EXPLORING THE INTELLECTUAL STRUCTURE OF ORGANIZATIONAL LEARNING STUDIES

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ABSTRACT

This study explores the intellectual structure of organizational learning research in the last twelve years by identifying the most important publications and the most influential scholars as well as correlations among various publications. Bibliometric techniques (citation and cocitation analysis) were used to analyze citation relationships, showing trends and patterns in talent management research and highlighting the most influential authors. By analyzing 29,283 citations of 798 articles regarding organizational learning, published from 2003 to 2014 and obtained from the Science Citation Index and Social Sciences Citation Index databases, a knowledge network of organizational learning studies was mapped. The mapping results can be used to help identify the direction of organizational learning research and provide a valuable tool for researchers to access the literature in this field.

Keywords: Organizational learning, Bibliometric, Tag Cloud.

INTRODUCTION

Organizational learning is much researched, and excellent review of organizational learning research are available during early years (Dogson, 1993; Easterby-Smith, Crossan, & Nicolini, 2000). Reviewing on the topic of "organizational learning" would certainly lead one to identify the latest construction trend in organizational learning research (Alok, 2012). In this study, the intellectual structure of organizational learning was discussed. In this paper, the problems arising from the struggle to establish organizational learning was empirically investigated by examining the literature by using citation and cocitation data obtained from Technovation. A brief review of similar bibliometric studies is presented to introduce the approach, accompanied by a description of the data. The principal investigation was a factor analysis, which was performed to determine the latent structure underlying the organizational learning literature.

Citation and cocitation are essential research tools for evaluating the core knowledge of an academic field (Small, 1973; Marshakova, 1973). A few studies using bibliometrics to examine research exist (Diodato, 1994; Drejer, 1997), but almost none has conducted cocitation analysis in the organizational learning field. Therefore, conducting this study fills the gap in organizational learning research by providing a detailed evaluation of applying citation and cocitation to organizational learning research.

The aim of this study was to provide competitive advantage researchers with a unique map to improve their understanding of latent management-related publications and to provide a systematic and objective map of various themes and concepts in the development of the competitive advantage field. The linkages among publications were also identified and their statuses, positions, and contributions to the development of the organizational learning field were verified. Citation and cocitation were the principal methods used. To explore the

changes of main organizational learning research in the last decade, the data was divided into two stages: the first 6 years and the second 6 years. The changes in the key research topics and their implications in the evolution of organizational learning research during the past twelve are also discussed.

STUDIES OF ACADEMIC LITERATURE

Various techniques can be used to examine a body of literature. The most frequently used method is the simple literature review, whereby a highly subjective approach is employed to structure earlier studies (Ma, Lee, and Yu, 2008). Objective and quantitative techniques have recently become popular with an increase in online databases. Bibliometrics, the application of mathematical and statistical techniques to the study of publications and professional communications, is an essential approach in multiple fields (Alger, 1996). Two of the most indispensable and widely used tools are citation and cocitation analysis. Citation analysis is based on the assumption that authors cite papers they consider crucial for the development of their research, and that heavily cited articles are more likely to have exerted a substantial influence on the subject than those that are less frequently cited (Small, 1993). This tool was popularized by Garfield (1972), who applied citation analysis to preexisting indexes, the Science Citation Index (SCI) and Social Sciences Citation Index (SSCI).

Bibliometric

Citation analysis method is mainly used to analyze the reference phenomenon or objects of journals, papers, authors, and to explore the relationship between the sources of literature and citation. It can help researchers understand the current state of development of certain disciplines, the literature usage characteristics in the disciplines, correlation within the literatures between disciplines and the future trends of research through citation analysis.

Tag Cloud

In addition to the advantage of visual creativity and easy-to-use, Tag cloud can be used to assess cluster focus, and is beneficial to the content promotion. It is a good navigation tool to the traditional text based information retrieval system. Tag cloud can also support browsing unexpected discovery, and can be used as a visual summary of the database content.

METHODOLOGY

In this study, the SCI and SSCI were used for analysis. SCI and SSCI are widely used databases that include articles published in more than 8000 of the leading scholarly journals worldwide. Arguments that other online databases might also be used for such analysis exist; however, using SCI and SSCI provided the most comprehensive and most acceptable databases of organizational learning publications. To collect the data, a key word was used to identify the relevant article titles and abstracts in the SCI and SSCI. Using "organizational learning" as the keywords, 798 journal articles were collected, and those articles cited 29,283 publications as references.

The citation data used in this study included journal articles, authors, publication journals, publication dates, and cited references. Based on the objective of this study, the intellectual structure of the organizational learning field between 2003 and 2014 was explored. This period was chosen because contemporary organizational learning studies conducted during

the last decade represent the most up-to-date and likely the most crucial research. Citation and cocitation analysis were the main methods used in this study. By using citation and cocitation analysis, three stages were assumed in this research, each of which required different approaches for examining the development of organizational learning studies. First, the databases were identified as the sources of organizational learning publications. Data collection and analysis techniques were then designed to collect information regarding research topics, authors, and journals on organizational learning research.

RESULTS

Citation Analysis

To identify the key publications and scholars that have established the foundation of organizational learning research, citation data were tabulated for each of the 798 source documents and 29,283 references by using Microsoft Excel. The citation analysis produced background statistics, as shown in the following tables. Table 1 lists the most cited journals related to organizational learning during the previous twelve years, among which Organization Science, Strategic Management Journal, and Academy of Management Review were the top three most cited journals. The general pattern of the most cited journals showed that organizational learning research features clinically, scientifically, and medically focused journals.

Table 1 The most frequently cited journal: 2003-2014

Full Citation Index For Journal	Total Citations
Organization Science	1805
Strategic Management Journal	1591
Academy of Management Review	1383
Academy of Management Journal	1181
Administrative Science Quarterly	970
Management Science	651
Journal of Marketing	610
Journal of Management Studies	606
Harvard Business Review	508
Human Relations	167

The most cited and most influential documents by the most influential scholars were then identified using their total counts of citations within the selected journal articles. Tables 2 and 3 list the relevant publications, including books and journal articles. As shown in Table 2, the most cited organizational learning publications between 2003 and 2008 (the first 6 years) were "Organizational learning: the contributing processes and the literatures" by Huber, followed by the "Organizational learning theory*"* by Argyris, and "Organizational learning" by Fiol.

Table 2 Highly cited articles: 2003-2008

Full Citation Index For Document	Total Citations
Huber G.P., 1991, ORGAN SCI, V2, P88	89
Argyris C., 1978, ORG LEARNING THEORY	70
Fiol C.M., 1985, ACAD MANAGE REV, V10, P803	63
Nonaka I., 1995, KNOWLEDGE CREATING C	63
Senge P.M., 1990, 5 DISCIPLINE ART PRA	57
Levitt B., 1988, ANNU REV SOCIOL, V14, P319	56
Cohen W.M., 1990, ADMIN SCI QUART, V35, P128	52

March J.G., 1991, ORGAN SCI, V2, P71	50
Cyert R.M., 1963, BEHAV THEORY FIRM	48
Crossan M.M., 1999, ACAD MANAGE REV, V24, P522	43

For the second six yeairs (2009–2014), the most cited publication was still the article "Organizational learning: the contributing processes and the literatures" by Huber. The other two most cited publications were two books: "The Knowledge-Creating Company" by Nonaka and the "Organizational learning theory*"* by Argyris (Table 3).

Table 3 Highly cited articles: 2009-2014

Full Citation Index For Document	Total Citations
Huber G.P., 1991, ORGAN SCI, V2, P88	108
Nonaka I., 1995, KNOWLEDGE CREATING C	84
Argyris C., 1978, ORG LEARNING THEORY	83
March J.G., 1991, ORGAN SCI, V2, P71	77
Senge P.M., 1990, 5 DISCIPLINE ART PRA	76
Crossan M.M., 1999, ACAD MANAGE REV, V24, P522	71
Levitt B, 1988, ANNU REV SOCIOL, V14, P319	65
Fiol C.M., 1985, ACAD MANAGE REV, V10, P803	64
Cohen W.M., 1990, ADMIN SCI QUART, V35, P128	62
Cyert R.M., 1963, BEHAV THEORY FIRM	52

When the journal articles and books were combined, the top six most cited scholars between 2003 and 2008 (the first 6 years) were Argyris, Huber, Senge, March, Fiol, and Nonaka (Table 4). For the second 6 years, the top six most cited scholars were Argyris, March, Nonaka, Senge, Huber, and Crossan (Table 5). These scholars exerted the most influence on the development of the digital divide area and thus collectively define this field. Their contributions represent the focus of the main research in the field and thus provide us with an indication of the popularity of certain organizational learning topics as well as their historical value.

Table 4 Highly cited authors: 2003-2008

Author	Frequency
Argyris C.	161
Huber G.P.	96
Senge P.M.	96
March J.G.	91
Fiol C.M.	80
Nonaka I.	71
COHEN WM	60
LEVITT B	58

Table 5 Highly cited authors: 2009-2014

Author	Frequency
Argyris C.	184
March J.G.	145
Nonaka I.	122
Senge P.M.	122
Huber G.P.	118

Crossan M.M.	97
Argote L.	93
Podsakoff P.M.	82
Fiol C.M.	73

Tag Cloud Analysis

In this study, the Science Citation Index (SCI) and Social Sciences Citation Index (SSCI) were used for analysis. The SCI and SSCI are widely used databases, which include citations published in over 8000 world's leading scholarly journals. While there are arguments that other online databases might also be used for such analysis, using SCI and SSCI provided the most comprehensive and the most accepted database of organizational learning publications.

Unlike other prior studies, the data used in this study were not drawn from journals chosen by peer researchers (Drejer, 1997). Instead, the entire databases of SCI and SSCI from 2003 to 2014 served as the universe for analysis. In order to collect the data, we used "key word" method which utilizes the SCI and SSCI databases key word search in article's title. Using "organizational learning" as key word, this study collected 798 journal articles which further cited 29,283 publications as references. Based on the results of tag cloud analysis shown in Figures1 and Figures 2, there is clearly an immediate visual impact of these tag clouds that identifies dominant words, making what was tacit within the document more implicit. This study looks at changes in the use of words over time, describes the tag clouds for the individual documents, and identifies the prominent messages. (see Figure 1, Figure 2 and Table 6) Besides the two words: learning and organizational, the largest tag (indicating the most frequently used term) is "knowledge" (41→80), the words "management" (41→97), "performance" (23→56) and "organization" (22→53) are also dominant. The other notable related domain is the word: "innovation" (18-62).

Figure 1 Tag clouds in key word of Emotion Management(2003-2008)

Figure 2 Tag clouds in key word of Emotion Management(2009-2014)

Table 6: keyword analysis of comparison chart from 2003 to 2014: showing top possible words

Key words	2003-2008	2009-2014	Difference
learning	208	404	+196
organizational	192	372	+180
knowledge	41	80	+39
management	41	97	+56
performance	23	56	+33
organization	22	53	+31
change	19	25	+6
innovation	18	62	+44
process	17	24	+7
information	14	14	0
systems	13	20	+7
practice	12	na	na
strategic	12	19	+7
technology	12	12	0
theory	12	23	+11
capability	11	31	+20
culture	11	40	+29
development	11	32	+21
structural	11	na	na
firm	10	13	+3
network	10	15	+5

social	10	18	+8
market	9	na	na
measurement	9	na	na
model	9	na	na
research	9	12	+3
leaderhsip	8	25	+17
transfer	8	na	na
transformation	8	na	na

CONCLUSIONS

Extensive research on organizational learning has been conducted during the past twelve years. In this study, organizational learning research was investigated using citation and cocitation data published in the SCI and SSCI between 2003 and 2014. Through a factor analysis of the cocitation data, the intellectual structure of organizational learning research was mapped.

The mapping of the intellectual structure of organizational learning studies indicated that the field now has its own literature and that it has developed into a legitimate academic field. The publication of organizational learning-specific journals, such as the Organization Science, Strategic Management Journal, and Academy of Management Review, indicates that organizational learning has gained the status required for an independent research field. Because the organizational learning field is still new and the analysis has shown that it has an evolving structure, it is believed that organizational learning publication outlets will gain the popularity and prestige that is required to become a more prominent academic field when the current paradigms and key research themes in organizational learning studies, how they interrelate, and what they represent have been identified. As the number of scholars and resources contributing to organizational learning increases, an academic environment conducive to the cross-fertilization of research ideas will be formed and organizational learning as a research field will gain more momentum for further development.

The contributions of this study are the following: (1) the research direction and the most influential studies in the organizational learning field were identified; (2) key domains in organizational learning studies were identified; (3) a valuable tool was provided for researchers to assess the literature in this field. Thus, the findings of this paper can help improve how academics and practitioners understand modern organizational learning studies. The present study is distinct from previous reviews because this study focused on citation and cocitation analysis to identify key themes, concepts, and their relationships rather than on methodology (e.g., content analysis) or other narrower aspects of the organizational learning field from the past twelve years.

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