis). Our results also suggest that these topics are among the most popular. On the other hand, the answer is also no because our results show that there are other topics that are equally, or in some cases even more, popular than the topics identified in previous reviews. These include temporal issues and electronic/Web research (design), validity and level of analysis of the dependent variable (measurement), and multilevel research (analysis). Another striking difference is the presence of qualitative topics in our results. Although certainly not receiving as much attention as quantitative topics (i.e., only about 10% compared to the 90% devoted to quantitative topics), there is little if any mention to qualitative topics in any of the four previously published reviews. As noted earlier, the most popular qualitative topics are interpretive, policy capturing, and action research (design); surveys and reliability (measurement); and interpretive, policy capturing, and content analysis (analysis).

### **Does the Research Published in *ORM* Have the Potential to Provide the Necessary Methodological Tools to Test Influential Theories in the Organizational Sciences?**

To answer this question, we must first identify influential theories and the methodological tools needed to test them. Then, we can assess whether these methodological tools are addressed by *ORM* articles. Identifying “influential theories” can be a subjective exercise, and several approaches are possible. Our approach was to conduct a Web of Science analysis of all articles published in the *Academy of Management Review (AMR)* in the past 2 decades (1987 to 2007) given that *AMR* is arguably the most influential journal devoted exclusively to theory development in the organizational sciences. We conducted our citation analysis in February 2008. There are other influential journals devoted to theory in some organizational sciences subfields (e.g., *Psychological Review*). However, we chose *AMR* because it is more representative of the organizational sciences as compared to other more specialized journals. Specifically, we selected the 25 articles that have received the greatest number of citations because citation rates are one of the best indicators of influence. Thus, our approach was to identify the most influential articles published in the most influential journal devoted exclusively to theory development in the organizational sciences. Again, other approaches are possible, but ours is replicable and based on consensual indicators of influence (i.e., prestige and reputation of *AMR* and citation rates).

Table 8 includes a list of each of the 25 *AMR* articles we identified, together with the number of citations received by each, the theoretical framework/topic for each article, and verbatim statements regarding design, measurement, and analysis tools needed to test each of the theories proposed. Research design was more popular than measurement and analysis issues. An interesting result is that about half the articles mention the need for quantitative designs and half mention the need for qualitative designs. In terms of quantitative issues, the most frequent are multilevel and longitudinal. In terms of qualitative issues, the most popular are case studies and naturalistic field observations and interviews. Regarding measurement needs and concerns, authors mentioned issues around the operationalization of dependent variables, proper item and scale development, and measurement and

**Table 8**  
**Design, Measurement, and Analysis Needs Identified in the Top 25**  
**Most Cited Articles Published in *Academy of Management Review* (1987 to 2007)**

Article	Web of Science	Theoretical Framework / Topic	Design Issues	Measurement Issues	Analysis Issues
Mayer, Davis, & Schoorman (1995)	576	Organizational trust	<p>“The extent of perceived risk involved in engaging in the trusting behavior should be assessed either directly (e.g., through <b>survey</b> items) or controlled for such as in structuring a <b>simulation</b> wherein the subjects have limited number of possible responses that clearly vary in the amount of risk they involve.” (p. 729)</p>	<p>“The extent of perceived risk involved in engaging in the trusting behavior should be assessed either directly (e.g., through <b>survey</b> items) or controlled for such as in structuring a simulation wherein the subjects have <b>limited number of possible responses</b> that clearly vary in the amount of risk they involve.” (p. 729)</p>	
Nahapiet & Ghoshal (1998)	476	Social capital			
Dyer & Singh (1998)	447	Resource-based view	<p>“Our analysis suggests that although looking for competitive advantage within firms and industries has been (and is still) important, a singular focus on these <b>units of analysis</b> may limit the explanatory power of the models we develop to explain firm-level profitability.” (p. 675)</p>		

(continued)

**Table 8 (continued)**

Article	Web of Science	Theoretical Framework / Topic	Design Issues	Measurement Issues	Analysis Issues
Oliver (1991)	418	Institutional theory	“One approach might be <b>field interviews</b> or <b>questionnaires</b> that ask CEOs and managers their reasons for conformity or resistance. . . .” (p. 172)	“Given the controversy in the literature about the relative merits of <b>subjective versus objective measures</b> of environmental uncertainty (Scott 1987b: 134), research strategists who investigate the influence of uncertainty on conformity versus resistance (Hypothesis 9) may wish to <b>include both.</b> ” (p. 172)	
Ring & van de Ven (1994)	407	Interorganizational relationships	“Research strategies to investigate the choice process between conformity and resistance need to include <b>perceptual measures</b> of several of the proposed variables.” (p. 172) “The propositions clearly reveal that these studies must be undertaken using <b>organizational and individual units of analysis.</b> ” (p. 112)		“Data on the occurrence of each event could be entered into a <b>qualitative computer database</b> (such as Rbase), and at a minimum it should include the date, actor, action, outcome (if observable), and data source.” (p. 112)

(continued)

**Table 8 (continued)**

Article	Web of Science	Theoretical Framework / Topic	Design Issues	Measurement Issues	Analysis Issues
Gist & Mitchell (1992)	352	Self-efficacy	<p>“One way to study these propositions is to undertake <b>longitudinal research</b> that tracks a set of cooperative interorganizational relationships (IORS) in their <b>natural field settings</b> from beginning to end.” (p. 112)</p>		<p>“Temporal patterns in the coded event-sequence database can then be analyzed using <b>log-linear and logit analysis on categorical time-series data and standard time-series regression analysis on frequency counts</b> of coded events computed for fixed temporal intervals (e.g., weekly, monthly, or quarterly intervals).” (pp. 112-113)</p>
Donaldson & Preston (1995)	317	Stakeholder theory	<p>“Also, more empirical studies in <b>work-related settings</b> are needed to develop targeted interventions for enhancing self-efficacy.” (p. 206)</p>		
Walsh & Ungson (1991)	317	Organizational memory	<p>“The <b>archival study</b> of organizational demography coupled with <b>case studies</b> of organizational memory management practices in companies dealing with naturally occurring shocks represents but one approach to the study of organizational memory. It might also be possible to employ some organizational <b>experimentation techniques</b>.” (p. 84)</p>		

(continued)

**Table 8 (continued)**

Article	Web of Science	Theoretical Framework / Topic	Design Issues	Measurement Issues	Analysis Issues
Reed & DeFillippi (1990)	312	Resource-based view	“Confirmation of this can be achieved using <b>case analyses</b> in which high and low performance firms are compared.” (p. 99)	“The first step to these ends is the <b>measurement and operationalization of the constructs.</b> ” (p. 100)	“An alternative approach that permits some use of subjectivity and adjustment is to <b>categorize the levels of</b> ambiguity as low, medium, and high. However, the price for this is restriction in the range of analytical techniques that may be applied.” (p. 100)
Jones (1991)	311	Ethical decision making	“One could also study the impact that particular legitimacy-management strategies and progressions have on the legitimacy profiles described previously, using either <b>naturalistic field observations</b> or <b>experimental interventions</b> and vignettes (Elsbach, 1994).” (p. 603)		“One could, for example, extract legitimacy-management histories from <b>press accounts</b> or from <b>key-informant interviews</b> and then subject these histories to qualitative narrative interpretation (Polkinghorne, 1988) or to quantitative sequence analysis (Abbott, 1990).” (p. 603)
Suchman (1995)	310	Institutional theory			

(continued)

Table 8 (continued)

Article	Web of Science	Theoretical Framework / Topic	Design Issues	Measurement Issues	Analysis Issues
Brown & Eisenhardt (1995)	296	Product development			
Rousseau, Sitkin, Burt, & Camerer (1998)	283	Organizational trust			
Oliver (1990)	276	Interorganizational relationships	<p>“To move the study of interorganizational relationships (IORs) closer to a generalizable theory, researchers should (a) examine the convergence among multiple contingencies, (b) proceed cumulatively on the basis of the existing literature, and (c) assess the <b>generalizability</b> of their research results to a range of different IOR types and <b>settings</b>.” (p. 260)</p>		
Klein, Dansereau, & Hall (1994)	246	Resource dependence theory	<p>“Greater attention to <b>levels issues</b> will increase the clarity, testability, comprehensiveness, and creativity of organizational theory.” (p. 224)</p>		

(continued)



**Table 8 (continued)**

Article	Web of Science	Theoretical Framework / Topic	Design Issues	Measurement Issues	Analysis Issues
Gersick (1991)	244	Punctuated equilibrium	<p>“<b>Laboratory studies</b> could be especially useful for testing hypotheses on organizational stability and change and for trying intervention strategies.” (p. 32)</p> <p>“Finally the complementarity of these six models suggests the need and possibilities for <b>multilevel research.</b>” (p. 33)</p> <p>“The collection of <b>documentary histories</b> over <b>very long timeperiods</b> and for <b>large, diverse samples</b> by Kuhn and Tushman and his colleagues — similar to the study of fossil records by Eldredge and Gould — offers opportunities for insight about the structural conditions under which revolutionary change occurs and succeeds or fails.” (p. 32)</p> <p>“Even though <b>documentary data</b> may be less available for individual and group histories, the work of these researchers suggests the rewards of using <b>archives</b> to study broad sets of structural variables among <b>large samples.</b>” (p. 33)</p>		

(continued)

Table 8 (continued)

Article	Web of Science	Theoretical Framework / Topic	Design Issues	Measurement Issues	Analysis Issues
Cordes & Dougherty (1993)	240	Job burnout	<p>“Conversely, <b>qualitative research</b> also could be valuable in the study of burnout, especially in capturing richer descriptions of contextual factors and personal meanings surrounding burnout processes. <b>In depth interviews</b> may be optimal for discovery of personal meanings, whereas <b>observation</b> might be more effective for understanding everyday actions, organizing structures, and contexts (Handy, 1988).” (p. 650)</p> <p>“In addition, <b>experimental quasi-experimental research</b>, which is virtually nonexistent in the burnout literature to date, would enhance the internal validity of conclusions about burnout processes.” (p. 650)</p>		<p>“The more prevalent <b>cross-sectional correlational studies</b> of burnout would benefit from increased attention to research rigor, especially using <b>statistical control</b> to rule out third-variable explanations of correlation or regression findings.” (p. 649)</p> <p>“<b>Multivariate analysis</b> could clarify these relationships, compared to studies examining individual zero-order correlations.” (p. 649)</p>

(continued)

**Table 8 (continued)**

Article	Web of Science	Theoretical Framework / Topic	Design Issues	Measurement Issues	Analysis Issues
			<p>“<b>Multivariate designs</b> are also necessary to adequately assess the role of components in the burnout process.” (p. 649)</p> <p>“Another improvement would be the measurement of precursors and consequences of burnout at <b>two or more points in time.</b>” (pp. 649-650)</p>		<p>“Similarly, <b>causal modeling</b> (e.g., Lee &amp; Ashforth, 1993; Leiter, 1990, 1991) could provide a more informative examination of these processes, compared to the cross-sectional correlational designs that have dominated the burnout literature thus far.” (p. 650)</p>
Mitchell, Agle, & Wood (1997)	240	Stakeholder theory		<p>“We realize that for these and other such questions to be addressed, <b>item and scaled development</b>, demographic calibration, and second-order model building, among other things, are necessary.” (p. 881)</p>	<p>“We realize that for these and other such questions to be addressed, item and scale development, demographic calibration, and <b>second-order model building</b>, among other things, are necessary.” (p. 881)</p>
Milliken & Martins (1996)	238	Organizational diversity			
Shane & Venkataraman (2000)	235	Entrepreneurship			

(continued)

Table 8 (continued)

Article	Web of Science	Theoretical Framework / Topic	Design Issues	Measurement Issues	Analysis Issues
Dean & Bowen (1994)	221	Total quality management			
Huber (1990)	219	Organizational design			
Greenwood & Hinings (1996)	215	Institutional theory	<p>“As a result, <b>detailed comparative case studies</b> are required, and, if possible, in real time.” (p. 1047)</p> <p>“To establish the interactions of precipitating and enabling dynamics in the light of institutional pressures over such time periods requires careful <b>case study research.</b>” (p. 1047)</p>		<p>“Equally necessary are more detailed studies that permit the careful assessment of <b>non-linear processes.</b>” (p. 1045)</p>
Pfeffer (1993)	214	Philosophy of science			
Adler & Kwon (2002)	200	Social capital	<p>“To date, however, few scholars have adopted the <b>longitudinal approach</b> that would be needed to grasp this link.” (p. 34)</p>		

Note: Web of Science = number of citations on Web of Science. We added emphasis (i.e., bold type) in quotations.

operationalization of constructs using both subjective and objective measures. In terms of analysis, authors mentioned the need for quantitative tools to analyze categorical dependent variables and test causal models, whereas qualitative tools include the need for qualitative computer databases, narrative interpretation, and qualitative sequence analysis.

How good is *ORM*'s coverage for each of these methodological issues considered to be crucial to test theories proposed in *AMR*? A rough scorecard indicates that *ORM*'s record is favorable regarding some issues but less favorable regarding others. The most favorable result is that *ORM*'s articles address virtually all of the quantitative design, measurement, and analysis topics considered important by theory developers. A comparison of the topics published most frequently during the 10-year period shows almost complete overlap with the methodological needs mentioned in the *AMR* articles. Specifically, multilevel, temporal (i.e., longitudinal), validity, scale development, and level of analysis of the dependent variable are some of the topics that have received most attention in *ORM* articles. On the other hand, results regarding qualitative issues are in the right direction but nevertheless less encouraging. *ORM*'s coverage of qualitative issues is certainly greater than the coverage identified by previously published reviews, which is virtually zero. However, only about 10% of *ORM* articles' topics are qualitative, whereas about 50% of the design topics mentioned in the *AMR* articles are qualitative. On the other hand, 56% of the qualitative topics investigated in articles published in *ORM* address design issues, which indicates consistence with the expressed need for qualitative design approaches as indicated by theory developers. In sum, the answer to our fourth question is yes regarding quantitative methodological tools, but there is room for improvement regarding qualitative methodological tools.

### **Implications for Training Doctoral Students and Retooling Researchers**

Our results lead to important implications for training doctoral students and retooling researchers in the organizational sciences. First, there are some methodological tools that are investigated by articles published in *ORM* and also seen as crucial for testing influential theories in the organizational sciences. These include multilevel, temporal (i.e., longitudinal), validity, scale development, and level of analysis of the dependent variable issues. Thus, instructors of research methods courses as well as researchers interested in testing influential theories in the organizational sciences should pay attention to these topics. Specifically, the content of methods courses should include at least one module on each of these topics. Also, researchers should seek opportunities to retool themselves in each of these domains. We acknowledge that some *ORM* articles may be too technical or specialized for classroom use. However, there are numerous examples of articles that can be used in doctoral-level research methods courses. In fact, some of the most widely cited *ORM* articles seem to be less technical and provide overviews of various topics, which makes them particularly suitable for instruction (e.g., Hinkin, 1998; Vandenberg & Lance, 2000).

Second, although not receiving as much coverage in *ORM*, there are several qualitative methodological topics that are key for testing influential theories in the organizational sciences. These include case studies and naturalistic field observations and interviews, the use of qualitative computer databases, and narrative interpretation and qualitative sequence analysis. Increased attention to these topics by instructors who deliver methods

courses and researchers interested in improving their methodology toolkit is likely to lead to more fruitful empirical investigations of important theories.

## Implications for Research and the Advancement of the Organizational Sciences

Content analysis is becoming an increasingly popular methodological tool (Duriiau et al., 2007). The taxonomy developed as part of this study is the most comprehensive available to date to conduct a content analysis of a research methods body of literature in the organizational sciences. Its comprehensiveness also relies on the inclusion of qualitative issues, which are notably absent in previously published reviews. This is an important addition given that our review of the most influential *AMR* articles published in the past two decades showed that about 50% of authors mentioned the need to implement qualitative designs to test their theories. Thus, one implication for research is that our taxonomy can be used in future reviews of the research methods literature as well as the methods used in articles published in substantive journals. The consistent use of a single taxonomy would allow for more systematic and precise comparisons of trends throughout time instead of having to make comparisons across articles that use different taxonomies, as is the case for the reviews we summarized in the introduction.

Second, our review revealed an unbalanced coverage of design, measurement, and analysis topics. In the quantitative arena, most topics address data analysis (i.e., 49%) and measurement (i.e., 37%), whereas only a minority are about design issues (i.e., 15% of topics). Few researchers would argue that data analysis is three times as important as research design. Also, few researchers would argue that we know all there is to know about research design. Moreover, it is difficult to argue that the organizational sciences will produce important advancements by focusing mainly on data analysis and measurement and paying less attention to design. In short, an implication of our study is that more attention is needed regarding the development of new as well as the improvement of existing research designs. For example, further research on archival, behavior simulation, and mixed approaches (i.e., qualitative–quantitative) is warranted.

Another implication of our study is that although changes in the usage of methods is extremely slow paced and can take two to three decades minimum, those studying and improving methods seem more willing to embrace change and innovation at a faster pace. Our review included only 10 years, and it may take several years for many researchers to see a new journal as a viable or important outlet for their work. However, this time period was sufficient to identify several important trends. For example, there is a surge in the relative attention devoted to surveys and electronic/Web research, level of analysis of the dependent variable and validity, multilevel research, and interpretive and action research. Data reported in each of the four reviews published since 1987 show that the clear trends found in one decade of *ORM* cannot be identified if a review includes one decade of articles published in any of the substantive journals. This result suggests that change patterns in articles published by developers of methods (i.e., those publishing in *ORM*) are faster than those in articles published by users of methods (i.e., authors of articles in substantive journals). In other words, the diffusion of innovation is faster among methods developers

than methods users. As Austin et al. (2002) noted, this result points to the important role that *ORM* can play as a catalyst for change in terms of methods usage by substantive researchers, and there is evidence that *ORM* is playing this role. For example, the impact factor for *ORM* has increased consistently and reached its current value of 2.55. Perhaps even more revealing are the results with respect to which journals cite *ORM* articles most frequently. Consider the following information regarding frequency counts included in the most recent (i.e., 2007) Journal Citation Report by Thomson Scientific (formerly Institute for Scientific Information), which refers to the year 2006. As would be expected, *ORM* is the journal that cited *ORM* articles most frequently. However, the journals following *ORM* (in rank order) are as follows:

1. *Journal of Applied Psychology*
2. *Journal of Organizational Behavior*
3. *Personnel Psychology*
4. *Accounting, Organizations, and Society*
5. *Journal of Occupational and Organizational Psychology*
6. *Academy of Management Journal*
7. *Leadership Quarterly*
8. *International Journal of Selection and Assessment*
9. *Organizational Behavior and Human Decision Processes*
10. *Structural Equation Modeling*

In other words, 9 of the 10 journals (i.e., all except for *Structural Equation Modeling*) that cited *ORM* articles most frequently in 2006 are substantive and not methodological journals, suggesting that *ORM* is indeed influencing how substantive researchers do their work. The conclusion would be very different if *ORM* articles are cited mainly by other methodological journals. Such a finding would have suggested that *ORM* is merely part of a cottage industry that does not bring relevant methodological developments to a wide range of researchers in organizational and management studies and, moreover, does not promote a more effective understanding of current and new methodologies and their application in organizational settings. On a related issue, please note that journals differ in terms of the number of articles they publish. For example, from 1963 to May 2007, *JAP* published 4,329 articles, whereas *Personnel Psychology* published 1,451 articles (Cascio & Aguinis, in press). So this difference in publication rates may explain why *JAP*, which publishes more articles, cites *ORM* most frequently. Nevertheless, this difference in publication rates is not an alternative explanation for the conclusion that substantive journals cite *ORM* more frequently than do methodological journals.

A fourth implication of our study for future research is that our results may provide a preview of some of the methodological tools that are not yet very popular but may become more popular in the future. For example, ethnostatistics, network analysis, and neural networks are some of the new topics emerging in the literature. It will be interesting to see whether these topics become more popular in *ORM* as well as the substantive literature during the next decade. The literature on diffusion of knowledge and innovation offers several conclusions that are relevant to this point. First, the continued existence of companies that are the source of a particular type of innovation is an important determinant of knowledge diffusion (Hoetker & Agarwal, 2007). Thus, the continued existence of *ORM*

is likely to help the diffusion of methodological practices. Second, managerial practices are more likely to become institutionalized when justifications for their use are accepted and taken for granted (Green, 2004). Similarly, it is likely that as newer practices become more popular and require less explanation and justification, they will eventually become part of the methodological toolkit and will be used more frequently. Finally, the diffusion of a particular innovation depends not only on its observable benefits but also on network structures of the individuals who are likely to adopt the innovation (Gibbons, 2004). Extrapolating from this finding, it is likely that the increased electronic presence of *ORM* (i.e., all articles ever published as well as those accepted for publication are now available online to subscribers), paired with network structures such as the numerous Internet-based listservs that discuss methodological issues, is likely to accelerate *ORM*'s impact in the future.

A fifth implication of our study in terms of guiding future research is that it points to the need to conduct further work in the qualitative arena. However, meeting this need may not be easy given that publishing qualitative research in top North American journals has been described as trying to “fit oval pegs into round holes” (Pratt, 2008). Pratt (2008) suggested that for qualitative research to be published, (a) authors could make research more palatable to quantitative/positivist reviewers, both embed in and break from extant theory, balance data presentation and interpretation, and describe analysis adequately, and (b) journal editors could receive training in qualitative approaches and assign reviewers who are trained in these approaches. Our review of the Top 25 most cited *AMR* articles from the past two decades can be considered a methodology needs analysis. Specifically, our review suggests that the greatest need in the qualitative arena is on research design. For example, several authors indicated the need to implement case studies, naturalistic field observations, and interviews. A likely reason for why about 50% of the design-related needs are in the qualitative domain is that, for nascent theories, qualitative approaches are usually more appropriate than quantitative approaches (Edmondson & McManus, 2007). Regardless of the precise reason, the following implication is clear: Many developers of new theories argue that qualitative methods are needed to test their theories. Hence, future research addressing this need would be beneficial.

A sixth implication is that, in terms of future research, our 10-year review covered editorial teams under two different editors and *ORM*'s policies and mission statement remained virtually identical during this time. Thus, the trends we identified are not due to changes in editorial policies. However, future editors may make policy changes. For example, the January 2008 editorial includes a statement noting that “*ORM* will no longer consider for review manuscripts in which the primary goal is to present a new measure/scale or some redevelopment of an existing measure/scale” (Vandenberg, 2008, p. 7). Thus, a replication of our study in 10 years may find that there are fewer manuscripts addressing the issue of scale development, but this result would not necessarily be a reflection of decreased interest in the topic but a reflection of the journal's policy change. Thus, although not a concern in our review given that *ORM*'s policies have remained constant during our review period, possible editorial policy changes should be taken into consideration in conducting a content analysis of *ORM*'s articles in the future.

A seventh implication is that, also in terms of future research, our analysis did not intend to examine the extent to which *ORM* has stimulated the use of new methods as compared to an improvement in the quality of existing methods. To answer this different



research question would require an in-depth analysis of each of the substantive articles that has cited *ORM* articles. To answer this question would also require a different data collection effort and, therefore, this is a possible direction for future research.

Finally, the trends we have identified are likely representative of the underlying interests of the methods community in the organizational sciences, particularly of those who are active in the AOM. As noted in the author notes sections, many of the articles published in *ORM* have been presented at the AOM meetings. In addition, the current and past editorial boards of *ORM* include the majority of elected officers of the RMD of the AOM. In fact, each of the past and current editors (Larry Williams, Herman Aguinis, and Robert Vandenberg) has served as RMD Chair.

## Conclusion

Change is usually difficult and requires effort and resources. Researchers in the organizational sciences also find that change is difficult and they have their own methodological comfort zones. This is why there is a “scientific community’s persistence in the use of particular methods” (Podsakoff & Dalton, 1987, p. 433). It is interesting that this statement is applicable not only to the methods used but also to the substantive areas that researchers choose to investigate (Cascio & Aguinis, in press). A surprising finding of our study is that this statement applies only partially to those who are advancing research methodology and publishing in *ORM*. Although some of the more traditional methodological approaches identified in previous reviews are popular (e.g., surveys, multiple regression, and correlation), there are several novel approaches that have become at least as popular (e.g., multilevel research, temporal issues) in a very short time period. Moreover, these novel approaches address the quantitative methodological tools needed to test influential theories in the organizational sciences. For the organizational sciences to move forward, it is important that researchers and doctoral students become knowledgeable about these new tools.

Our review reveals that not all needs of substantive researchers are met by articles published in the first decade of *ORM*. There is a need to develop more and better tools in the qualitative domain, particularly regarding qualitative research design. Although the improvement of methodological tools in the absence of good theory is not likely to produce important advances, theory cannot advance in the absence of good empirical methods either (Van Maanen, Sørensen, & Mitchell, 2007). A combination of methods training that includes some of the newer approaches and further research on qualitative tools is likely to produce important advancements in the organizational sciences during the next decade.

## References

- Adler, P. S., & Kwon, S. (2002). Social capital: Prospects for a new concept. *Academy of Management Review*, 27, 17-40.
- Aguinis, H., Mazurkiewicz, M. D., & Heggstad, E. D. (in press). Using Web-based frame-of-reference training to decrease biases in personality-based job analysis: An experimental field study. *Personnel Psychology*.

- Aguinis, H., & Vandenberg, R. J. (2008). *Organizational Research Methods* yearly update. *Organizational Research Methods, 11*, 3-5.
- Austin, J. T., Scherbaum, C. A., & Mahlman, R. A. (2002). History of research methods in industrial and organizational psychology: Measurement, design, analysis. In S. G. Rogelberg (Ed.), *Handbook of research methods in industrial and organizational psychology* (pp. 1-33). Oxford, UK: Blackwell.
- Brown, S. K., & Eisenhardt, K. M. (1995). Product development: Past research, present findings, and future directions. *Academy of Management Review, 20*, 343-378.
- Cascio, W. F., & Aguinis, H. (in press). Research in industrial and organizational psychology from 1963 to 2007: Changes, choices, and trends. *Journal of Applied Psychology*.
- Casper, W. J., Eby, L. T., Bordeaux, C., Lockwood, A., & Lambert, D. (2007). A review of research methods in IO/OB work-family research. *Journal of Applied Psychology, 92*, 28-43.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*, 37-46.
- Cordes, C. L., & Dougherty, T. W. (1993). A review and an integration of research on job burnout. *Academy of Management Review, 18*, 621-656.
- Dean, J. W., Jr., & Bowen, D. E. (1994). Management theory and total quality: Improving research and practice through theory development. *Academy of Management Review, 19*, 392-418.
- Dean, M. A., Shook, C. L., & Payne, G. T. (2007). The past, present, and future of entrepreneurship research: Data analytic trends and training. *Entrepreneurship Theory & Practice, 31*, 601-618.
- Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review, 20*, 65-91.
- Duriau, V. J., Reger, R. K., & Pfarrer, M. D. (2007). A content analysis of the content analysis literature in organization studies: Research themes, data sources, and methodological refinements. *Organizational Research Methods, 10*, 5-34.
- Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review, 23*, 660-679.
- Edmondson, A. C., & McManus, S. E. (2007). Methodological fit in management field research. *Academy of Management Review, 32*, 1155-1179.
- Fleiss, J. (1981). *Statistical methods for rates and proportions*. New York: Wiley.
- Gersick, C. J. G. (1991). Revolutionary change theories: A multilevel exploration of the punctuated equilibrium paradigm. *Academy of Management Review, 16*, 10-36.
- Gibbons, D. E. (2004). Network structure and innovation ambiguity effects on diffusion in dynamic organizational fields. *Academy of Management Journal, 47*, 938-951.
- Gist, M. E., & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinates and malleability. *Academy of Management Review, 17*, 183-211.
- Green, S. E. (2004). A rhetorical view of diffusion. *Academy of Management Review, 29*, 653-669.
- Greenwood, R., & Hinings, C. R. (1996). Understanding radical organizational change: Bringing together the old and the new institutionalism. *Academy of Management Review, 21*, 1022-1054.
- Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods, 1*, 104-121.
- Hoetker, G., & Agarwal, R. (2007). Death hurts, but it isn't fatal: The postexit diffusion of knowledge created by innovative companies. *Academy of Management Journal, 50*, 446-467.
- Huber, G. P. (1990). A theory of the effects of advanced information technologies on organizational design, intelligence, and decision making. *Academy of Management Review, 15*, 47-71.
- Jones, T. M. (1991). Ethical decision making by individuals in organizations: An issue-contingent model. *Academy of Management Review, 16*, 366-395.
- Klein, K. J., Dansereau, F., & Hall, R. J. (1994). Levels issues in theory development, data collection, and analysis. *Academy of Management Review, 19*, 195-229.
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review, 20*, 709-734.
- Milliken, F. J., & Martins, J. L. (1996). Searching for common threads: Understanding the multiple effects of diversity in organizational groups. *Academy of Management Review, 21*, 402-433.

- Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of Management Review*, 22, 853-886.
- Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23, 242-266.
- Oliver, C. (1990). Determinants of interorganizational relationships: Integration and future directions. *Academy of Management Review*, 15, 241-265.
- Oliver, C. (1991). Strategic responses to institutional processes. *Academy of Management Review*, 16, 145-179.
- Organizational Research Methods*. (2008). Retrieved May 2, 2008, from <http://www.sagepub.com/journalsProdDesc.nav?prodId=Journal200894>
- Pfeffer, J. (1993). Barriers to the advance of organizational science: Paradigm development as a dependent variable. *Academy of Management Review*, 18, 599-620.
- Podsakoff, P. M., & Dalton, D. R. (1987). Research methodology in organizational studies. *Journal of Management*, 13, 419-441.
- Pratt, M. G. (2008). Fitting oval pegs into round holes: Tensions in evaluating and publishing qualitative research in top-tier North American journals. *Organizational Research Methods*, 11, 481-509.
- Reed, R., & DeFillippi, R. J. (1990). Causal ambiguity, barriers to imitation, and sustainable competitive advantage. *Academy of Management Review*, 15, 88-102.
- Ring, P. S., & van de Ven, A. H. (1994). Developmental processes of cooperative interorganizational relationships. *Academy of Management Review*, 19, 90-118.
- Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, 23, 393-404.
- Scandura, T. A., & Williams, E. A. (2000). Research methodology in management: Current practices, trends, and implications for future research. *Academy of Management Journal*, 43, 1248-1264.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25, 217-226.
- Shapiro, G., & Markoff, G. (1997). A matter of definition. In C. W. Roberts (Ed.), *Text analysis for the social sciences* (pp. 9-31). Mahwah, NJ: Lawrence Erlbaum.
- Shook, C. L., Ketchen, D. J., Cycyota, C. S., & Crockett, D. (2003). Data analytic trends and training in strategic management. *Strategic Management Journal*, 24, 1231-1237.
- Stone-Romero, E. F., Weaver, A. E., & Glenar, J. L. (1995). Trends in research design and data analytic strategies in organizational research. *Journal of Management*, 21, 141-157.
- Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20, 571-610.
- Taylor, L. A., Goodwin, V. L., & Cosier, R. A. (2003). Method myopia: Real or imagined? *Journal of Management Inquiry*, 12, 255-263.
- Van Maanen, J., Sørensen, J. B., & Mitchell, T. R. (2007). Introduction to special topic forum: The interplay between theory and method. *Academy of Management Review*, 32, 1145-1154.
- Vandenberg, R. J. (2008). Editorial. *Organizational Research Methods*, 11, 6-8.
- Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods*, 3, 4-69.
- Walsh, J. P., & Ungson, G. R. (1991). Organizational memory. *Academy of Management Review*, 16, 57-91.
- Williams, L. J. (2008). Reflections on creating a new scholarly journal: Perspectives from a founding editor. In Y. Baruch, A. M. Konrad, H. Aguinis, & W. H. Starbuck (Eds.), *Opening the black box of editorship* (pp. 188-196). London: Palgrave-Macmillan.
- Zickar, M. J., & Highhouse, S. (2001). Measuring prestige of journals in industrial-organizational psychology. *The Industrial-Organizational Psychologist*, 38(4), 29-36.

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