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# Mixed Methods Research in Strategic Management: Impact and Applications

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## Abstract

Mixed methods research is becoming an increasingly popular approach in several areas, and it has long been called for as an approach for providing a better understanding of research problems. However, there have been no assessments as to whether such research, which may be timely and expensive, has more impact on the field. The main purpose of this article is to determine whether the use of a mixed methods approach is a predictor of article impact. The analysis is based on articles published in the *Strategic Management Journal* from 1980 to 2006. The findings show that mixed methods articles tend to receive more citations than monomethod articles do. The average citations received per year and the cumulating sum of citations are both higher for articles reporting studies using mixed methods than for monomethod research designs. Furthermore, a content analysis of the mixed methods articles identified shows that there are different types of studies based on several characteristics (purpose, priority, implementation, and design). All types of mixed methods articles tend to have a higher number of citations than the group of monomethod studies.

## Keywords

research methods, mixed methods, strategic management, citation analysis

Mixed methods research combines qualitative and quantitative data collection and data analysis within a single study (Johnson & Onwuegbuzie, 2004; Plano Clark, 2005; Teddlie & Tashakkori, 2003). Calls for the integration of quantitative and qualitative research methods emphasizing the value and advantages of mixed methods research have been made in several fields, including sociology, education, evaluation, and health sciences (Cook & Reichardt, 1979; Greene, Caracelli, & Graham, 1989; O’Cathain, 2009; Patton, 1990; Rossman & Wilson, 1985; Sieber, 1973; Tashakkori & Teddlie, 2003a). Calls for the use of mixed methods research have been also carried out in the

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management and organizational field (Aguinis et al., 2010; Currall & Towler, 2003; Daft & Lewin, 1990; Edmondson & McManus, 2007; Jick, 1979; A. Lee, 1991; T. Lee, 1999). A key feature of mixed methods research is its methodological pluralism, which frequently results in superior research compared with that of monomethod designs (Johnson & Onwuegbuzie, 2004). The overall purpose and central premise of mixed methods is that the use of quantitative and qualitative approaches in combination may provide a better understanding of research problems than either approach alone (Creswell & Plano Clark, 2007).

However, despite these calls, advantages, and the availability of mixed methods–related books, chapters, journals, and journal articles, it remains an open question as to whether these designs have merited their apparent usefulness by having a higher impact and market acceptance in terms of citations. Although there is a conventional idea that mixed methods papers are desirable to do, an important question is whether they have unusual impact. In other words, according to previous calls and on the basis of statements with regard to the benefits and advantages of mixed methods research, it seems that this methodological approach is valuable, but we do not know if it really has a greater impact. Journals, researchers, and academic institutions may be interested in this issue. Journals benefit from publishing articles that have high citation counts. Rankings of journal quality usually use measures based on citations (e.g., impact factor). Moreover, citations to published journal articles are used as part of tenure and promotion decisions, and citations have implications not only for personal reputation, peer recognition, and career advancement but also for institution reputation. Therefore, article impact is pertinent to the organizational fields.

The main purpose of this article is to determine whether the use of a mixed methods approach is a predictor of article impact in terms of citation counts. Along with this research question, another aim addressed in this study is to carry out a review of the application of this methodological approach. There are different ways of conducting mixed methods research, and the impact of these different types also will be studied. Through a content analysis, the main characteristics of the mixed methods studies identified are determined, examining whether the impact of mixed methods articles depends on the type of mixed methods design used. Therefore, the two research questions are as follows: (a) Do mixed methods articles have higher impact than monomethod articles? and (b) Are some types of mixed methods designs more influential than others?

To analyze these questions, an assessment of the 1,431 articles published in the *Strategic Management Journal (SMJ)* between 1980 and 2006 was carried out. The study examined articles published in *SMJ* because it allows for tracking the development of a field and its literature and the role that mixed methods designs may have played in it, while it is also limited to topics that belong to the same general domain.

The present study builds on others that have examined the determinants of article impact (Bergh, Perry, & Hanke, 2006; Conlon, Morgeson, McNamara, Wiseman, & Skilton, 2006; Judge, Cable, Colbert, & Rynes, 2007; Kacmar & Whitfield, 2000; J. M. Newman & Cooper, 1993; Shadish, Tolliver, Gray, & Sengupta, 1995; Starbuck, 2010; Stremersch, Verniers, & Verhoef, 2007). The findings show that the application of a mixed methods approach acts as a predictor of citation counts. The present study seeks to advance knowledge of the impact of variables related to research design, contributing to the debate about the influence of specific research methods. Furthermore, this study contributes to the diffusion of mixed methods studies by examining how to use this approach and by providing examples of mixed methods articles.

The article is structured as follows. First, the benefits of mixed methods research are examined, along with several aspects related to research methods and impact in strategic management. This is followed by a section describing the methods. Then the main results are analyzed. The section following discusses some issues regarding the impact of mixed methods

research. Finally, the last section offers a summary of the main conclusions and directions for future research.

## **Background**

### *Benefits of Mixed Methods Research*

Mixed methods research has usually been compared with monomethod research. Teddlie and Tashakkori (2003) pointed out two main areas in which mixed methods studies may be superior to monomethod approaches. Firstly, mixed methods research can answer research questions that the other methodologies cannot. Although there is no necessary and perfect connection between purpose and approach, quantitative research has typically been more directed at theory testing or verification, whereas qualitative research has typically been more concerned with theory building or generation (Punch, 2005). A major advantage of mixed methods research is that it enables the researcher to simultaneously generate and verify theory in the same study. Second, mixed methods research provides stronger inferences. Several authors have postulated that using mixed methods can offset the disadvantages that certain of the methods have by themselves. Johnson and Turner (2003) refer to this as the fundamental principle of mixed methods research: Methods should be mixed in a way that has complementary strengths and nonoverlapping weaknesses.

Moreover, there are potential benefits of mixed methods research: more comprehensive findings, increased confidence in results, increased conclusion validity, and more insightful understanding of the underlying phenomenon (Johnson & Christensen, 2004). In fact, mixed methods studies have several purposes that can be considered as advantages of this approach (Bryman & Bell, 2003; Creswell & Plano Clark, 2007; Greene et al., 1989; Tashakkori & Teddlie, 1998): triangulation (seeking convergence and corroboration of findings from different methods that examine the same phenomenon), development (using the results from one method to help develop or inform the other method), expansion (using different methods to assess different facets of a phenomenon, yielding an enriched, elaborated understanding of that phenomenon), and complementarity (clarifying, enhancing, or illustrating the results from one method with the results from the other method). In addition, mixed methods can be used to understand the extent to which a study's results are significant in practice by including practitioners' own discourses (Aguinis et al., 2010).

In summary, the overall purpose and central premise of mixed methods studies is that the use of quantitative and qualitative approaches in combination may provide a better understanding of research problems and complex phenomena than either approach alone provides (Creswell & Plano Clark, 2007; Johnson & Onwuegbuzie, 2004), incorporating the strengths of both methodologies and reducing some of the problems associated with singular methods.

### *Research Methods in Strategic Management and Article Impact*

Strategy scholars have used quantitative and qualitative methods since the inception of the field, and this categorization has been taken into account in studies about research in strategic management (Duncan, 1979; Hatten, 1979; Hitt, Gimeno, & Hoskisson, 1998; Hoskisson, Hitt, Wan, & Yiu, 1999; Schendel & Hofer, 1979). Although both quantitative and qualitative approaches are employed, the use of large-sample, quantitatively operationalized research designs dominates (Ketchen, Boyd, & Bergh, 2008; Phelan, Ferreira, & Salvador, 2002; Rouse & Daellenbach, 1999). This prevalence is reflected in the number of empirical articles published using a quantitative approach and the number of methodological reviews carried out about aspects related to quantitative research (Aguinis & Harden, 2009; Bergh & Fairbank, 2002; Bergh & Holbein, 1997; Boyd, Gove, & Hitt, 2005; Ferguson & Ketchen, 1999; Ketchen & Shook, 1996; Miller, Triana, Reutzler, & Certo, 2007; Shaver, 2007; Short, 2007; Short, Ketchen, & Palmer, 2002; Wiersema & Bowen, 2009).

However, qualitative research is also relevant in the strategy field. Barr (2004) indicated that although the use of qualitative methods in strategy research has lagged significantly behind the use of more quantitative approaches, significant contributions to strategy theory and practice have come from qualitative studies. Moreover, methodological reviews also have been carried out with regard to qualitative methods (Gibbert, Ruigrok, & Wicki, 2008; Ridder, Hoon, & McCandless, 2009). In summary, both quantitative and qualitative articles are found in the strategic literature, and discussions and critical reviews about the use of quantitative and qualitative approaches have been written.

Regarding mixed methods, calls for the use of this methodological approach have been made in this field (Armstrong & Shimizu, 2007; Barr, 2004; Boyd, Gove, et al., 2005; Hitt, Boyd, & Li, 2004; Hitt et al., 1998; Ketchen & Shook, 1996; Molina-Azorin, 2007). For example, Hitt et al. (1998) indicated that research projects may realize the benefits and advantages of both quantitative and qualitative research approaches by integrating them in a single project. Boyd, Gove, et al. (2005) pointed out that qualitative research complements quantitative research, and in tandem, quality research of both types can move the strategic management field forward more rapidly. However, the application of mixed methods designs has seldom been studied in the strategic management field. Molina-Azorin (2007) reviewed the use of mixed methods research in a specific strategic theory, namely, the resource-based view. But a systematic review of the application of mixed methods research designs in strategic management that compares the citations and impact trajectory of mixed methods and monomethod studies and examines the impact of different types of mixed methods designs has not been carried out.

Article impact is becoming an increasingly popular metric for assessing a scholar's influence (Bergh et al., 2006). This impact is generally defined and measured in terms of total citation counts (Kacmar & Whitfield, 2000; J. M. Newman & Cooper, 1993; Robinson & Adler, 1981; Tahai & Meyer, 1999). In fact, citations to research articles in other research articles are increasingly used as a metric for assessing the impact of an article, the career success of researchers, and the quality and status of academic units and journals (Judge et al., 2007). When an article is cited, it generally suggests that it has contributed significantly to the literature on which the citing article builds, and so the number of citations that an article receives is a commonly used indication of its quality and intellectual influence (Azar & Brock, 2008; Lockett & McWilliams, 2005; Pieters & Baumgartner, 2002).

A key issue is the analysis of the factors that affect article impact. J. M. Newman and Cooper (1993), in the field of psychology, found that articles that explore new paradigms received more citations than articles that refined or extended existing theories. Shadish et al. (1995) found that a study's methods or design features were significantly related to subsequent citations. Stremersch, Verniers, and Verhoef (2007) found that the number of citations an article in the marketing discipline received depended more on what is said (quality and domain) and who said it (author visibility) than on how it is said (title length and expositional clarity). In the general field of management, Judge et al. (2007) found that although certain characteristics of both articles and authors influenced citations, the single most important factor driving citations to an article was the prestige or average citation rate of the journal in which the article was published. Conlon et al. (2006) found that special issues enhanced citation rates.

Several studies have also examined article impact in the strategy field. Boyd, Gove, et al. (2005), in a study about construct measurement in strategic management research, concluded that citation of an article is largely unrelated to the quality of the measurement used. Boyd, Finkelstein, and Gove (2005) pointed out that although strategic management scholars produce less research than researchers in other areas, research outcomes in strategic management are driven more by merit-based than particularistic factors. Bergh et al. (2006) tested whether author, article, and methodological attributes influenced the impact of *SMJ* articles. Their findings showed that authors with fewer but

more-often-cited articles tended to have articles that received the most citations. Moreover, empirical articles that tested primary data, controlled for more threats to internal validity, and had higher statistical power tended to receive more citations.

In summary, strategic management is an appropriate setting for studying the impact of mixed methods research for two main reasons. First, calls for the application of this methodological approach have been carried out in this field. Second, previous studies have examined several predictors that may influence article impact. However, much remains to be learned with regard to other variables that may help explain differences in article impact levels. The use of a mixed methods approach is examined in the present study.

## Method

To study the impact of mixed methods studies in strategy research, mixed methods articles appearing in *SMJ* from its first issue in 1980 through 2006 were identified. This journal enjoys a reputation as a leader among management journals (Azar & Brock, 2008; Boyd, Finkelstein, et al., 2005; Podsakoff, MacKenzie, Bachrach, & Podsakoff, 2005; Tahai & Meyer, 1999). Furthermore, this journal was used because it contains articles on only strategic management topics, thus minimizing guesswork in defining what should and should not be considered a strategic management study (Bergh & Holbein, 1997).

To identify mixed methods studies, all articles published in *SMJ* from 1980 to 2006 (1,431 articles) were read and reviewed. Apart from identifying mixed methods studies, this search strategy was used to classify the articles into two groups (nonempirical and empirical), and the group of empirical studies was divided in quantitative, qualitative, and mixed methods articles. Nonempirical articles do not report data and include articles on theoretical developments, literature reviews, and new analytic techniques (Bergh et al., 2006). A study was considered quantitative if the data were in numerical form and the analysis was based on this data. Researchers carry out quantitative studies collecting data mainly through surveys and databases (e.g., Compustat or Trinet). Quantitative analyses of these data sources apply some form of descriptive and inferential statistics (e.g., cluster analysis, correlation, *t* test, ANOVA, regression, structural equation modeling, longitudinal data analysis). On the other hand, an article was considered qualitative if the information, which was mainly in textual form, was analyzed employing qualitative techniques. Some strategies for qualitative data collection and analysis are ethnographies, case studies, focus groups, interviews, observations, document analysis, content analysis, and grounded theory. Content analysis is used to transform raw qualitative data (i.e., interview transcripts, responses to open-ended survey questions) into themes or categories.<sup>1</sup>

An article was considered to be a mixed methods study when there were quantitative and qualitative methods. Specifically, to identify whether an article reported a mixed methods study, first for each article the title, abstract, and keywords were examined to determine whether it included words such as *quantitative and qualitative*, *mixed methods*, or other related terms to signify the application of these two methods. Subsequently, the introduction was examined to identify the purpose, research question or questions, or other statements indicating whether the researchers intended to collect both quantitative and qualitative data during their study. Then, the Method section was examined to identify whether researchers discussed the forms of quantitative data and qualitative data. Most mixed methods studies were identified here. Finally, the Results, Discussion, and Conclusion sections were also read.

The author coded all studies to classify them in the four groups. To check for coding consistency, a researcher other than the author coded a random sample of 100 articles. This researcher has experience in quantitative and qualitative research, and the author trained this coder in mixed methods. Training consisted of didactic reading materials and discussion sessions of mixed methods articles.

**Table 1.** Count and Types of *Strategic Management Journal* Articles (1980-2006)

Year	Total Number of Articles	Number of Nonempirical Articles	Empirical Articles			
			Total Number of Empirical Articles	Number of Quantitative Articles	Number of Qualitative Articles	Number of Mixed Methods Articles
1980	24	11	13	8	4	1
1981	28	11	17	12	3	2
1982	30	17	13	11	0	2
1983	28	10	18	12	5	1
1984	26	16	10	7	0	3
1985	23	8	15	11	1	3
1986	35	14	21	17	4	0
1987	44	10	34	27	1	6
1988	57	22	35	27	1	7
1989	51	14	37	30	3	4
1990	53	16	37	27	6	4
1991	64	17	47	37	7	3
1992	60	16	44	30	4	10
1993	57	14	43	35	5	3
1994	60	14	46	35	4	7
1995	49	12	37	30	3	4
1996	66	17	49	38	5	6
1997	64	7	57	50	0	7
1998	70	21	49	38	1	10
1999	63	14	49	39	3	7
2000	69	10	59	39	9	11
2001	61	9	52	38	4	10
2002	71	13	58	42	3	13
2003	78	12	66	54	6	6
2004	67	4	63	51	2	10
2005	70	9	61	47	0	14
2006	63	7	56	43	2	11
Total	1,431	345	1,086	835	86	165

The coding agreement was achieved in 97 articles. Table 1 shows the number and types of articles that appeared in *SMJ* from 1980 to 2006.

From *SMJ*, 345 nonempirical articles (24.1%) were identified and 1,086 articles (75.9%) reported empirical studies. There has been a trend toward greater empirical content in *SMJ* (Ketchen et al., 2008). If we focus on the 1,086 empirical articles, 835 (76.9%) were quantitative studies, 86 (7.9%) were qualitative studies, and 165 (15.2%) were identified as mixed methods studies.<sup>2</sup> Research in *SMJ* is predominantly quantitative, with an important acceptability of mixed methods research. In fact, the number of mixed methods studies is greater than the number of qualitative studies.

To test the relative impact of mixed methods research, a comparison group of monomethod articles was constructed using a matched-pair design. Although matched-pair designs are most common in epidemiology, this design has also been used in economics, management, and strategy (Chaganti, Watts, Chaganti, & Zimmerman-Treichel, 2008; Hambrick & D'Aveni, 1988; Kronborg & Thomsen, 2009; Mezias, 2002; Schnatterly, 2003; Teece, 1981). The comparison group did not include nonempirical articles because the mixed methods literature emphasizes the benefits and

advantages of mixed methods research with respect to empirical articles that use a single approach. The main objective of the matched-pair designs is to match a group to a control group that is as similar as possible to the study group in relevant dimensions, and matching variables must have a significant relationship with the dependent variable. As time since publication has an important effect on the number of citations, the comparison group consisted of randomly selected monomethod articles that were matched by year and issue to the 165 mixed methods studies. Thus, for each mixed methods study, a monomethod article was selected from the same year and issue of *SMJ*. These 165 matched articles were placed into a comparison group, with the intention of representing the typical or average *SMJ* monomethod article.<sup>3</sup>

### *Analysis and Variables*

To check if mixed methods research was a predictor of article impact, a regression analysis was carried out using the 165 mixed methods articles and the comparison group. Article impact was the dependent variable, and it was measured as the total number of citations that had accrued for each article through January 2009. The Social Science Citation Index (SSCI) provided the data. Since articles published up to 2006 have been examined, some studies were still young. Mixed methods research was a dummy variable coded as 1 if the focal article used a mixed methods design and as 0 if it was a monomethod study.

Along with mixed methods research, other characteristics of published articles and author attributes that could affect citations were considered, following previous research (Bergh et al., 2006; Conlon et al., 2006; Judge et al., 2007; Stremersch et al., 2007). Specifically, article age, article length, special issue, author number, number of other articles, and citation count of other articles were included in the analysis.

Because I collected citation counts at one time point and these counts are affected by time since publication, the year an article was published was considered. Older articles have a greater opportunity to accrue citations. Article age was coded to reflect publication year. This variable was coded as 1 for articles published in 2006, 2 for those appearing in 2005, and sequentially to 27 for articles in 1980. The number of pages of each article was used to measure article length. Higher impact articles may be longer than low-impact articles because more substantive scientific contributions will plausibly require greater elucidation than less substantive contributions, and longer journal articles may also signal article quality because journal space is a limited commodity that is allocated via stiff competition (LaBand & Piette, 1994). Special issue was a dummy variable coded as 1 if the focal article appeared in an *SMJ* special issue and as 0 if it did not. Special issues may allow journals to focus attention on emerging topics of interest, granting these topics increased legitimacy and attention, and subsequently articles in these special issues may generate greater scientific progress and have higher impact (Conlon et al., 2006).

Author number was the total number of authors. The number of authors may increase impact through visibility. Because scholars have different opportunities to present their work (e.g., conferences, doctoral programs), the number of opportunities at which the work can be presented is bound to increase with the number of authors (Stremersch et al., 2007). Number of other articles was the total number of articles published by the first or sole author in a list of 20 top management journals (excluding the focal *SMJ* article). The following journals were defined as the top 20 (Bergh et al., 2006; Park & Gordon, 1996; Tahai & Meyer, 1999): *Academy of Management Journal*, *Academy of Management Review*, *Administrative Science Quarterly*, *Business Horizons*, *California Management Review*, *Decision Sciences*, *Harvard Business Review*, *Human Resource Management*, *Interfaces*, *Journal of Business Strategy*, *Journal of General Management*, *Journal of Management*, *Journal of Management Studies*, *Long Range Planning*, *Management Science*, *Organization Science*, *Organization Studies*, *Organizational Dynamics*, *Sloan Management Review*, and *Strategic*

**Table 2.** Means, Standard Deviations, and Correlations ( $N = 330$ )

	M	SD	1	2	3	4	5	6	7	8
1. Article citations	48.10	69.90	1							
2. Article age	9.92	6.80	.181**	1						
3. Article length	18.00	5.22	.174**	-.278**	1					
4. Special issue	0.12	0.33	.316**	-.004	.096	1				
5. Number of authors	2.05	0.90	-.085	-.186**	.034	-.023	1			
6. Number of other articles	8.37	9.72	.232**	.180**	.012	.037	-.007	1		
7. Citation count of other articles	370.46	668	.272**	.128*	.041	.056	-.046	.843**	1	
8. Mixed methods	0.50	0.50	.158**	.000	.270**	.000	-.014	.140*	.121*	1

\*  $p < .05$ , two-tailed. \*\*  $p < .01$  level, two tailed.

*Management Journal*. Finally, citation count of other articles was the summed number of citations for each of the first or sole author's articles published in the top 20 management journals (minus the citations of the focal *SMJ* article). The number of other articles and the citation count of other articles were included to control for the possibility that articles by prolific authors might receive more citations (Conlon et al., 2006). A researcher's past productivity likely results in social prominence and may lead to social credit (Judge et al., 2007; Laband, 1986). This social credit also can be achieved by authors with high prestige owing to having received a high number of citations for their published studies. SSCI was used to measure these last two variables.

## Results

### *The Impact of Mixed Methods Compared With Monomethod Research*

Table 2 reports means, standards deviations, and correlations among the study variables. As can be seen in this table, the variable for citation count was correlated positively to all the study variables except the number of authors. Along with article citations, the variable for mixed methods was positively and significantly correlated to article length, number of other articles, and citation count of other articles.

Table 3 reports the results of regressing article impact onto the study variables. Ordinary least squares regression analysis was used. As citation counts are highly skewed, the values of the dependent variable and citation count of other articles were log-transformed in order to normalize the distributions (Conlon et al., 2006).<sup>4</sup> Model 1 includes the control variables, and Model 2 adds the mixed methods variable. Both the  $F$  statistic in Model 2 and the change in adjusted  $R^2$  from Model 1 to Model 2 are significant. As can be seen in Table 3, the use of a mixed methods approach was a significant predictor of article impact ( $\beta = .144, p = .004$ ). Therefore, mixed methods articles are associated with higher citation rates than are monomethod articles. The mean citation count for the 165 mixed methods studies was 59.13, and the average number of total citations for the comparison group was 37.08. The results show significant differences between mixed methods articles and the comparison group ( $t = 2.897, p = .004$ ). In summary, mixed methods studies tended, on average, to be more influential articles.

Moreover, along with mixed methods research, other variables were significant predictors of citations. As expected, article age ( $\beta = .337, p < 0.001$ ), article length ( $\beta = .286, p < .001$ ), special issue ( $\beta = .220, p < .001$ ), and citation count of other articles ( $\beta = .319, p < .001$ ) positively affected the number of citations an article received. These findings have been obtained in previous research (Bergh et al., 2006; Conlon et al., 2006; Judge et al., 2007; Stremersch et al., 2007). However, the number of authors ( $\beta = -.066$ ) and the number of other articles ( $\beta = -.080$ ) were not significant



**Table 3.** Results of Regression Analysis for Citations ( $N = 330$ )

	Model 1	Model 2	Collinearity Statistic
Variable	Beta	Beta	VIF
Article age	.349***	.337***	1.204
Article length	.328***	.286***	1.209
Special issue	.218***	.220***	1.029
Number of authors	-.066	-.066	1.044
Number of other articles	-.061	-.080	1.984
Citation count of other articles	.311***	.319***	1.980
Mixed methods		.144**	1.094
$R^2$	.359	.378	
Adjusted $R^2$	.345	.362	
$F$	26.181***	24.268***	
Change in adjusted $R^2$		.017**	

Note: VIF = variance inflation factor.

\*  $p < .05$ . \*\* $p < .01$ . \*\*\*  $p < .001$ .

predictors, and the effects found for these two variables run counter to expectations. One reason the articles with more authors may be less influential than those with fewer authors is that authors may be less committed to promoting the article when there are many authors because of a lack of intellectual ownership (Stremersch et al., 2007). With regard to the number of articles, and compared with citation counts of other articles, it seems more important for article impact that authors publish a lower number of articles that have a higher number of citations (Bergh et al., 2006).

### *The Impact of Different Types of Mixed Methods Articles*

To examine the application of mixed methods research in *SMJ* and test whether there are differences in impact between different ways of conducting mixed methods research, a content analysis of the 165 mixed methods articles was carried out. These articles were reviewed to determine several characteristics with regard to the application of mixed methods: the purpose of combining methods and the type of design, taking into account the priority of methods and the sequence of implementation in which methods were used.

A main mixed methods purpose was identified for each article. Greene et al. (1989) identified several purposes for conducting mixed methods research: triangulation (convergence and corroboration of findings from different methods), complementarity (elaboration, enhancement, or clarification of the results from one method with the findings from the other method), development (results from one method to help develop or inform the use of the other method), and expansion (extending the breadth and range of inquiry by using different methods for different inquiry components).

In addition, two key factors that help researchers to design and conduct a mixed methods study are priority and implementation of data collection (Creswell, 2003; Morgan, 1998; Morse, 1991; Tashakkori & Teddlie, 1998). Regarding priority, a researcher can give equal priority to both quantitative and qualitative research, emphasize qualitative more, or emphasize quantitative more. This emphasis may result from research questions, practical constraints on data collection, or the need to understand one form of data before proceeding to the next. Mixed methods designs can therefore be divided into equivalent status designs (the researcher conducts the study using both the quantitative and the qualitative approaches about equally to understand the phenomenon under study) and dominant-less dominant studies (the researcher conducts the study within a dominant method with a small component of the subsidiary method). *Implementation of data collection* refers to the sequence the researcher uses to collect both quantitative and qualitative data. The options consist of gathering

		IMPLEMENTATION	
		Simultaneous	Sequential
PRIORITY	Equal	QUAL + QUAN	QUAL → QUAN QUAN → QUAL
	Different	QUAL + quan QUAN + qual	qual → QUAN QUAL → quan quan → QUAL QUAN → qual

**Figure 1.** Types of mixed methods designs

Note: The main or dominant method appears in capital letters (QUAN, QUAL); the complementary method is in lowercase letters (quan, qual); + = simultaneous design; → = sequential design.

the information at the same time (concurrent or simultaneous designs) or introducing the information in phases (sequential designs).

These two dimensions and their possible combinations lead to the categorization of several mixed methods designs, which may be represented using the notation proposed by Morse (1991, 2003). In her system, the main or dominant method appears in capital letters (QUAN, QUAL), whereas the complementary method is in lowercase letters (quan, qual). The notation “+” is used to indicate a simultaneous design, while an arrow “→” stands for sequential design. Figure 1 shows four groups and nine types of mixed methods designs that can exist using these two dimensions (Johnson & Onwuegbuzie, 2004).

It is important to note that the authors of the original studies did not use these terms, design names, or types. Therefore, the determination of these main characteristics (purpose, priority, implementation, and design) is based on an ex post analysis of their contents. I coded all mixed methods articles. In addition, the same researcher who coded the sample of articles in order to determine article type also coded a random sample of 50 mixed methods studies to determine their characteristics. The resultant interrater reliability, as measured by percentage of agreement, was 87%. A summary of the characteristics of the 165 mixed methods articles is showed in Table 4, along with the number of citations.<sup>5</sup>

A variety of purposes, priorities, implementations of data collection, and designs have been used in the mixed methods studies published in *SMJ*. The most common purpose for combining qualitative and quantitative approaches is development (121 articles, 73.3%). A good example with regard to this purpose is Yeoh and Roth’s (1999) article. These authors pointed out that the variables used in the quantitative analysis (the main part of the article) were determined through a previous qualitative phase based on interviews with product and marketing managers as well as with industry experts. In these interviews, informants were requested to identify the types of capabilities that they felt were critical for future success in the pharmaceutical industry. Thus, the qualitative phase helped carry out the quantitative study. The second purpose used is the clarification or interpretation of the results from one method with the findings from the other method (complementarity). This purpose was used in 21 articles (12.7%; e.g., Kor & Leblebici, 2005; Song, 2002). The use of different methods to assess different facets of a phenomenon (expansion) is the third purpose in importance (15 studies, 9.1%; e.g., Birkinshaw, Braunerhjelm, Holm, & Terjesen, 2006; Hoetker, 2005). Finally, triangulation was found in only 8 papers (4.9%; e.g., Osborne, Stubbart, & Ramaprasad, 2001; Westphal,

**Table 4.** Characteristics of Mixed Methods Studies ( $N = 165$ ) in *Strategic Management Journal* (1980-2006)

Characteristic	n (%)	Citation M (SD)	p	
			t test/ANOVA	Mann-Whitney/ Kruskal-Wallis
Purposes			.691	.089
Development	121 (73.3)	61.93 (74.71)		
Complementarity	21 (12.7)	50.95 (83.59)		
Expansion	15 (9.1)	41.67 (37.83)		
Triangulation	8 (4.9)	70.88 (88.07)		
Priority			.711	.411
Different status	134 (81.2)	60.16 (79.09)		
Equal status	31 (18.8)	54.68 (44.39)		
Implementation			.734	.509
Sequential	150 (90.9)	59.71 (74.44)		
Simultaneous	15 (9.1)	53.27 (68.44)		
Design			.966	.469
Different status/sequential	125 (75.8)	60.78 (78.97)		
Equal status/sequential	25 (15.1)	54.40 (46.37)		
Different status/simultaneous	9 (5.5)	51.56 (85.15)		
Equal status/simultaneous	6 (3.6)	55.83 (38.73)		
Total	165 (100)	59.13 (73.74)		

Boivie, & Chng, 2006). With regard to impact, on average, the results suggest that mixed methods articles that used triangulation had a greater impact, but no significant differences were found.

The most common type of priority in the 165 reviewed studies was different priority. Thus, there was a major or dominant method together with a minor component in 134 studies (81.2%). Moreover, the dominant part in most of these studies was the quantitative one (129 articles). Only in 5 studies was the qualitative approach the dominant method. In 31 studies (18.8%), the quantitative and qualitative parts had an equivalent status. Regarding the impact, mixed methods articles with different status of the quantitative and qualitative parts tend to receive more citations than studies with equivalent status, but differences were not significant.

Sequential implementation of data collection was the most common implementation used. In fact, 150 articles (90.9%) were sequential studies. In 129 of these sequential articles, the first part was the qualitative stage. Moreover, relating implementation of data collection to priority, only in 25 of the 150 sequential studies did the quantitative and qualitative parts have the same importance. In 125 articles, there was a dominant part with sequential implementation (in 109 of which the researchers tended to prioritize the second method over the first method). Of the 165 articles, 15 (9.1%) used a concurrent or simultaneous implementation of data collection. Although on average the results indicate that sequential articles have a higher number of citations than do simultaneous studies, differences were not statistically significant.

With regard to the type of design, the most important group was the dominant/sequential design. In fact, in 125 studies (75.8%) there was a dominant method with a sequential implementation. Within this group, 108 articles used the qual→QUAN design, 16 studies had a QUAN→qual design, 1 study used a quan→QUAL design, and no study was found with a QUAL→quan design. The equivalent status/sequential design group included 25 articles (15.1%), with 21 QUAL→QUAN studies and 4 QUAN→QUAL papers. For the group of dominant/simultaneous studies, with 9 articles (5.5%), 4 used the QUAL+quan design and 5 had a QUAN+qual design. Finally, 6 studies (3.6%) used a QUAL+QUAN design (equivalent status/simultaneous design). Articles with

different status and sequential implementation tend to receive more citations, but the differences were not significant. Moreover, the type of design is related to the mixed methods purpose. Thus, the typical designs related to the purpose of development were the qual→QUAN or QUAL→QUAN designs. In the majority of these studies, the use of a qualitative part before the quantitative one permits development or extension of theory (Sharma & Vredenburg, 1998), identification of the industry-specific independent and dependent variables (Ray, Barney, & Muhanna, 2004), and improvement of the measurement instrument of the quantitative phase (Katsikeas, Samiee, & Theodosiou, 2006). The purpose of complementarity was typically used in QUAN→qual designs, where the qualitative part helped clarify the main quantitative results. Triangulation was related to simultaneous designs, mainly with equal priority (QUAL+QUAN design).

In summary, several types of mixed methods articles showing different ways of conducting mixed methods research were identified, studying whether these characteristics are related to impact. The results showed that differences in practices within mixed methods research did not make any difference to the market acceptance of the article.

### *The Impact of Different Types of Mixed Methods Articles Compared With Monomethod Studies*

All types of mixed methods articles have a higher number of citations than do the group of monomethod studies. To compare within each characteristic (purpose, priority, implementation, and design), if any of the categories or groups (or all of them) are significantly different from the monomethod group, two analyses have been carried out. First, four tests (one for each characteristic) have been carried out, adding the comparison category (the monomethod group) within each characteristic. Using ANOVA, the results show significant differences in purpose ( $F = 2.508, p = .042$ ), priority ( $F = 4.264, p = .015$ ), and implementation ( $F = 4.244, p = .015$ ). In the case of design,  $F = 2.158 (p = .074)$ . I have also used a nonparametric test (Kruskal-Wallis), and there are significant differences ( $p = .000$ ) in the four tests. For each characteristic, I have also checked the differences between each category and the monomethod group using post hoc tests. The results show that there are significant differences only for the purpose of development, for mixed methods studies with different status of the quantitative and qualitative parts, for sequential mixed methods articles, and for combined designs of different status and sequential implementation.

Second, I have created dummy variables for the different characteristics, and I have included them in the regression. The reference group is the group of monomethod studies. As shown in Table 5, the results confirm that mixed methods studies with the purpose of development, with different status regarding priority, with sequential implementation, and for different status/sequential implementation designs tend to receive more citations than do monomethod articles.

### *The Impact Trajectory of Mixed Methods Articles Compared With Monomethod Studies*

Following Bergh et al. (2006), the impact trajectory of mixed methods and monomethod articles was checked. Articles from 1980 through 1999 were considered because this time period provides 10 years or more for tracking the citations of each article after its publication. In this period, 90 mixed methods articles were published. Figure 2 provides the annual average citation counts for these mixed methods articles and the matched monomethod studies, and Figure 3 shows the average cumulative citation counts for both groups of articles. As can be seen in Figure 3, by 5 and 7 years after the publication year, the average citation count of the mixed methods articles reached a level that the monomethod articles reached by their 7th and 10th year, respectively. Therefore, the average

**Table 5.** Results of Regression Analysis by Characteristics of Mixed Methods Studies (Betas)

Variable	Model 1: Purpose	Model 2: Priority	Model 3: Implementation	Model 4: Design
Article age	.343***	.337***	.338***	.337***
Article length	.278***	.287***	.285***	.284***
Special issue	.220***	.220***	.223***	.223***
Number of authors	-.066	-.066	-.068	-.068
Number of other articles	-.076	-.079	-.083	-.079
Citation count of other articles	.323***	.319***	.320***	.319***
Purpose				
Development	.189***			
Complementarity	.031			
Expansion	-.030			
Triangulation	.010			
Priority				
Different status		.141**		
Equal status		.090		
Implementation				
Sequential			.151**	
Simultaneous			.035	
Design				
Different status/sequential				.150**
Equal status/sequential				.078
Different status/simultaneous				.005
Equal status/simultaneous				.052
R <sup>2</sup>	.393	.378	.378	.380
Adjusted R <sup>2</sup>	.371	.360	.360	.357
F	17.952***	21.160***	21.223***	16.962***

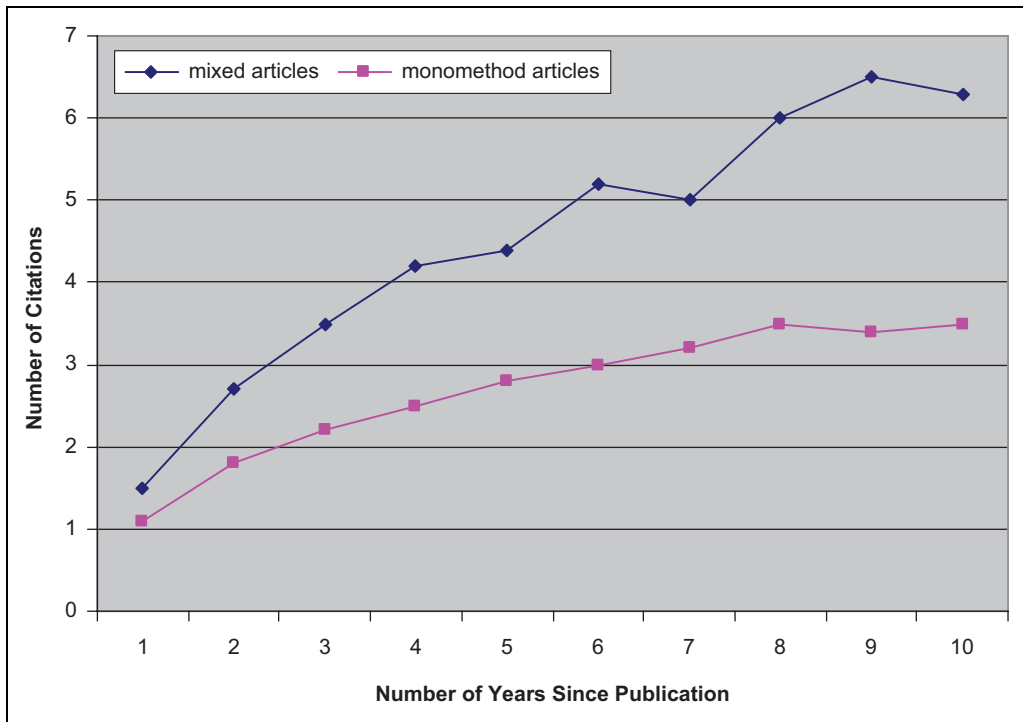
\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

citations received per year and the cumulating sum of citations are both higher for articles reporting studies using mixed methods than for monomethod research designs.

## Discussion

The results suggest that on average mixed methods studies in *SMJ* have a higher impact than monomethod studies. It seems that mixed methods research has attributes that may create more value than that of monomethod articles. Mixed methods research can add insights and understanding that might be missed when only a single method is used, and it can produce more complete knowledge necessary to inform theory and practice (Johnson & Onwuegbuzie, 2004; O’Cathain, Murphy, & Nicholl, 2007). Many researchers have used mixed methods because it seemed intuitively obvious to them that this would enrich their ability to draw conclusions about the problem under study (Mertens, 2005). Morse (2003) pointed out that by using more than one method in a research study, we are able to obtain a more complete picture of the phenomenon. I. Newman, Ridenour, Newman, and DeMarco (2003) suggest that mixed methods have the potential to contribute to addressing multiple purposes and thus to meeting the needs of multiple audiences for the results. These aspects may explain the higher number of citations of mixed methods articles.

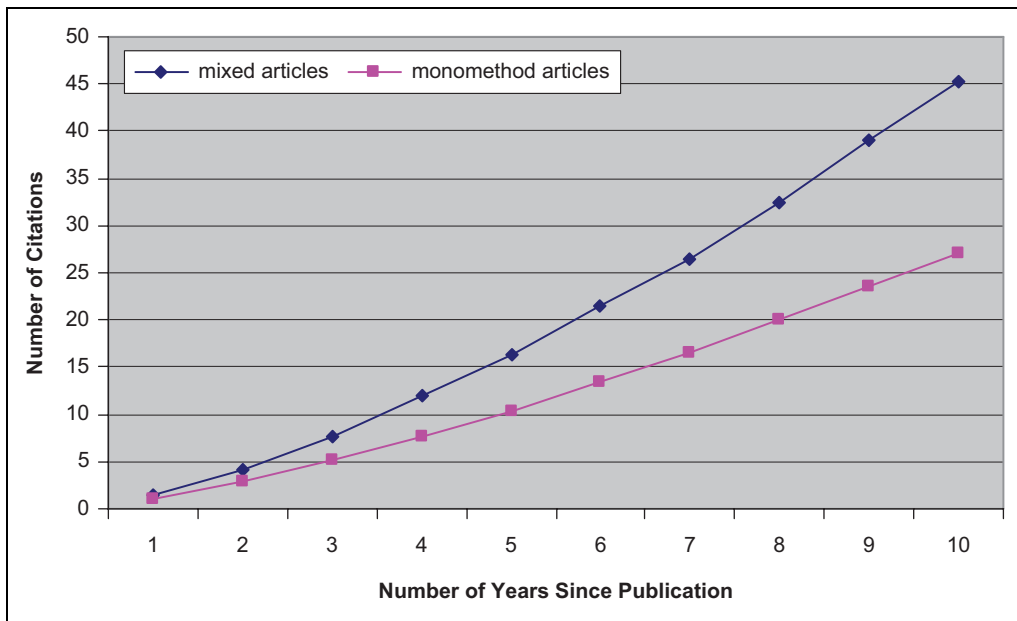
In any case, from a normative point of view, a contingency perspective for research approach selection is usually recommended, which accepts that quantitative, qualitative, and mixed research are all superior under different circumstances, and it is the researcher’s task to examine the specific



**Figure 2.** Annual average citation counts for mixed and monomethod articles

contingencies and make the decision about which research approach, or which combination of approaches, should be used in a specific study. Thus, mixed methods research should be used when the research question suggests that combining quantitative and qualitative approaches is likely to provide superior research findings, and then selecting a mixed methods research design would be appropriate only if the research question dictates it. Therefore, from this contingency approach, some research questions justify either a purely quantitative research design or a purely qualitative research design.

However, despite this contingency perspective, mixed methods research may provide opportunities to answer research questions better, even if those questions are linked to a pure approach. Bryman (2007) pointed out that it is useful to distinguish two discourses concerning the role of mixed methods research in relation to research questions. One is the *particularistic* discourse that reflects the traditional and normative view, whereby mixed methods research is viewed as only appropriate when relevant to the research questions being asked. The other is a *universalistic* discourse, which tends to view mixed methods research as providing better outcomes more or less regardless of the aims of the research. For example, in the field of psychology, Powell, Mihalas, Onwuegbuzie, Suldo, and Daley (2008) examined a qualitative article, and they pointed out that although it was a very well-designed qualitative study based on its rigor and sampling procedures, they believed that if a mixed methods research design had been used, additional information might have been gleaned with the potential to enhance understanding of underlying phenomena. These authors also examined a quantitative study, and they pointed out that the research design likely could have been strengthened if qualitative data also had been collected and analyzed, and such information might have helped the researchers make stronger inferences.



**Figure 3.** Average cumulative citation counts for mixed and monomethod articles

In the strategic management field, taking into account that firm resources and competitive advantages are context specific (Ethiraj, Kale, Krishnan, & Sing, 2005), the task of finding a better answer to quantitative research questions could be made easier and more adequately if, prior to the quantitative inquiry, a qualitative phase were carried out with the aim of acquiring a deeper understanding of that industry context. This would make possible a better knowledge of the strategic resources and competitive advantages in that industry as well as the specific dependent and independent variables, allowing the design of a better measuring instrument and enhancing the interpretation of the results obtained. The qual→QUAN studies, where the main purpose is development, try to achieve that. In these studies, a confirmatory/quantitative question is answered more accurately when a previous qualitative phase has been carried out than when that is not the case.

Our findings with regard to the fact that mixed methods articles receive more citations than do non-mixed methods studies may be explained by the value that these mixed methods articles add to strategy research. A characteristic of strategic management that may influence this relationship is that it is a young field. Management is considered to be a relatively young discipline in comparison to hard sciences and even other social sciences, and strategic management is considered to be one of the younger subspecialties of the management discipline (Boyd, Finkelstein, et al., 2005). The strategy field has grown quickly since its formal inception in the late 1970s (Ketchen et al., 2008). Confidence in the findings of strategy research will increase to the extent that these fields of study are conducted appropriately with regard to design, measurement, analysis, and interpretation of results. Studies focused on strategy have found that there is plenty of room for improvement in these fields. The predominance of the mixed methods purpose of development in strategic management may be due to its early life. A mixed methods study that has developed theory and/or a reliable measurement instrument may be considered a pioneering work, and then this study has a high probability of being cited. Other mixed methods purposes (complementarity, expansion, and triangulation) may also contribute to advance strategy research, and therefore these mixed methods articles may also have a high number of citations.

Two additional arguments may be provided to explain and justify the higher impact and influence of mixed methods research. First, mixed methods research has the potential to reduce some of the problems associated with single methods, incorporating the strengths of both methodologies. In other words, mixed methods research tends to have the best of both worlds. Second, from a resource-based view, the studies reported in mixed methods articles may be considered to be rare, valuable, and difficult to imitate. Their sources of rareness or uniqueness are related to the purposes that mixed methods studies can achieve. The value of this approach is derived from the advantages and benefits pointed out above. Finally, mixed methods research is difficult to imitate in the sense that it is difficult to carry out, taking into account several barriers that must be overcome in order to conduct a mixed methods study. Creswell and Plano Clark (2007) pointed out that conducting mixed methods research is not easy. Mixed methods studies are a challenge because they are perceived as requiring more work and financial resources, and they take more time. Increased time demands arise from the time it takes to implement both aspects of the study (Niglas, 2004). In addition, mixed methods research requires that researchers develop a broader set of skills that span both the quantitative and the qualitative (Creswell, Tashakkori, Jensen, & Shapley, 2003; Tashakkori & Teddlie, 2003b).

Despite the barriers to conducting mixed methods research, the findings show that there is a pay-off for researchers to doing mixed methods studies. The average number of total citations for the mixed methods studies and the monomethod articles was 59.13 and 37.08, respectively, with the use of a mixed methods design being a significant predictor of article impact. Furthermore, the average citations received per year and the cumulating sum of citations are both higher for mixed methods articles than for monomethod research studies. To check the practical significance of the results for researchers, an additional analysis has been carried out. The number of citations of mixed methods articles and the comparison group has also been collected using the Google Scholar (GS) website in July 2010. GS includes citations in books and articles appearing in journals mostly not included in the SSCI database. The average number of total citations for the mixed methods studies and the monomethod articles were 232.44 and 146.79, respectively, and this difference is significant ( $t = 3.015, p = .003$ ). Therefore, although mixed methods studies usually require more resources, work, and time, this extra effort is offset by higher citation rates.

Some design issues must be indicated as limitations of the present study. A matched-pair design was used, and a limitation is that the comparison group is undersampled in relation to the focus group. In addition, another inherent weakness of the matched-pair design is that you never know for sure that you have matched on all of the appropriate variables (Johnson & Christensen, 2004). Moreover, matching may create an unrepresentative sample because the articles in the control group are selected for the purpose of matching rather than for the purpose of being representative of a population. In this regard, the comparison group of monomethod studies was carefully selected through a random process with the intention of representing the typical or average *SMJ* monomethod article, using time from publication as the matching variable.

Moreover, a broad definition of mixed methods research was used. The definition of what mixed method research is has been highly debated and not yet fully resolved. In the present article, following Hart, Smith, Swars, and Smith (2009), the definition of mixed methods was inclusive, and mixed methods was considered to be any research that used both qualitative and quantitative methods in any part of the study. Johnson, Onwuegbuzie, and Turner (2007) also used a broad definition, indicating that mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches for the broad purpose of breadth and depth of understanding and corroboration. These authors indicated a continuum of several types of studies, with the identification of pure mixed, qualitative dominant, and quantitative dominant as the three types that fall into their mixed methods definition. In the present study, there is a predominance of quantitative-dominant mixed methods articles.<sup>6</sup>



The use of a more restrictive definition of mixed methods research might lead to the identification of a smaller number of mixed methods studies. For example, Tashakkori and Creswell (2007) defined mixed methods as research in which the investigator collects and analyzes data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or a program of inquiry. Following restrictive definitions, a mixed methods study should integrate the quantitative and qualitative findings, and it should include a clear discussion and detailed description of methods related to both quantitative and qualitative parts. In the present study, there is not a thorough and detailed description of the qualitative part in many mixed methods studies identified. However, although a “weak” qualitative part was carried out, this qualitative phase led to good insights (Sutton, 1997). For example, interviews with managers using open-ended questions may help to determine the specific key resources in an industry, or to develop the quantitative measurement instrument, or to clarify and illustrate the quantitative results. Using a broad definition, these articles may be considered mixed methods studies. Furthermore, many articles were classified as mixed methods even if the researchers did not explicitly describe a mixed methods design; then, the classifications of the mixed methods studies were based on the judgments of the studies’ attributes as they were described in the articles.

## Conclusion

This article has analyzed the application of mixed methods research in the strategy field. The findings show that mixed methods articles have a greater impact than monomethod studies. Furthermore, a content analysis of the mixed methods articles identified shows that there are several types of studies based on several characteristics (purpose, priority, implementation, and design). Differences in these practices within each characteristic did not make any difference to the market acceptance of the article. Moreover, the literature review of mixed methods in *SMJ* shows that development was the main purpose, different rather than equal method status was the most common type of priority, and sequential implementation was dominant. These types of mixed methods articles showed a higher impact than monomethod articles. In addition, mixed methods research in strategy was described as most commonly being used when the qualitative component is in the service of the main quantitative component. The qualitative part may help develop or extend theory, identify the context-specific variables, improve the measurement instrument of the quantitative phase, and enhance the interpretation of quantitative results.

Regarding directions for future research, the findings of the present study were obtained in a concrete context, a macro-oriented journal. Therefore, this analysis should be also carried out in other organizational fields. One opportunity for future research is to study whether the impact and characteristics of mixed methods are similar in other management fields and specific journals (e.g., comparing macro-oriented journals with micro-oriented and/or broad-focused journals). Furthermore, although relevant variables were examined, other predictors of article impact may be included in the model. In addition, the number of citations at one point in time was collected for each article; it then may be interesting to carry out a longitudinal study in order to analyze the dynamic behavior of citations.

Mixed methods research may influence the methodological rigor of the study and the originality of the idea, and therefore the influence of mixed methods research on article impact may be indirect through these mediating variables. Therefore, although the current study attempts to extend knowledge about the impact and application of mixed methods research in strategic management, much remains to be learned. For example, it would be interesting to analyze the specific contribution of mixed methods research to the originality of the research question and to the improvement of methodological rigor.

Finally, the impact of mixed methods articles has been studied in terms of citations. However, although citation counts are widely used as a measure of article impact, they are far from perfect. Article citations may not always reflect transfer of knowledge or intellectual indebtedness but may, for example, be irrelevant or driven by strategic considerations (e.g., citing a possible reviewer; Baumgartner & Pieters, 2003; Stremersch et al., 2007). If only citation counts are taken into account, an article that is cited in a list with other cited articles would be given the same impact score as an article that develops a complete research study. Therefore, a major limitation of the use of citation counts is that each citation is awarded equal weight. An opportunity for future research would be the analysis of the causes that are driving the higher level of citation of the mixed methods articles. Thus, an interesting study may be the analysis of why and how these mixed methods articles are cited. Golden-Biddle, Locke, and Reay (2006) and Partington and Jenkins (2007) may provide relevant ideas to develop this analysis. Another future study with regard to the comparison between the impact of mixed methods articles and non-mixed methods articles would be a qualitative study interviewing several researchers and asking them whether mixed methods or monomethod studies tend to have a bigger impact on their work and why.

Summer et al. (1990) noted that the openness and creativity of the strategic management field requires an understanding of a variety of research methods. Mixed methods research may play an important role in the use of diverse methods. Increasing our knowledge about the use and main characteristics of this type of research may promote progress in strategic management research.

## Notes

1. Broad definitions of quantitative and qualitative research have been used. Aguinis, Pierce, Bosco, and Muslin (2009), in their review of methods used in the first decade of *Organizational Research Methods*, examined the design, measurement, and analysis aspects of quantitative and qualitative research. See also T. Lee (1999) and Gephart (2004) for definitions, domains, and components of qualitative research and for differences between quantitative and qualitative articles.
2. The list of these 165 mixed methods studies is available from the author on request.
3. In the group of 165 monomethod articles, there are 148 quantitative studies and 17 qualitative articles. To examine whether the group of mixed methods articles is similar to the group of monomethod studies in other aspects along with time since publication, I have used the nine interest group categories of the Strategic Management Society to group the mixed methods articles and the comparison group of monomethod studies into research topic categories. In the group of mixed methods studies, 43 studies were found in the Competitive Strategy category, 42 in Corporate Strategy and Governance, 14 in Global Strategy, 24 in Strategy Process, 23 in Knowledge and Innovation, 3 in the Practice of Strategy, 4 in Entrepreneurship and Strategy, 4 in Strategic Human Capital, and 8 in Stakeholder Strategy. The figures in the group of monomethod articles are 46, 48, 10, 27, 10, 0, 11, 4, and 9, respectively. Therefore, the number of articles is similar (the chi-square test shows that the variables "mixed methods" and "interest groups" are not dependent), although there are more studies in the mixed methods group in the Knowledge and Innovation group. Moreover, there are no significant differences in the number of citations among topics.
4. The dependent variable, total number of citations, could be construed as a count variable. Although the values of a count variable are discrete, in the present study there is not a small number of discrete numbers but a large range of variation that is reasonably wide in order to be used as dependent variable in a standard regression model. In fact, prior studies (Bergh et al., 2006; Conlon et al., 2006) have used ordinary least squares. A negative binomial regression is also adequate to analyze count data using the untransformed variable. I have used the negative binomial regression, and the results are similar with regard to the significance of independent and control variables.
5. The characteristics of every mixed methods article are available from the author on request.
6. There are 129 mixed methods articles that are QUAN dominated (108 qual→QUAN, 16 QUAN→qual, and 5 QUAN+qual). In the remaining 36 articles, there are 5 studies that are QUAL dominated (4 QUAL+quan

and 1 quan→QUAL) and 31 studies where the QUAN and QUAL parts have the same status (21 QUAL→QUAN, 6 QUAL+QUAN, and 4 QUAN→QUAL). To check whether there are differences in citations between the group of the 129 articles dominated by the QUAN part and the remaining 36 articles, a *t* test was carried out. The results show that the mean citation count for the 129 QUAN-dominated mixed methods studies was 58.13, and the average number of total citations for the remaining 36 studies was 62.69. This difference is not significant ( $t = -0.327, p = .744$ ).

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### **Bio**

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