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Uncovering the intellectual development of the *Journal of Organizational Change Management*

A knowledge-stock and bibliometric study, 1995-2011

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Abstract

Purpose – The purpose of this study is to identify the documents which have had the greatest impact on the *Journal of Organizational Change Management* (*JOCM*) articles and to analyze the evolution of the intellectual structure of the journal.

Design/methodology/approach – A knowledge-stock analysis is performed to assess major trends of the *JOCM*. A bibliometric study is then conducted thanks to citation and co-citation analysis about the documents which are the most cited by the articles published in the *JOCM* (between 1995 and 2011).

Findings – Through the results of their analysis, the authors: describe the growing stock of knowledge of the *JOCM* over time; identify the documents having the strongest influence on the *JOCM* articles; and pinpoint the evolution of the intellectual structure of the journal.

Research limitations/implications – Although the sample of retained articles seems representative of the *JOCM* publication efforts, the data set presents some limitations. There are also some limits inherent to the research design and to the bibliometric methods. The intention of the present research is to give a quantitative overview of the intellectual evolution of the journal.

Practical implications – Grasping the intellectual development of the *JOCM* enables researchers and practitioners to better understand how issues are being approached by authors who publish in this journal. It also stimulates the scholarly debate.

Originality/value – This knowledge-stock and bibliometric study is the first to be concerned with the *JOCM*.

Keywords *Journal of Organizational Change Management*, Knowledge-stock analysis, Citation analysis, Co-citation analysis, Intellectual development, Journals, Knowledge management, Serials

Paper type Research paper

Introduction

Considering that organizational change management (OCM) is one of the highest stakes for organizations (Lüscher and Lewis, 2008) and that "there is a large and growing literature on the causes, consequences, and strategies of organizational change" (Herscovitch and Meyer, 2002, p. 474), a short break is needed in order to be able to see where we are now and where we come from.

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The 25th anniversary of the *JOCM* is the occasion to grasp the intellectual progress of this journal in order to provide constructive elements for its further development. Somehow, a part of the OCM research intellectual development can also be analyzed. The articles published in the *JOCM* represent an interesting fraction of OCM research efforts as this peer-review journal is one of the leaders in the discipline with a rejection ratio of 92-94 percent of submitted papers[1] Moreover, a significant part of these articles deal with OCM (see Figure 1). Eventually, when looking at the journals specifically addressing the question of change management, the *JOCM* appears to be the most appropriate source of data. Table I shows indeed that the two other ranked journals deal with change through the lens of different social sciences like "industrial organization" (*Industrial and Corporate Change*) or "innovation and entrepreneurship" (*Technological Forecasting and Social Change*). In 2011, the *JOCM* is the only scientific journal which deals with organizational change management while being included both in the Association of Business Schools[2] ranking and in the Journal Citation Reports[3].

This research proposes a single-journal analysis as a first step towards a full bibliometric study of OCM, which would require a multiple-journal analysis. While for instance the domain of business ethics has a clear leading journal which "plays an important role in setting the research agenda for the entire field" (Calabretta *et al.*, 2011, p. 499), OCM seems to be addressed in too many different journals. As this brings major methodological impediments hindering a multiple-journal bibliometric study about OCM (presented in the coming literature review), the choice is made here to focus on a single journal.

Conceptual papers about the topic of OCM have mainly turned out to be literature reviews (Armenakis and Bedeian, 1999; Armenakis and Harris, 2009; Buchanan *et al.*, 2005; By, 2005; Oreg *et al.*, 2011; Van de Ven and Poole, 1995; Van de Ven and Sun, 2011; Weick and Quinn, 1999) or meta-models (Young, 2009). To some point, these studies might have been influenced by the subjective views of their authors (Ramos-Rodriguez and Ruiz-Navarro, 2004) and have not yet been complemented with a bibliometric study. Indeed, bibliometric studies "have the advantages of

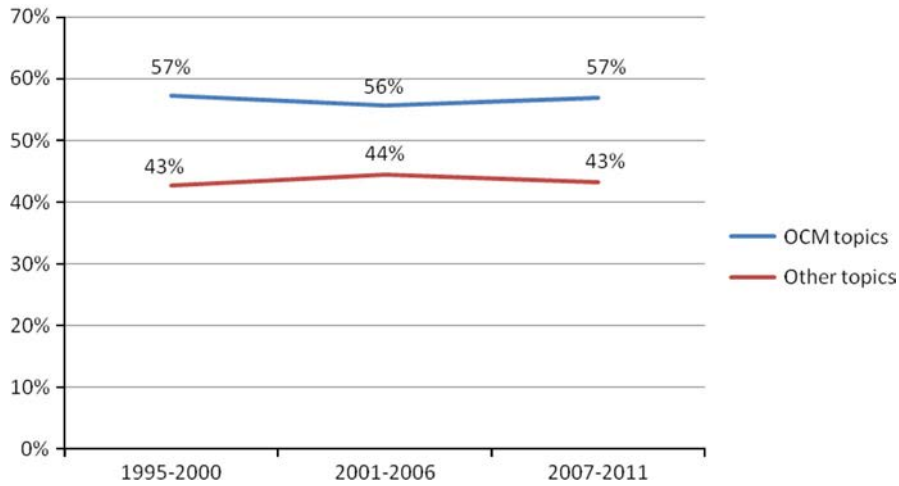

Figure 1.
Evolution of articles' topics in the *JOCM*

Table I.
Scientific journals addressing change management

Name of the journal	Category (ABS ranking 2011)	ABS ranking 2011	Journal Citation Reports® data for 2011 (JCR-WEB version 4.5[a]) Total cites to the journal	Impact factor	5-year impact factor	Immediacy index	Published articles in the year	Cited half-life	Eigenfactor® metrics[b] (2011) Eigenfactor ® score	Article influence score
Competition and Change	–	–	–	–	–	–	–	–	–	–
Entrepreneurship Innovation and Change	–	–	–	–	–	–	–	–	–	–
Industrial and Corporate Change	Social sciences	2	1868	1.372	2.109	0.418	55	9.1	0.00448	1.065
International Journal of Knowledge, Culture and Change Management	–	–	–	–	–	–	–	–	–	–
Journal of Change Management	–	–	–	–	–	–	–	–	–	–
Journal of Organisational Transformation & Social Change	–	–	–	–	–	–	–	–	–	–
Journal of Organizational Change Management	Organizations study	3	740	0.744	0.959	0.067	45	8.9	0.00122	0.303
Learning Organization	–	–	–	–	–	–	–	–	–	–
Strategic Change	–	–	–	–	–	–	–	–	–	–
Technological Forecasting and Social Change	Social sciences	2	2212	1.709	2.214	0.496	131	6.3	0.00444	0.532

Notes: "–" means there is no available data; [a] JCR Web is the online application of the Journal Citations Report; [b] The Eigenfactor score calculation is based on the number of times articles from the journal published in the past five years have been cited in the JCR year, but it also considers which journals have contributed these citations so that highly cited journals will influence the network more than lesser cited journals. References from one article in a journal to another article from the same journal are removed, so that Eigenfactor scores are not influenced by journal self-citation. The Article Influence determines the average influence of a journal's articles over the first five years after publication. It is calculated by dividing a journal's Eigenfactor Score by the number of articles in the journal, normalized as a fraction of all articles in all publications. This measure is roughly analogous to the 5-Year Journal Impact Factor in that it is a ratio of a journal's citation influence to the size of the journal's article contribution over a period of five years. The mean Article Influence Score is 1.00. A score greater than 1.00 indicates that each article in the journal has above-average influence. A score less than 1.00 indicates that each article in the journal has below-average influence. (http://admin-apps.webofknowledge.com/JCR/help/h_eigenfact.htm). See www.eigenfactor.org/ for more information

quantifiability and objectivity" (Nerur *et al.*, 2008, p. 320). They enable the identification of the most impacting documents (through a citation analysis) and the pinpointing of the linkages between them (through a co-citation analysis).

Therefore answering to the call for a bibliometric research, the present paper proposes both a citation analysis and a co-citation analysis of the articles published in a major journal mainly dealing with OCM: the *JOCM*. The period covered by this research is the last 17 years (1995-2011).

Ramos-Rodriguez and Ruiz-Navarro (2004, p. 981) recall that bibliometrics refer to "the mathematical and statistical analysis of patterns that appear in the publication and use of documents (Diodato, 1994)". The field of bibliometrics has become well established and has known recent developments regarding its practice (Thelwall, 2008). Nevertheless, the citation analysis remains one of the basic techniques (Moed, 2009) and relies on the hypothesis that frequently cited documents are particularly influential as they represent the basis for the development of researchers' thought (Culnan, 1987; Moed, 2005). Co-citation analysis is also a widely used technique (Üsdiken and Pasadeos, 1995) and focus on the documents which have been cited together (co-cited) in the same paper. The pairs of documents are then interpreted as having a similar content (McCain, 1990; White and McCain, 1998). Boyack and Klavans (2010, p. 2390) note that "Co-citation analysis was adopted as the *de facto* standard in the 1970s, and has enjoyed that position of preference ever since".

The present article brings significant contribution not only because it is the first to apply knowledge-stock, citation and co-citation analysis to the *JOCM*, but also because it completes already existing qualitative studies about OCM research.

The paper is divided into four parts. The first is a review of bibliometric studies; the second details the methodology; the third lists and discusses the results; the fourth part presents the conclusion of the study.

Literature review

Several bibliometric studies can be reported in the various fields of management sciences (see Table II).

While most bibliometric works use both citation and co-citation analysis, some of them propose a deep citation analysis (Baumgartner, 2010; Tahai and Meyer, 1999). Co-citation methods vary from absolute co-citation counts (Gregoire *et al.*, 2006) to Pearson's correlation coefficients (Calabretta *et al.*, 2011; Georgi *et al.*, 2010) and principal component analysis techniques (Charvet *et al.*, 2008; Fernandez-Alles and Ramos-Rodriguez, 2009; Ponzi, 2002). Although the majority of citation and co-citation analysis focus on the most cited documents, some of them target the most cited authors (Baumgartner, 2010; Nerur *et al.*, 2008) or keywords (Artto *et al.*, 2009).

To our best knowledge, no bibliometric study has been done on OCM research. It might be due to the main methodological impediments inherent to the analysis of its intellectual structure. Contrary to the data sources of Ramos-Rodriguez and Ruiz-Navarro (2004) or Calabretta *et al.* (2011), a single journal cannot stand for the whole discipline: a multiple-journal bibliometric study looks unavoidable. Contrary to the multiple-journal analysis of Backhaus *et al.* (2011) on BtoB marketing, there is no clearly identifiable group of peer-reviewed journals publishing around OCM. The retained pool of journals would be debatable.

Studies	Field analyzed
Neeley (1981)	Management and social sciences
Culnan (1987)	Information systems management
Culnan *et al.* (1990)	Organizational behavior
Hoffman and Holbrook (1993)	Consumer research
Üsdiken and Pasadeos (1995)	Organization studies
Pasadeos *et al.* (1998)	Advertising
White and McCain (1998)	Information science
Tahai and Meyer (1999)	Management
Pilkington and Liston-Heyes (1999)	Production and operations
Ponzi (2002)	Knowledge management
Baumgartner and Pieters (2003)	Marketing
Gregoire *et al.* (2006)	Entrepreneurship
Charvet *et al.* (2008)	Logistics
Nerur *et al.* (2008)	Strategic management
Artto *et al.* (2009)	Project management
Fernandez-Alles and Ramos-Rodriguez (2009)	Human resource management
Lindquist and Smith (2009)	Accounting
Baumgartner (2010)	Consumer research
Durisin *et al.* (2010)	Product innovation research
Georgi *et al.* (2010)	Supply chain management
Ma (2010)	Business ethics
Backhaus *et al.* (2011)	Business-to-business marketing
Calabretta *et al.* (2011)	Business ethics
Michael Hall (2011)	Tourism management
Shilbury (2011)	Sport management
Giannakis (2012)	Supply chain management

Table II.
Bibliometric studies in management

Indeed, OCM can be addressed in many famous peer-reviewed journals like *The Academy of Management Journal*, *The Academy of Management Review*, *Administrative Science Quarterly*, *Management Science*, *Industrial and Corporate Change*, *Journal of Change Management*, *Journal of Organizational Change Management*, *Journal of Operations Management*, *Strategic Management Journal*, etc. Other methodological challenges are likely to arise while using bibliometrics on OCM because a single database may not provide all necessary data in the same format for all the retained journals and a tedious work would be required to filter the articles about OCM.

The present research is therefore a first step prior to an OCM bibliometric study. To our knowledge, no bibliometric study has yet been done on the *JOCM*. This gap is intended to be filled by the present paper. The choice has been made to provide a knowledge-stock analysis, followed by a citation analysis and a co-citation analysis of the most cited-documents in the *JOCM* articles, over the last seventeen years.

Methodology

The data

The data for the present study are research articles from a peer-reviewed journal. This decision can be justified by the fact that a journal proposes a "certified knowledge" which has been critically reviewed by fellow researchers (Ramos-Rodriguez and Ruiz-Navarro, 2004, p. 982).

The *JOCM* turns out to be an appropriate source to assemble a representative sample of academic articles close to OCM research. Several reasons have led to this consideration. First, this journal regularly publishes articles about OCM, just like its title suggests (see Figure 1 in the results part). Second, it benefits from a strong reputation and is considered as one of the leaders in its field with a rejection ratio of 92-94 percent of submitted papers[1]. Third, as stated in the introduction, the *JOCM* is the only journal addressing change management through the organizational lens while being at the same time ranked both in the Association of Business School rankings and in the Journal Citations Report. Fourth, its articles are accessible in the kind of databases which is needed for a bibliometric study, that is to say providing a citation index. Lastly, this journal proposes unrestricted contents as it fosters critical and new approaches to OCM as well as innovative research methods (Magala, 2012).

The database called Social Science Citation Index (SSCI)[4] provides the references of the *JOCM* articles and authorship information starting 1995: anterior data could not be taken into account. Furthermore, the year 1995 corresponds to the first OCM literature review in which four basic organizational change types have been identified (Van de Ven and Poole, 1995). Indeed, Van de Ven and Poole (1995, p. 511) "contend that all specific theories of organizational change and development can be built from one or more of the four basic types". This statement indicates that OCM research has reached in 1995 such a degree of production that it needed to be structured. A bibliometric study starting from this point thus appears relevant.

Since 1995 and until 2011, 637 articles have been published in the *JOCM*. Editorial material, book reviews and corrections are not considered in this study in order to focus on "typical research articles". The number of articles annually published in the *JOCM* has progressively increased. Since 2006, and except in 2009, more than 40 articles are published every year.

In order to monitor the evolution of both the most impacting documents and the intellectual structure in the *JOCM* articles, the reviewed period has been split into three consecutive sub-periods of six or five years. Each period contains a similar number of papers (192 research articles for 1995-2000, 232 for 2001-2006 and 213 for 2007-2011 – see Table III in the results part).

Table III.
JOCM descriptive statistics for the three sub-periods

	1995-2000	2001-2006	2007-2011
1. Volume descriptives			
Articles per volume (mean)	32.0	38.7	42.6
Volumes per year (mean)	1	1	1
2. Issue descriptives			
Articles per issue (mean)	5.3	6.4	7.1
Sole-authored articles per volume (mean)	17.8	17.3	17.2
Average percentage of sole-authored articles per volume (%)	0.6	0.4	0.4
Issues per year (mean)	6	6	6
3. Article descriptives			
Authors per article (mean)	1.7	1.8	1.9
References per article (mean)	37.4	41.6	56.4
Total number of articles published	192	232	213

Bibliometric methods are usually divided into two kinds: the ones measuring impact indicators (like citation analysis) and the ones measuring link indicators (like co-citation analysis). The impact indicators provide insights into the influences of research documents while the link indicators identify the relations between researchers and research fields (McCain, 1990).

The present research addresses both kinds of indicators. The first part of the study proposes a short knowledge-stock analysis of *JOCM* articles. The second part consists in a citation analysis, which identifies the 40 most influential works in the *JOCM* articles and their change in influences. The third part is a co-citation analysis of these most influential works, aiming at showing the intellectual maps of the *JOCM* articles over the studied period (1995-2011) and over the sub-periods.

Citation analysis

Based on the premise that the most cited articles are the most influential (Culnan, 1987; Moed, 2005), the present citation analysis identifies the most prevailing documents in the *JOCM* articles and the evolution of their impact throughout the last seventeen years. The focus on the most-cited documents aims at reaching objectivity. For example, objectivity could have been lower if the analysis was based on keywords because their selection is more likely to be biased (Calabretta *et al.*, 2011).

The data have been extracted from SSCI through the software Thomson Reuters Web of Science/Web of Knowledge (version 5.7) on 7 April 2012. This source of bibliometric data is appropriate for the current study as it provides all the references used in the *JOCM* articles and authorship information since 1995. All research articles published between 1 January 1995 and 31 December 2011 are ticked and extracted in a text file (excluding editorial material, book reviews and corrections). For citation and co-citation analysis, the software used in the present study is BIBEXCEL, version 2012-04-23 (Persson *et al.*, 2009).

On the Thomson Reuters Web of Science/Web of Knowledge database, a scholar can select the *JOCM* articles for which he wants the quoted references and extract them quickly in a text file. Although the process is convenient, there are some mistakes in the references which need to be manually corrected. For instance, before being processed into BIBEXCEL, the data retrieved from the SSCI need to be encoded again. Indeed, the names of the authors and of the publications can be misspelled or formatted in different ways. The names of authors and publications must then be standardized in order to be counted as identical[5].

Co-citation analysis

Thanks to the citation analysis, a co-citation analysis is performed. The co-citation analysis "aims at displaying the structural and dynamic aspects of scientific research" (Cobo *et al.*, 2011, p. 1382). Its principle consists in forming and counting all possible pairs of documents which are cited in a single article. It then provides absolute co-citation counts. These absolute co-citation counts enable the creation of an intellectual map (McCain, 1990; White, 2003) which gathers the co-cited documents into clusters.

These clusters illustrate the "invisible colleges" of scholars. As Calabretta *et al.* (2011, p. 499) put it: "It is widely accepted that researchers tend to gather in "invisible colleges" – informal networks where common questions are examined with common

frames (Burt, 1977; Crane, 1972; Price, 1963)". Among the different clustering solutions available, (co-citation analysis, bibliographic coupling, or a hybrid approach), the co-citation analysis seems to be the simplest one to implement. Moreover, Boyack and Klavans (2010) have shown that the accuracy of the results for each tool remains alike.

Results and discussion

Knowledge-stock analysis: JOCM *characteristics*

The first outcome of the current research is the knowledge-stock analysis from which some descriptive statistics are derived. On the Web of Knowledge database, interesting data can be found about the *JOCM* and its authorship. Combined with the following citation and co-citation analysis, the knowledge-stock analysis gives a thorough overview of the *JOCM* scientific community and its intellectual efforts.

Table III gives a quantitative depiction of the *JOCM* characteristics (per volume, issue and article) over the three sub-periods under study. It shows first that the number of volumes and issues yearly published has remained identical. Yet, there has been a steady increase in the average number of articles per volume: 32 for the first sub-period (1995-2000), 38.7 for the second (2001-2006) and 42.6 for the third (2007-2011). The number of articles per issue has also been proportionally growing.

Moreover, Table III illustrates the increasing average number of authors per article (from 1.7 in 1995-2000 to 1.9 in 2007-2011). Meanwhile, the average percentage of sole-authored articles per volume has slightly decreased from the first sub-period (0.6) to the last ones (0.4).

Table III also shows that the average number of references per article has been constantly increasing over the three sub-periods: 37.4 for the first sub-period (1995-2000), 41.6 for the second (2001-2006) and 56.4 for the third (2007-2011). This increase in the number of articles published in the *JOCM* is parallel to the growing body of literature in OCM research. This growth can partly be due to an easier spreading of the scientific knowledge through two main technological changes in scholarly publishing: the computerization of the printing process and the conversion of the entire publishing cycle to the internet (Thelwall, 2008). The rise of the average number of references per article can also be interpreted as a sign of maturation as "new research is increasingly based on solid foundations" (Calabretta *et al.*, 2011, p. 506).

Figure 2 presents three diagrams illustrating the national origins of *JOCM* authors' institutions for each of the sub-periods under study. There has been a constant and increasing diversification in the origins of *JOCM* authors' institutions. The scholars from American institutions have been providing an outstanding contribution to the journal (61 percent of published articles over 1995-2000, 31 percent over 2001-2006 and 21 percent over 2007-2011). Authors from UK institutions have also been significantly represented, even progressively becoming the top publishing group over 2007-2011 (25 percent of published articles). Meanwhile, scholars belonging to Australian and Dutch institutions have been bringing a regular and strong contribution as well (from 6 percent to 14 percent of published articles, depending on the sub-period).

The data shown in Figure 2 should be crossed with the facts that both the number of yearly published articles and the average number of authors per article have increased over 1995-2011 (see Table III). The origins of the authors publishing in this journal have also become more variegated. Altogether, it might mean that the scientific quality of the journal has been enhanced.

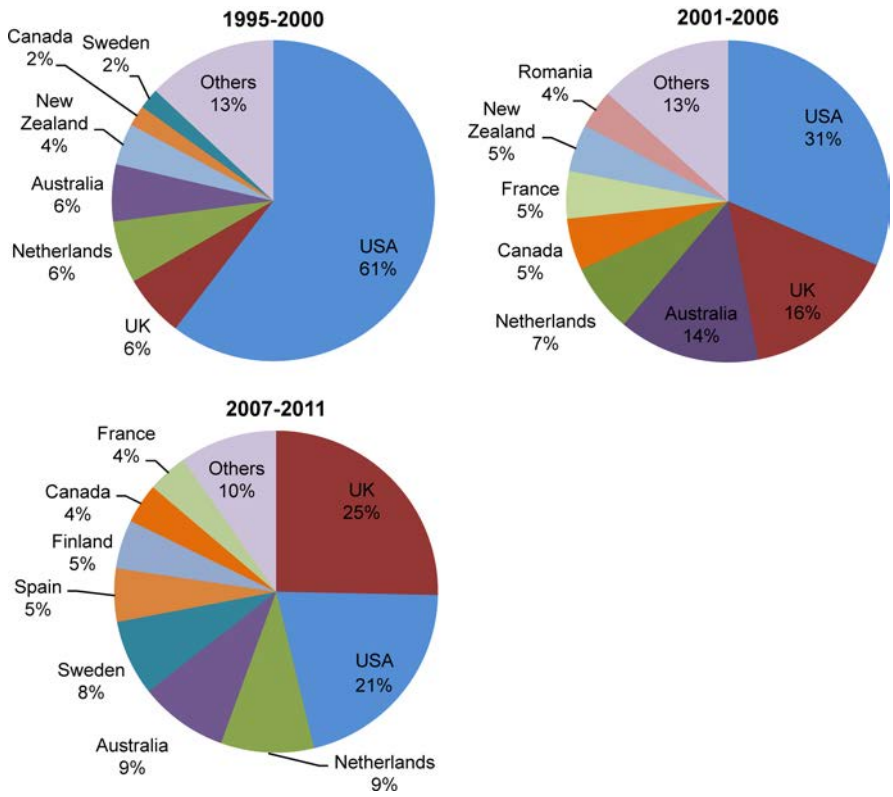

Figure 2.
The country of *JOCM* authors' institutions

Table IV shows the name of the institutions which have been contributing the most to the *JOCM* over 1995-2011. Apart from the Alexandru Ioan Cuza University (Romania), the top contributing institutions to the journal belong to the USA, Northern Europe and Oceania. Although Figure 2 shows that authors working in the US have often been contributing to the journal, they seem to rarely come from the same institution: there is only one American university in Table IV.

Institution	Articles
Erasmus University Rotterdam (The Netherlands)	18
University of Duisburg-Essen (Germany)	13
University of Technology Sydney (Australia)	11
New Mexico State University (USA)	9
Alexandru Ioan Cuza University (Romania)	8
Stockholm School of Economics (Sweden)	8
University of Waikato (New Zealand)	8
Newcastle University (UK)	7
University of Sydney (Australia)	7
University of Western Sydney (Australia)	7
Victoria University of Wellington (New Zealand)	7

Table IV.
Institutions contributing most frequently to the *JOCM* (1995-2011)

Figure 1 presents the evolution of articles' topics in the *JOCM* over the three sub-periods. Articles dealing with OCM have a slight majority on the overall period, representing approximately 57 percent of all the journal articles. This proportion has remained stable over time.

Figure 3 aims at illustrating the very issues addressed by the *JOCM* articles dealing exclusively with OCM topics. These articles are classified according to the typology of Armenakis and Bedeian (1999). This typology has been preferred to the one of Van de Ven and Poole (1995) because it seems more inclusive. It has been necessary to use an existing framework because a new work of typology, if it was to be complete (Doty and Glick, 1994; Nag *et al.*, 2007), would deserve to be developed in a distinct article. The categories of Armenakis and Bedeian (1999) are the following:

- change content;
- change context;
- change process; and
- change outcomes.

The category change contents gathers articles focusing "on the substance of contemporary organizational changes [. . .] [like] the targets of both successful and unsuccessful change efforts" (Armenakis and Bedeian, 1999, p. 295). The second category change context includes research addressing "forces or conditions existing in an organization's external and internal environments" (Armenakis and Bedeian, 1999, p. 295). The third theme change process regroups articles about "actions undertaken during the enactment of an intended change [. . .] and the nature of employee responses to such efforts" (Armenakis and Bedeian, 1999, p. 295). The last category change outcomes regards articles which focus on "criterion variables commonly assessed as outcomes in organizational change [. . .] [like] affective and behavioral criteria" (Armenakis and Bedeian, 1999, p. 295).

The classification of each of the *JOCM* articles has been realized in two steps. After having read the abstracts, the first author proposes a classification to the second author. Then, a review and a discussion with the second author adjust the attributed

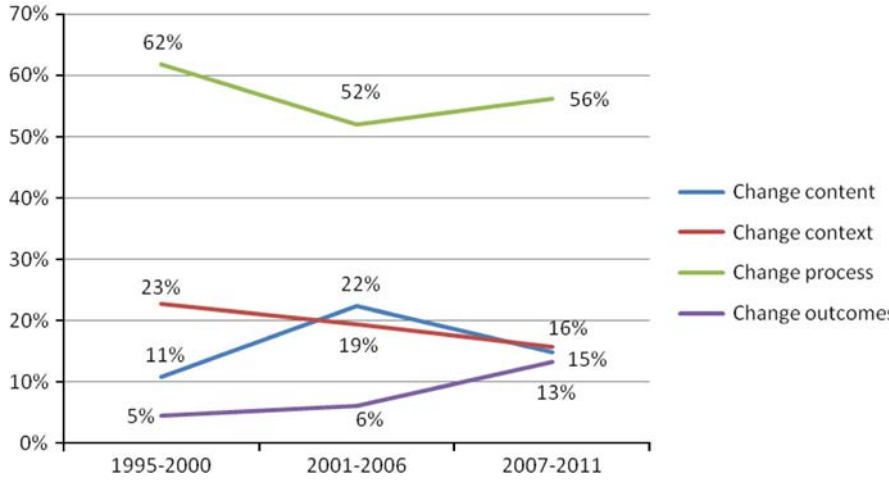

Figure 3.
Evolution of the topics addressed by the OCM articles, in the *JOCM*

categories. The purpose of such a process is to decrease potential subjectivity in the categorization. The debate has sometimes been long, as several articles may correspond to multiple categories at once. The choice has been made to always keep the category which corresponds to the very primary focus of the article.

Figure 3 shows that topics about change process are high on the agendas of the *JOCM* authors who decide to publish about OCM. The articles dealing with change process indeed represent from 62 percent to 52 percent of the OCM articles, depending on the sub-period. This observation corroborates a previous OCM literature review (By, 2005): OCM literature has been focusing on the way change should be conducted.

Meanwhile, the proportion of change content articles has doubled from the first to the second sub-period before decreasing from the second to the third (11 percent in 1995-2000, 22 percent in 2001-2006 and 15 percent in 2007-2011). The percentage of change context articles has constantly dropped from 23 percent in 1995-2000 to 16 percent in 2007-2011. On the overall period, the proportions of change process and change context articles have been decreasing whereas the proportions of change content and change outcomes articles have increased. The change outcomes articles, which were standing for 5 percent or 6 percent over the two first sub-periods, have known a strong increase and have been representing 13 percent of OCM articles over 2007-2011. The assessment of OCM success has indeed been identified as a great issue in OCM research (Armenakis and Bedeian, 1999; Armenakis and Harris, 2009). For instance, the impact of OCM on employee attitudes has lately led to some promising discussions (Bouckenooghe, 2010; Choi, 2011; Ford *et al.*, 2008; Oreg *et al.*, 2011).

Figure 4 illustrates the evolution of articles' research goal in the *JOCM* over the three sub-periods. While most articles were conceptual over the first sub-period (53 percent over 1995-2000), there has been a strong shift towards more empirical study since 2001. Indeed, empirical articles have been representing 54 percent percent of the overall *JOCM* articles over 2001-2006 and 69 percent over 2007-2011.

Figure 5 shows that the evolution of articles' research goal is similar when exclusively considering articles addressing OCM. The shift towards empirical study is even stronger and empirical articles have been predominant in all sub-periods (53 percent over

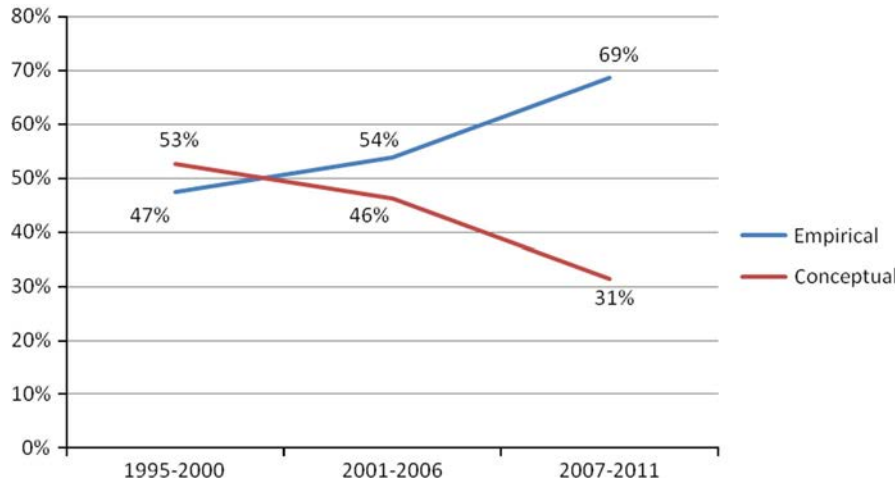

Figure 4.
Evolution of articles' research goal in the *JOCM*

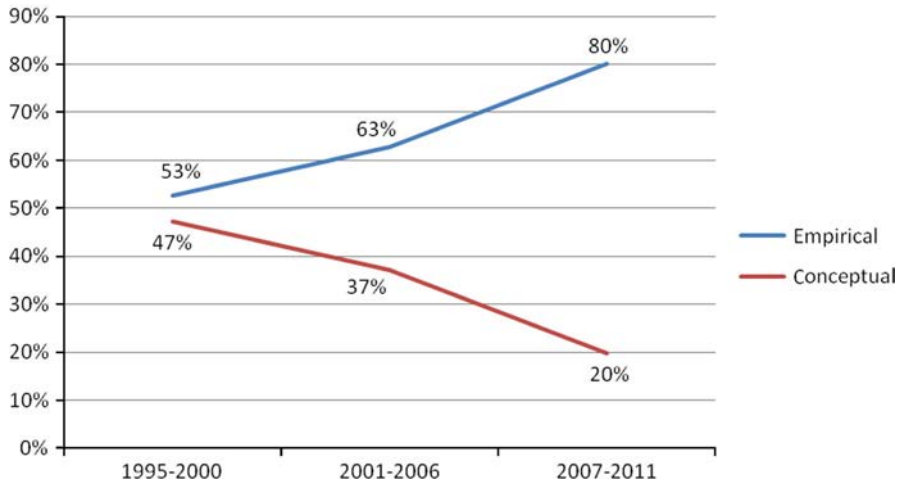

Figure 5.
Evolution of OCM articles' research goal in the *JOCM*

1995-2000, 63 percent over 2001-2006 and 80 percent over 2007-2011). The call of Bartunek (2008) for more empirical material in OCM research seems to have been taken into account. Empirical material is likely to boost research efforts in order to better uncover the link between organizational change management practices and their effectiveness (Buchanan *et al.*, 2005; Doyle *et al.*, 2000) (Buchanan *et al.*, 2005; Doyle *et al.*, 2000).

Results of the citation analysis

A total of 40 documents are considered to be the most influential works in the *JOCM* as they are present in at least 2 percent of the 637 *JOCM* articles published over the 1995-2011 period. Table V presents the raw and the relative citation frequencies of these 40 most cited documents on the overall period and broken down into the three sub-periods. The 2 percent threshold has been retained in order to present sufficient and clear information.

The citation analysis brings thoughtful elements about how knowledge is generated and transferred. According to Backhaus *et al.* (2011, p. 942), knowledge transfer processes can be evaluated through "(1) citing behaviors, (2) origins of the references cited, and (3) characteristics of the key references".

First and regarding the citing behavior, the average number of references gives an insight on how the knowledge in *JOCM* has been spread over time. There are 29,066 references to 22,558 different documents in 637 articles, giving an average of 45.6 references per article for the overall period (1995-2011).

When analyzing Table V, a first remark can be done about the most impacting documents: they have a low proportion of citation. Indeed, the percentage of citation of a same document in the 637 articles ranges from 2 percent to 9.3 percent. The *Strategic Management Journal* (Ramos-Rodriguez and Ruiz-Navarro, 2004) reports a higher range in a similar citation analysis (4.3 percent to 30,6 percent, for the 50 most cited documents in 870 articles over 20 years). Fernandez-Alles and Ramos-Rodriguez (2009) show in their citation analysis that the *Human Resources Management* journal reports a lower range (1.5 percent to 6.2 percent, for the 74 most cited documents in 551 articles over 20 years).

Rank	Document cited	1995-2011 ($n = 637$)	%	1995-2000 ($n = 192$)	%	2001-2006 ($n = 232$)	%	2007-2011 ($n = 213$)	%
1	Senge (1990)	59	9.3	29	15.1	13	5.6	17	8.0
2	Weick (1995)	45	7.1	7	3.6	14	6.0	24	11.3
3	Morgan (1986)	40	6.3	22	11.5	10	4.3	8	3.8
4	Weick (1979)	37	5.8	20	10.4	12	5.2	5	2.3
5	Argyris and Schön (1978)	33	5.2	20	10.4	8	3.4	5	2.3
6	Schein (1985)	30	4.7	14	7.3	6	2.6	10	4.7
7	Boje (1995)	28	4.4	6	3.1	12	5.2	10	4.7
8	Glaser and Strauss (1967)	28	4.4	8	4.2	13	5.6	7	3.3
9	Boje (1991)	27	4.2	11	5.7	7	3.0	9	4.2
10	Boje (2001)	27	4.2	0	0.0	12	5.2	15	7.0
11	Peters and Waterman (1982)	27	4.2	12	6.3	6	2.6	9	4.2
12	Eisenhardt (1989)	25	3.9	2	1.0	5	2.2	18	8.5
13	Lewin (1951)	24	3.8	9	4.7	6	2.6	9	4.2
14	Berger and Luckmann (1966)	20	3.1	4	2.1	10	4.3	6	2.8
15	Van de Ven and Poole (1995)	20	3.1	4	2.1	6	2.6	10	4.7
16	March and Simon (1958)	18	2.8	7	3.6	5	2.2	6	2.8
17	Czarniawska (1997)	17	2.7	2	1.0	6	2.6	9	4.2
18	Ford and Ford (1995)	17	2.7	1	0.5	13	5.6	3	1.4
19	Miles and Huberman (1994)	17	2.7	1	0.5	8	3.4	8	3.8
20	Bass (1985)	16	2.5	5	2.6	7	3.0	4	1.9
21	Burrell and Morgan (1979)	16	2.5	10	5.2	4	1.7	2	0.9
22	Hammer and Champy (1993)	16	2.5	7	3.6	6	2.6	3	1.4
23	Barry and Elmes (1997)	15	2.4	1	0.5	10	4.3	4	1.9
24	DiMaggio and Powell (1983)	15	2.4	2	1.0	7	3.0	6	2.8
25	Greenwood and Hinings (1996)	15	2.4	3	1.6	5	2.2	7	3.3
26	Kotter (1995)	15	2.4	4	2.1	5	2.2	6	2.8
27	Nonaka and Takeuchi (1995)	15	2.4	2	1.0	4	1.7	9	4.2
28	Yin (1994)	15	2.4	2	1.0	7	3.0	6	2.8
29	Barney (1991)	14	2.2	3	1.6	2	0.9	9	4.2
30	Geertz (1973)	14	2.2	3	1.6	4	1.7	7	3.3
31	Hamel and Prahalad (1994)	14	2.2	4	2.1	1	0.4	9	4.2
32	Huber (1991)	14	2.2	10	5.2	0	0.0	4	1.9
33	Levitt and March (1988)	14	2.2	5	2.6	3	1.3	6	2.8
34	Pettigrew (1985)	14	2.2	4	2.1	6	2.6	4	1.9
35	Porter (1980)	14	2.2	8	4.2	4	1.7	2	0.9
36	Smircich (1983)	14	2.2	5	2.6	3	1.3	6	2.8
37	Czarniawska (1998)	13	2.0	0	0.0	3	1.3	10	4.7
38	Kunda (1992)	13	2.0	1	0.5	6	2.6	6	2.8
39	March (1991)	13	2.0	3	1.6	3	1.3	7	3.3
40	Willmott (1993)	13	2.0	1	0.5	6	2.6	6	2.8

Table V.
Raw and relative citation frequencies of the most cited documents (1995-2011)

The fact that *JOCM* articles do not often resort to the exact same documents may partly be explained by the fact that the *JOCM* is famous for publishing special issues. Indeed, over the studied period (1995-2011), there have been 61 special issues (out of a total of 102 issues) which cover very different themes. Therefore, the likeliness of a single document to be cited several times is reduced as the topics dealt with become more eclectic.

Second, the origin of the most cited documents gives an insight on knowledge generation and spreading processes. Over the whole period (1995-2011), there are 60 percent of books and 40 percent of journal articles in the most cited documents. It is remarkable to note that over this same period, the first six most cited documents are books (see Table V). Table VI shows that the proportion of books in the cited documents has always been higher than the proportion of articles, even within each sub-period. Yet, the influence of journal articles has increased from 26.7 percent of the most cited documents in the first sub-period (1995-2000) to 41.2 percent in the last sub-period (2007-2011). The development of scientific journals in knowledge generation seems to be identified in several similar studies (Backhaus *et al.*, 2011; Calabretta *et al.*, 2011). For more details about the most cited documents in each sub-period, see Table VII in the co-citation results part. When sub-periods are considered, the most cited documents rankings contain a few new documents which do not appear in the overall ranking of Table V. The impact of these very documents is discussed during the co-citation analysis.

Thirdly, the characteristics of the most cited documents reveal "prominent scholars and key subjects driving the discipline [here, the journal] at different points in time" (Backhaus *et al.*, 2011, p. 943). Table V highlights the fact that works coming from organizational theorists are numerous. A few OCM papers dealing with organizational learning can be spotted as well. Several methodological documents addressing qualitative and constructivist designs are also identified.

What is striking is the impact of the documents from Senge (1990) and Weick (1979, 1995) which is quite high on the overall period. The works of both authors can indeed be considered as classics. While the first author has introduced the theory of the learning organization, the latter has shaped the organizing (Weick, 1979) and the sensemaking concepts (Weick, 1995). Their theories appear to have been the mainstays of the *JOCM* articles since 1995. Table V shows that documents having introduced a new concept are particularly cited. Some historical examples are quoted (in decreasing citation order): the three levels of organizational culture by Schein (1985), the field theory by Lewin (1951), the social construction by Berger and Luckmann (1966), the organizational theory by March and Simon (1958), the five forces analysis by Porter (1980), the new institutionalism by DiMaggio and Powell (1983), the resource-based view of the firm by Barney (1991), the core competency by Hamel and Prahalad (1994), and the contextualism by Pettigrew (1985).

Table VI.
Origins of the most cited documents in *JOCM*

	1995-2011 ($n = 637$) (%)	1995-2000 ($n = 192$) (%)	2001-2006 ($n = 232$) (%)	2007-2011 ($n = 213$) (%)
Books in the most cited documents	60.0	73.3	76.9	58.8
Journals in the most cited documents	40.0	26.7	23.1	41.2

1995-2000 ($n = 192$)			2001-2006 ($n = 232$)			2007-2011 ($n = 213$)		
Absolute frequency	Relative frequency	Document cited	Absolute frequency	Relative frequency	Document cited	Absolute frequency	Relative frequency	Document cited
29	15.1	Senge (1990)	14	6.0	Weick (1995)	24	11.3	Weick (1995)
22	11.5	Morgan (1986)	13	5.6	Glaser and Strauss (1967)	18	8.5	Eisenhardt (1989)
20	10.4	Weick (1979)	13	5.6	Ford and Ford (1995)	17	8.0	Senge (1990)
20	10.4	Argyris and Schön (1978)	13	5.6	Senge (1990)	15	7.0	Boje (2001)
14	7.3	Schein (1985)	12	5.2	Boje (2001)	11	5.2	Teece *et al.* (1997)
12	6.3	Peters and Waterman (1982)	12	5.2	Boje (1995)	11	5.2	Czarniawska (2004)
11	5.7	Boje (1991)	12	5.2	Weick (1979)	10	4.7	Boje (1995)
10	5.2	Burrell and Morgan (1979)	10	4.3	Berger and Luckmann (1966)	10	4.7	Van de Ven and Poole (1995)
10	5.2	Huber (1991)	10	4.3	Morgan (1986)	10	4.7	Czarniawska (1998)
9	4.7	Lewin (1951)	10	4.3	Barry and Elmes (1997)	10	4.7	Schein (1985)
8	4.2	Cooper and Burrell (1988)	9	3.9	Mitroff and Denton (1999)	9	4.2	Boje (1991)
8	4.2	Porter (1980)	8	3.4	Argyris and Schön (1978)	9	4.2	Nonaka and Takeuchi (1995)
8	4.2	Senge *et al.* (1994)	8	3.4	Miles and Huberman (1994)	9	4.2	Lewin (1951)
8	4.2	Glaser and Strauss (1967)				9	4.2	Hamel and Prahalad (1994)
8	4.2	Daft and Weick (1984)				9	4.2	Czarniawska (1997)
						9	4.2	Barney (1991)
						9	4.2	Peters and Waterman (1982)

Table VII.
The most cited documents for each sub-period, selected for intellectual mapping

Other notable documents addressing organizational theory are particularly cited by the *JOCM* authors: the best practices for excellence by Peters and Waterman (1982) and the organizational metaphors by Morgan (1986). Additional documents dealing with organizational culture are often cited as well (Kunda, 1992; Smircich, 1983; Willmott, 1993).

Many works developed by the tenants of the continuous change creed and organizational learning have also been regularly cited in the *JOCM* articles: the theory of action and double-loop learning by Argyris and Schön (1978), the organizational knowledge creation by Nonaka and Takeuchi (1995), the organizational learning by Levitt and March (1988), the exploration and exploitation by March (1991) and the organizational learning literatures review by Huber (1991).

The focus of the *JOCM* appears to have been about constructing a body of research as there is a significant amount of methodological references for theory-building used in the *JOCM* articles over the last 17 years. These methodological references mainly refer to qualitative and constructivist forms of theory building. Indeed qualitative studies (Miles and Huberman, 1994) and especially case studies (Eisenhardt, 1989; Yin, 1994) or biographic material, like narrative forms of research (Boje, 1991, 1995, 2001; Czarniawska, 1997, 1998; Ford and Ford, 1995), ethnographic (Geertz, 1973; Kunda, 1992) and anthropological approaches (Smircich, 1983) as well as grounded theory schemes (Glaser and Strauss, 1967), seem to be the most common methods in *JOCM* articles. This may confirm that *JOCM* is a journal which has still been looking for patterns to emerge and therefore, heading towards some maturation over the studied period.

As a matter of fact, case studies turn out to be especially appropriate when researchers have to answer the "how" question (Yin, 1994). This approach subsequently helps *JOCM* authors figuring out what are the mechanisms at stake during organizational change processes or other kinds of processes. Understanding change processes is by the way considered as being one of the most prevailing topics in OCM literature (By, 2005). In the *JOCM* articles, spotting new patterns can also be done through the storytelling (Boje, 2001; Czarniawska, 1998) or through the ethnographic and anthropological methods (Geertz, 1973; Kunda, 1992; Smircich, 1983) in order to better interpret the sensemaking systems which are proper to each single organizational culture. The example of the storytelling research by Barry and Elmes (1997), meant to rethink strategy, is often cited by the *JOCM* authors. For instance, biographic material can enable the identification of new forms of working schemes in organizations (Barley and Kunda, 2001) and the explanation of complex situations (Yanow *et al.*, 2009). Biographic material is definitely relevant to study a phenomenon (like OCM) in its context as "context and action are inseparable" (Pettigrew *et al.*, 2001, p. 697).

Lastly, some famous references definitely belonging to the OCM literature have often been cited by the *JOCM* authors: the organizational change typology by Van de Ven and Poole (1995), the work on archetypes and radical changes by Greenwood and Hinings (1996) and the work on transformation failure by Kotter (1995).

Changes in influence

The next step of the citation analysis is to get a dynamic picture of the transformation of the intellectual structure of the *JOCM* by looking at the gain or loss in influence of the most cited documents. On the next page, Figure 6 presents the changes in influence

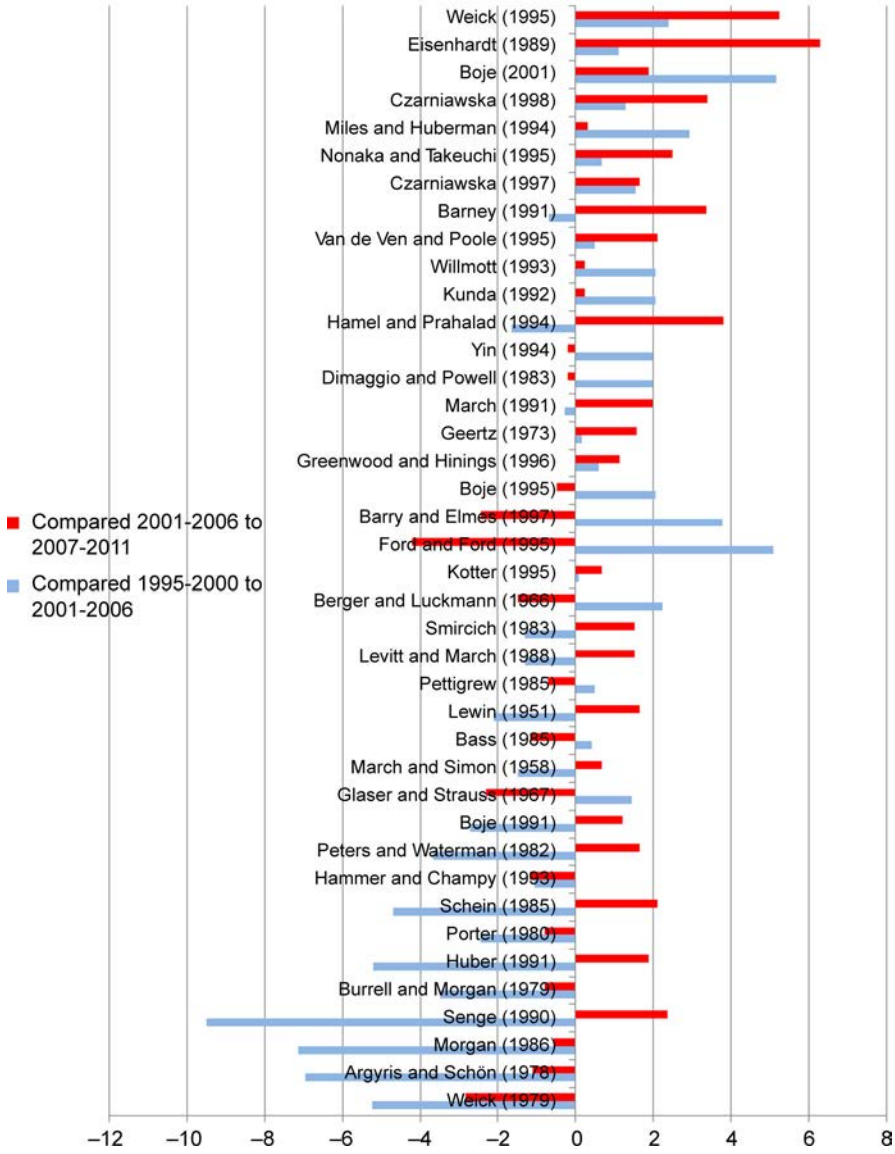

Figure 6.
Changes in influence of the most cited documents in the *JOCM* articles

of the most cited documents over the overall studied period (1995-2011). Documents are vertically ranked from the ones having gained the most influence at the top, down to the ones having lost the most influence on the whole period. Details concerning sub-period evolutions can be identified thanks to the bands. The blue band shows the percentage of influence gain or loss from the first sub-period (1995-2000) to the second (2001-2006), and the red band from the second sub-period (2001-2006) to the third (2007-2011).

Several patterns can be identified. The first pattern corresponds to the documents which increase their influence both from the first sub-period to the second sub-period, and from the second to the third. This pattern testifies to an increasing influence over the studied period. The works of Weick (1995), Eisenhardt (1989) and Czarniawska (1998) show an outstanding influence increase, especially from the second to the last sub-period. Other works benefit from a strong influence gain, but rather between the first and the second sub-period (Boje, 2001; Miles and Huberman, 1994). Several documents have a medium influence increase over all sub-periods (Czarniawska, 1997) while some have a moderate rise especially during the first to the second sub-period (Kunda, 1992; Willmott, 1993) or from the second to the third (Geertz, 1973; Greenwood and Hinings, 1996; Kotter, 1995; Nonaka and Takeuchi, 1995; Van de Ven and Poole, 1995).

The third pattern concerns documents which have had a reduced influence from the first to the second sub-period while rising from the second to the third (Barney, 1991; Boje, 1991; Hamel and Prahalad, 1994; Huber, 1991; Levitt and March, 1988; Lewin, 1951; March and Simon, 1958; March, 1991; Peters and Waterman, 1982; Schein, 1985; Senge, 1990; Smircich, 1983). This pattern affects some of the top cited documents in the *JOCM* articles (Schein, 1985; Senge, 1990) and apart from three documents (Barney, 1991; March, 1991; Smircich, 1983), it only concerns works which have lost influence over the whole period.

Lastly, several documents have a lose-lose pattern in which they decline both from the first sub-period to the second and from the second to the third (Argyris and Schön, 1978; Burrell and Morgan, 1979; Hammer and Champy, 1993; Morgan, 1986; Porter, 1980; Weick, 1979). Knowing that only the most cited documents are concerned, this pattern definitely pinpoints the works which have had a significant influence on the development of the *JOCM* intellectual structure. Apart from the document of Hammer and Champy (1993), the decreases have been particularly heavy from the first to the second sub-periods. One can notice that the decreasing influence of the first book of Weick (1979) is proportional to the increasing influence of his book from 1995.

Results of the co-citation analysis

The co-citation analysis is performed on the 40 most cited documents for the overall period (1995-2011). Then, for each of the three sub-periods, the most cited documents are retained for a co-citation analysis at a 4 percent threshold. It means that the documents which are represented in more than 4 percent of the articles published in the same sub-period are retained. An exception is made for the second sub-period (2001-2006) where the threshold is lowered to 3,4 percent in order to gather enough co-citations for analysis. As this sub-period is a bit shorter (five-year long instead of six-year long for the two other sub-periods), the probability to have co-citations is lower. Since there is no established citation threshold (Fernandez-Alles and Ramos-Rodriguez, 2009), several tests have been made in order to set suitable thresholds enabling a convenient graphical representation. The software used for intellectual mapping is Pajek, version 3.01.

On the previous page, Table VII shows the most cited documents for each sub-period. The grey boxes indicate the documents which show up in this detailed sub-period citation analysis and which do not appear in the 40 most cited documents overall citation analysis (covering the 1995-2011 period, see Table V). The works

showing up in the first sub-period are the article of Cooper and Burrell (1988) about postmodernism for organizational analysis, the book of Senge *et al.* (1994) which gives insights on how to build a learning organization and lastly, the article of Daft and Weick (1984) about organizations as interpreting systems. The second sub-period has a particular work showing up in the most cited documents: the book of Mitroff and Denton (1999) on the spiritual audit of American corporations. Two works appear in the most cited documents of the last sub-period: the article of Teece *et al.* (1997) on dynamic capabilities and the book of Czarniawska (2004) on narratives.

Both citation analysis (the one on each sub-period and the one on the overall period) have identified several authors which have written at least two of the most cited documents, with or without a co-author (like Boje, Czarniawska, March, Senge or Weick). While Boje and Czarniawska have been the proponents of a language-based approach to organizational change, Senge and Weick appear to be classical authors in the *JOCM* articles since their work serve as foundations for the *JOCM* authors. March has also been considered as a founding author, similarly to what can be observed in other journals like the *Strategic Management Journal* (Ramos-Rodriguez and Ruiz-Navarro, 2004) or *Human Resource Management* (Fernandez-Alles and Ramos-Rodriguez, 2009). When changes in influence are considered, only one document remain highly ranked in all sub-periods: the work of Senge (1990). This statement shows that its influence has always been heavy, even though it has overall been decreasing (see Figure 6). Weick is also a well-positioned author, with his seminal books (Weick, 1979, 1995). Both of these authors confirm their roles as mainstays of the *JOCM* intellectual development in every sub-period. This confirms their general high rankings in Table V.

At the same time, some documents disappear from the first to the second sub-period (Burrell and Morgan, 1979; Cooper and Burrell, 1988; Daft and Weick, 1984; Huber, 1991; Porter, 1980; Senge *et al.*, 1994), even if some of them reappear in the third sub-period (Lewin, 1951; Peters and Waterman, 1982; Schein, 1985). The works of Boje appear in the second and in the third sub-periods in more recent formats (Boje, 1995, 2001). Only a few documents remain in the ranking from the second to the last sub-periods (Boje, 1995; Senge, 1990; Weick, 1995).

The results of the co-citation analysis are shown in the form of intellectual maps (see Figures 1 and 3-5). The intellectual maps are drawn for the overall period and for each sub-period in order to illustrate the dynamic construction of the *JOCM* intellectual structure.

Fernandez-Alles and Ramos-Rodriguez (2009, p. 164) recall that "The strength of co-citation is defined as the number of times two documents have been cited together: It provides a natural and quantitative way to group or cluster the cited documents (Small and Griffith, 1974)". In intellectual maps, the documents are represented by nodes (also called vertices). The closeness of documents represents their similarity, as perceived by the citing authors and as computed by an algorithm. The algorithm selected for this study is the Fruchterman-Reingold algorithm (Fruchterman and Reingold, 1991, p. 1131) which makes "only vertices that are neighbours attract each other [...] [though] all vertices repel each other". Graphical results given by another algorithm would certainly be different. Yet, what matters is the fact that some documents are often co-cited together – or not. As the documents not being cited together are to appear far away from one another's, this algorithm is likely to generate a clear

illustration of the different clusters. Based on the commonalities shared by the co-cited references, we have content-analyzed the clusters. A thorough reading of the references included in the clusters enables the identification of clusters' topics. In order to grant reliability to the analysis, we have discussed the interpretation of the clusters.

The interpretation of the map is indeed done *ex-post*, based on researcher's analysis of the clusters which have emerged on the map (McCain, 1990). The interpretation of the clusters is discussed on the basis of the clusters which appear according to the retained data and the chosen algorithm. The attempted classification is then grounded on the visual mapping of the documents, based on absolute co-citations and citations counts. The space scale of the maps varies from one map to another. Thus, a common practice in bibliometric studies is to leave the axes unlabeled (Calabretta *et al.*, 2011) or not to show axes (Backhaus *et al.*, 2011; Ramos-Rodriguez and Ruiz-Navarro, 2004). Indeed, the emergence of clusters is what matters the most, not the size of the space in between.

In the intellectual maps, the size of the nodes is proportional to the frequency of the citation of the represented document. The more often are the documents cited together, the closer they appear on the maps. Therefore, central works are the ones often co-cited (cited with the others) while peripheral works are more loosely related. While the size of a cluster stands for the significance of the represented topic, its density testifies to the proximity of the documents and its coherence (Gmür, 2003). Backhaus *et al.* (2011, p. 941) precise that "Many studies have validated the results of co-citation analyses as the structure they provide largely corresponds with the judgments of researchers in the field".

The intellectual structure of the JOCM *articles: 1995-2011*. Figure 7 presents a static overview of the intellectual structure of the *JOCM* articles over the studied period. The clusters of documents appearing on the map illustrate the main schools of thought on which the authors have built their articles over the studied period.

If change content, change context and change process categories are considered the core dimensions of organizational change (Armenakis and Bedeian, 1999; Pettigrew and Whipp, 1993; Walker *et al.*, 2007), the central cluster shows that *JOCM* articles addressing OCM have particularly focused on organizational change processes and contents. This observation is consistent with the knowledge-stock analysis.

These documents, which can be considered as classics because they are central in the intellectual maps of the *JOCM* articles, have helped the *JOCM* authors apprehending the functioning of the organization. These documents are central because they are often co-cited with any kind of documents. They seem to have constituted the backbone of the *JOCM* articles: these documents do not belong to a certain school of thoughts and represent a mainstay for *JOCM* authors, whatever is the specific topic dealt with. This cluster then comprises the work of Morgan (1986) which suggests to look at organizations as symbolical forms. There is also the work of Burrell and Morgan (1979) which classifies the sociological paradigms in organization theory. Other works building the lenses through which the *JOCM* authors can observe organizations are particularly co-cited: the different organizational culture layers of Schein (1985), the contextualism of Pettigrew (1985), the organizing and the sensemaking of Weick (1979, 1995) and the organization as a learning and acting entity (Argyris and Schön, 1978; Senge, 1990).

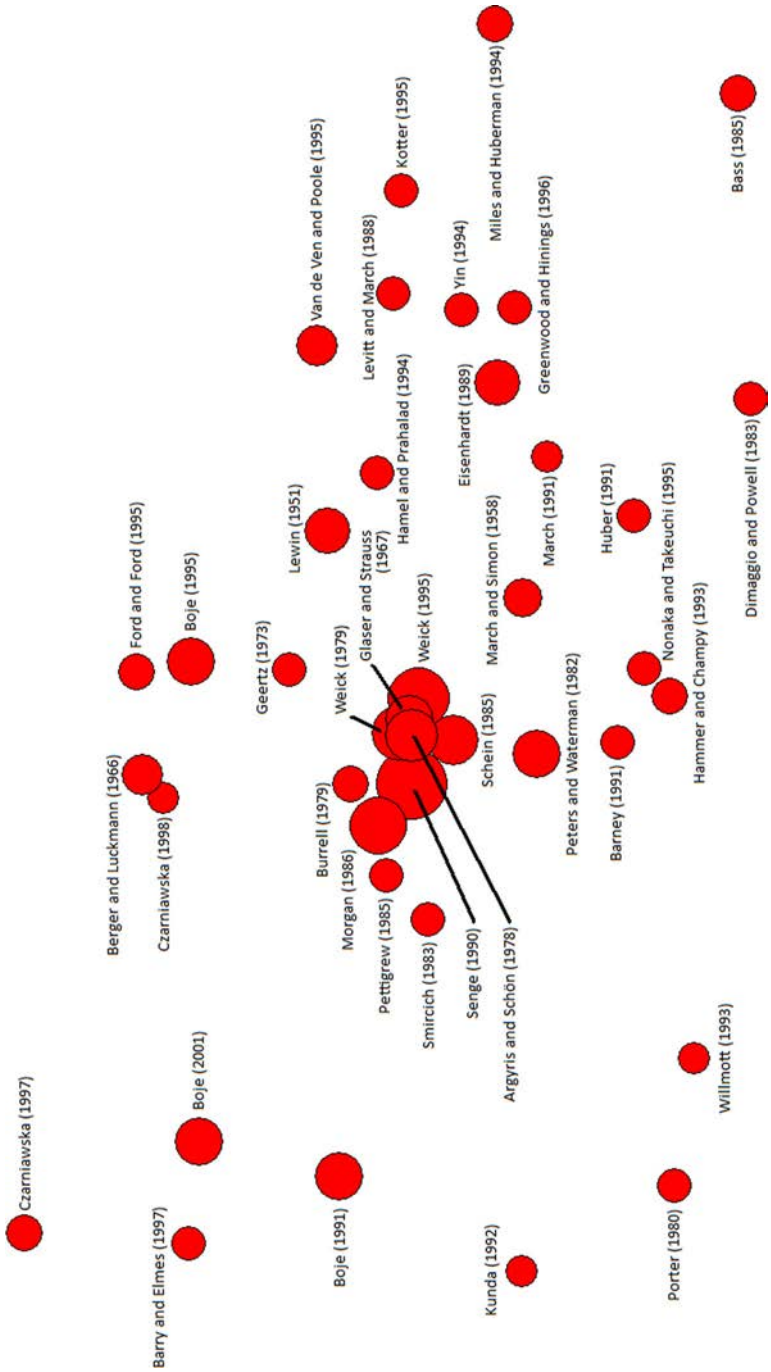

Figure 7.
The intellectual structure of *JOCM* articles: 1995-2011

One can also remark a cluster in the lower and left area on organizational culture. Meanwhile, methodological issues about taking into account the context remain a peripheral topic, being addressed in qualitative (on the right-hand side) and biographic (on the top-left hand) methods clusters.

This observation resemble the statement of Pettigrew *et al.* (2001, p. 697) about the insufficient treatment of contextual issues in the OCM research: "the field of organizational change is far from mature in understanding the dynamics and effects of time, process, discontinuity, and context". Contextual issues mainly "focus on forces or conditions existing in an organization's external and internal environments" (Armenakis and Bedeian, 1999, p. 295). These forces and conditions do not seem to be a central concern for most *JOCM* authors even though context has for example been identified as a key element in OCM success by Kotter and Schlesinger (2008). In a literature review about employees' attitudes toward organizational change, Choi (2011, p. 494) also stresses that "many researchers have emphasized the strength of situational variables". Indeed, "a search for general patterns of change requires even more focus on temporal and spatial context" (Pettigrew *et al.*, 2001, p. 697).

The need to look for general patterns in OCM and in other topics may explain that the seminal book of Glaser and Strauss (1967) on grounded theory discovery also belongs to the central cluster. Grounded theory indeed enables researchers to come up with patterns without preliminary hypothesis in order to build new theories. Therefore and over the studied period, it infers that the intellectual structure of the *JOCM* articles may have been under development because it has been searching for general patterns.

In order to search for general patterns, some *JOCM* authors have also been willing to take into account contextual factors. A significant separate cluster of documents can be identified in the top left-hand area, apart from the classical works. This cluster is mainly composed of works praising the biographic materials to study organizations. Thus, it combines language-based approach documents (Barry and Elmes, 1997; Boje, 1991, 1995, 2001; Czarniawska, 1997, 1998; Ford and Ford, 1995) to the ethnographic work of Geertz (1973) and especially, to the seminal work of Berger and Luckmann (1966) on social construction. Constructivism is indeed a methodological design to come up with new theories while sticking to the context. According to its proponents, constructivism seems to be required for research, especially regarding OCM. In the constructivist approach, Ford (1999, p. 487) explains that "producing change is like experimental theatre or improvizational jazz where the script (music) is being written while it is being performed (Boje, 1995; Czarniawska, 1997)." There is as well a separate cluster (on the right-hand side) which gathers the proponents of case study designs (Eisenhardt, 1989; Miles and Huberman, 1994; Yin, 1994). Case studies indeed provide researchers with deep insights into the context of a specific analyzed field.

There is as well a cluster on the lower left-hand side which is mainly composed of works approaching organizational cultures with ethnographic (Kunda, 1992) or anthropological (Smircich, 1983) methods. These two documents are by the way quite close to the cluster on biographic methodology documents. One can also remark the article of Willmott (1993) which has been developed in reaction to the works on corporate cultures analogous to the one of Schein (1985): it raises issues regarding the totalitarian aspects deriving from a unique corporate culture.

In the lower area, there is a fifth cluster which can be identified and which deals with knowledge creation issues. It gathers the works of Huber (1991), March (1991) and

Nonaka and Takeuchi (1995). Meanwhile, the isolated documents do not seem to belong to specific clusters even though the sociological work of Lewin (1951) finds itself almost central, and close to the two clusters on biographic material and on case study design.

Figure 7 presents the intellectual structure of the overall studied period. Yet, the next figures present the intellectual structures of the sub-periods. Therefore, the documents are fewer, less cited and less co-cited: the intellectual structure is then simpler. The references used for the intellectual mapping of the sub-periods have previously been presented in the Table VII.

The intellectual structure of the JOCM *articles: 1995-2000*. On the previous page, Figure 8 shows the intellectual map of the *JOCM* articles in the first sub-period. The central cluster of the map is composed of the founding works which were going to support the early development of the journal. For instance, these documents provide reading grids to approach the functioning of organizations which can be seen as constantly changing, organizing (Weick, 1979) and learning entities, just like an organic form (Morgan, 1986). The works of Argyris and Schön (1978) and Senge (1990) on organizational learning are very frequently cited together. The work of Schein (1985) is also quite central. This observation can be paralleled to the fact that there has been of focus of researchers in the late 1990s to design organizational cultures in order to manage organizational change (Armenakis and Bedeian, 1999).

The intellectual structure of the JOCM *articles: 2001-2006*. Figure 9 shows the evolution of the intellectual structure of the *JOCM* articles during the second sub-period. Apart from the works of Argyris and Schön (1978) and of Morgan (1986), the founding documents remain in a relative central position (Senge, 1990; Weick, 1979) along with a new book having introduced the concept of sensemaking (Weick, 1995).

Yet, the *JOCM* articles seem to have made a significant choice in their main methodological orientation during this sub-period. Indeed, a central cluster gathers the

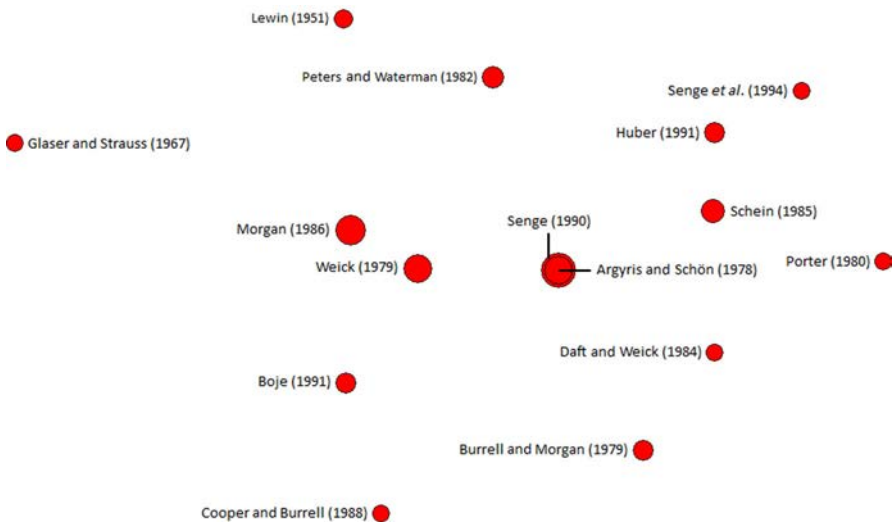

Figure 8.
The intellectual structure of *JOCM* articles: 1995-2000

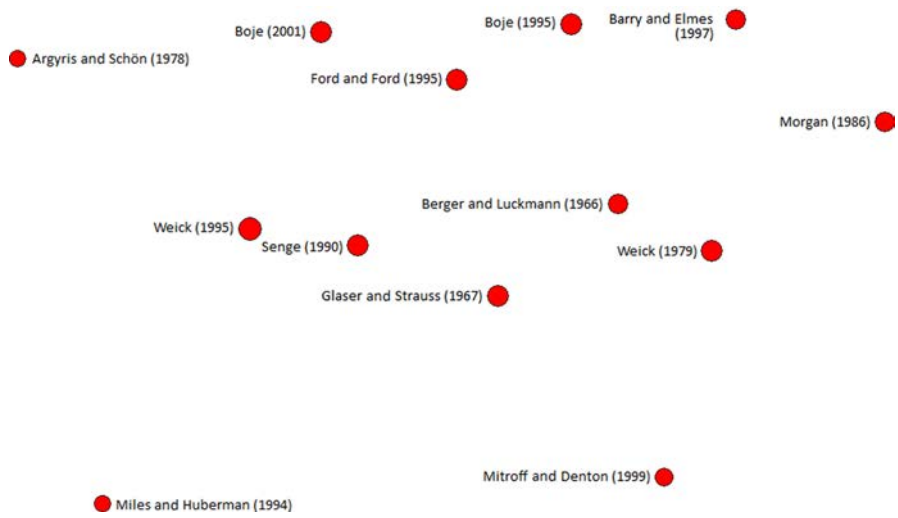

Figure 9.
The intellectual structure of *JOCM* articles: 2001-2006

works on the constructivism theory (Berger and Luckmann, 1966; Glaser and Strauss, 1967). This observation implies that *JOCM* articles have mainly grown on the constructivist approach since the beginning of the twenty-first century. If the constructivism cluster and the founding work cluster are merged (along with the work of Miles and Huberman (1994)), there is even a sociological-oriented cluster which is predominant. This growing importance of specific methodological references corroborates the knowledge-stock analysis which shows an increase in the proportion of empirical articles, starting in the second sub-period. Our findings were observed by Armenakis and Bedeian (1999, p. 313), but regarding the end of the twentieth century: "the use of qualitative methods in conducting organizational change research has grown in the last ten or so years". The spreading of qualitative researches might have taken some time, before being confirmed at the beginning of the twenty-first century, according to our data.

Moreover and at the top of the map, a significant cluster of documents can be identified around the topic of the language-based approaches (Barry and Elmes, 1997; Boje, 1995, 2001; Ford and Ford, 1995). These documents show that narratives are ones of the constructivist tools which have made the intellectual structure of the *JOCM* articles flourish during the second sub-period.

The intellectual structure of the JOCM *articles: 2007-2011*. Figure 10 shows that the work of Schein (1985) comes back on *JOCM* authors' agenda, which might mean a late growing interest in organizational culture for *JOCM* authors. The cluster of the central documents remains similar during the last two sub-periods (Schein, 1985; Senge, 1990; Weick, 1995). Yet, the works of Argyris and Schön (1978) and Weick (1979) have completely disappeared from the map. Meanwhile, like the book of Schein (1985), the work of Lewin (1951) reappears though it has been missing during the second sub-period.

The cluster at the top and right-hand area of the map on language-based approaches which has grown since the second sub-period (Boje, 1991, 1995, 2001) and which has included a new author (Czarniawska, 1997, 1998, 2004). This cluster is diagonally

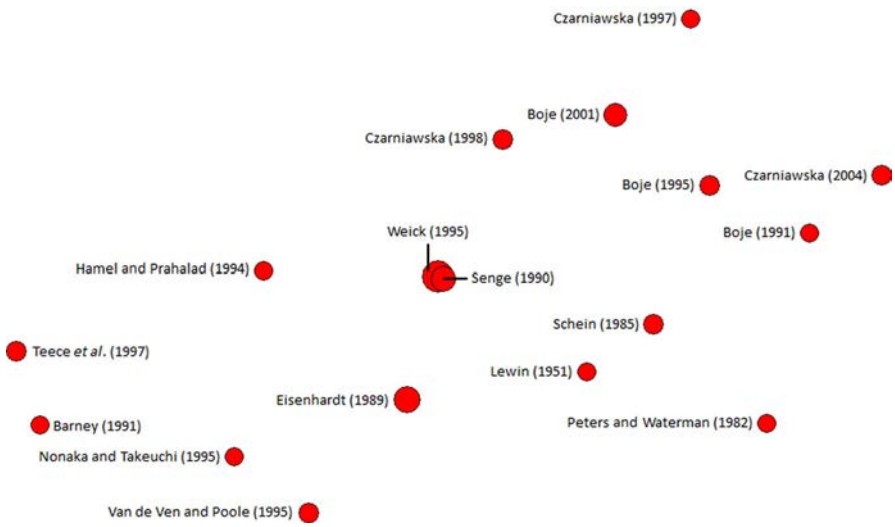

Figure 10.
The intellectual structure of *JOCM* articles: 2007-2011

opposed to a last one which can be identified about change capability. This last cluster is situated at the lower left-hand corner of the map. It includes both works on the dynamic capability (Nonaka and Takeuchi, 1995; Teece *et al.*, 1997) and on the resource-based view (Barney, 1991; Hamel and Prahalad, 1994; Teece *et al.*, 1997). It then illustrates a late shift of *JOCM* articles toward change capability issues, through the resource-based view paradigm. This cluster might have concomitantly developed with the "dominating perspective on strategic dynamics, which emphasizes dynamic capabilities" (Regner, 2008, p. 566). The fact that the last two clusters are opposed may mean that change capability issues have been less likely to be treated with language-based tools.

The "classics" clusters slightly evolve over time. It seems understandable that some work disappear from a sub-period to another because there is an influence cycle: after having brought significant influence to the *JOCM* articles, the influence of some documents is vanishing. As a whole, while some classical works have brought significant contribution to the intellectual structure of the *JOCM* before fading away (Argyris and Schön, 1978; Morgan, 1986; Weick, 1979), some others have been exerting a steady influence over the last two sub-periods (Senge, 1990; Weick, 1995) or over the three sub-periods (Senge, 1990). Some classical works may have disappeared or may be on the verge of disappearing because their founding concepts have become universally accepted (Ramos-Rodriguez and Ruiz-Navarro, 2004). That's why some works enjoying the "classical" status may not always belong to the "classics" clusters. This is a limitation to the bibliometric approach, which is purely quantitative.

Furthermore, the last two sub-periods have been synonymous with the rise of the language-based approaches as a main tool for the *JOCM* authors. Along with the presence of works referring to other constructivist methods, this observation confirms the predominance of context for late development of the intellectual structure of the *JOCM* articles, just like Pettigrew *et al.* (2001) were suggesting for future research in OCM at the dawn of the twenty-first century. The predominance of the works of Weick (1979, 1995) and Senge (1990) may show that change has been understood as a part of

the organization, in the logic of organizing and sensemaking. It would confirm that for a part of the *JOCM* authors, organizational becoming has been a relevant concept (Tsoukas and Chia, 2002) and that change has mainly and lately be interpreted as a contextualized process (Groleau *et al.*, 2011, 2012).

Conclusion

Summary

As the management of organizational change becomes high on companies' agendas (Lüscher and Lewis, 2008), a bibliometric study of past research appeared necessary in order to gauge the knowledge that practitioners and academics have at their disposal. Because two main impediments are inherent to a full OCM bibliometric study on several journals, this research proposes to apply bibliometrics to a single journal. The present bibliometric study gives an insight on the development on the intellectual structure of the *JOCM* articles published from 1995 to 2011.

Several conclusions can be drawn from our data. First, the works in book format have had the strongest impact even though the influence of research articles has increased at the end of the studied period. Second, the knowledge-stock analysis shows OCM articles published in the journal mainly address change process topics. Third, several documents have brought a significant contribution to the development of the *JOCM* articles over the whole studied period (Senge, 1990) or over some sub-periods (Argyris and Schön, 1978; Morgan, 1986; Weick, 1979, 1995). Fourth, and over the last ten years, the constructivist research design has been favored by the *JOCM* authors who have been especially keen on language-based approaches. This implies that the *JOCM* articles have been developing a body of knowledge as they have been looking for general patterns in order to build theories, and that context has finally been considered as necessary for conducting research in the *JOCM*. More generally, the predominance of methodological references infers that the *JOCM* research quality has improved, which should allow more sophisticated studies. This statement is confirmed by the knowledge-stock analysis which shows an increase in the number of authors and references by articles. Armenakis and Bedeian (1999) were already observing an increase in the OCM research quality. Fifth, a recent particular cluster of documents has appeared, building upon the works around the issues of change capacity and the resource-based view (Barney, 1991; Hamel and Prahalad, 1994; Nonaka and Takeuchi, 1995; Teece *et al.*, 1997).

Grasping the intellectual development of the *JOCM* enables researchers and practitioners to better understand how issues are being approached by authors who publish in this journal. The findings discussed might also serve as a starting point for scholarly debate. The present research has another implication for both OCM scholars and practitioners who can take the opportunity to check the conformity between their respective concerns. Given the growing relevance of OCM for companies' success, scholars should keep up with practitioners' expectations as academic research is especially relevant to managers when it is timely aligned (Bartunek *et al.*, 2006).

Limitations

Our study presents some drawbacks regarding the data set, the research design and the bibliometric methods.

Regarding the data set, the first limitation concerns the source of the present study. Indeed, one can contest that peer-reviewed journals are considered as certified knowledge (Bedeian, 2004; Macdonald and Kam, 2007; Starbuck, 2005). Yet, Clark and Wright (2007) have shown that if editors are aware of peer-reviewing limitations and if they address it adequately, peer-review journals can remain a reliable source knowledge. The *JOCM* editorial team seems to be aware of these limitations to the point that they contemplate resorting to open peer-review[1]. Another limitation of the data set is the fact that the ISI database contains approximately 20 percent of erroneous records (Baird and Oppenheim, 1994). A thorough manual checking was performed to limit this bias.

There are also two limitations inherent to the research design. First, the selection of a single journal restrains the scope of our data and results. It is possible that changes would occur in the citation rankings if other journals were to be considered. Nevertheless, the *JOCM* journal is likely to represent an interesting fraction of research efforts in the field of OCM as its title and reputation suggest. The second limitation of the research design regards the division of the study into three sub-periods, which also limits the results. Yet, every possible division would probably have limited the results. Since the main objective of the paper is not to identify the crucial development periods of the intellectual structure of the *JOCM* articles, we present the general evolutions which should not be considered as precisely bounded by specific dates in time.

The bibliometric methods usually present some limitations (Moed, 2009). In this study, for instance, the documents published at the end of a sub-period are less likely to have high citation counts (Ramos-Rodriguez and Ruiz-Navarro, 2004). Furthermore, the co-citation analysis enables the mapping of only a few documents and this mapping can be subjective. Notwithstanding, the clusters which spontaneously appear on the maps represent groups of researchers which have similar interests and which support their arguments thanks to the same citations (Callon *et al.*, 1993). Another limitation is that data have been mobilized without being reprocessed (normalized). Yet, the absolute co-citation counts seem to enable an acceptable intellectual mapping, without factor analysis or principal components analysis (Gregoire *et al.*, 2006). A last limitation is that the citing motives can differ: a document may be cited to represent a counterexample or to reach a quota of publication (Backhaus *et al.*, 2011; Üsdiken and Pasadeos, 1995). Nevertheless, counterexample citing should be minority since non-scientific motives should be limited by the peer-review process (Ramos-Rodriguez and Ruiz-Navarro, 2004) so that, as a whole, bibliometric methods propose objective indicators for analysis (Nerur *et al.*, 2008). Therefore, the present study can be considered as an unbiased overview of *JOCM* articles over the last seventeen years. Since a bibliometric study cannot replace a deep qualitative analysis of the *JOCM* articles, the only pretention of the current paper is to be one of the lenses available to grasp the intellectual structure of the *JOCM* articles.

Perspectives for future research

Despite the methodological challenges, going beyond the present article and applying bibliometrics to the OCM field is encouraged. It could be done by mining several journals, using other co-citation methods and targeting keywords or authors for citation counts. This first bibliometric overview of the intellectual structure of the *JOCM* articles shows that it is a relevant tool for research management.

Notes

1. www.emeraldinsight.com/authors/interviews/jocm.htm
2. The ranking of the ABS can be used to assess the scientific quality of the academic journals in management sciences. http://www.associationofbusinessschools.org/
3. The JCR is a service of the Web of Knowledge database which delivers quantifiable statistical information based on citation data and provides a variety of impact and influence metrics, including the Journal Impact Factor and Eigenfactor. http://thomsonreuters.com/products_services/science/science_products/a-z/journal_citation_reports/
4. A database managed by the US Institute for Scientific Information (ISI).
5. For instance, the title of the book of Senge (1990) can be extracted from the SSCI as "5 Discipline Art Pra" or as "5 Discipline". Another example is the work of Berger and Luckmann (1966) which can be recorded as Berger P.L, 1966, Social Construction" or as "Berger P, 1966, Social Construction" as the first author's name can be coded with one or two initials.

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