

Exploring the Impact of Environmental Uncertainty on Knowledge Management Capability of Nonprofit Organizations

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Abstract. Knowledge management capability (KMC) is widely accepted as a vital determinant of organizational competitiveness and superior performance, whereas there has been little relevant research conducted in nonprofit organizations (NPOs). The purpose of this paper is to analyze the linkages among environmental uncertainty, social entrepreneurial orientation (SEO) and KMC in the nonprofit context. After reviewing the literature on KMC and its relationship with environmental uncertainty and SEO, this paper tests the hypothesized relationships on a sample of 158 NPOs. Results indicate that environmental uncertainty can promote both SEO and KMC and that SEO is positively associated with KMC. The results also demonstrate that SEO partially mediates the relationship between environmental uncertainty and KMC of NPOs. Finally, this study discusses the implications of the findings and highlights some future research directions.

Keywords: environmental uncertainty; knowledge management capability; social entrepreneurial orientation; nonprofit organizations.

1. Introduction

The expansion of nonprofit organizations (NPOs) is a worldwide phenomenon which has been described as a “global associational revolution”. Since the nonprofit sector plays an increasingly important role in the economy and society, it has attracted increasing attention from academics and practitioners. Nevertheless, NPOs are facing pressures from the increasing demand of services from stakeholders, the decline of government funding sources, and the presence of for-profit organizations in the traditional nonprofit service areas [1]. The implications of knowledge to organizational competitiveness and superior performance have been the focus of investigation for researchers over the past few years. Today, knowledge and the capability to create and utilize knowledge are considered to be the most critical resources to organizations [2]. In this environment of rapid change and uncertainty, where the demands of the markets keep changing, the only way for any organization to obtain competitive advantage is via its knowledge.

In spite of the fact that knowledge management is of great interest and has great potential value to NPOs, there has been very little research in this area. Therefore, this study attempts to make some contributions to knowledge management in the nonprofit context. In addition, this study has also realized that social entrepreneurial orientation (SEO) is crucial to the sustained and healthy development of NPOs. Hence, two research issues are to be addressed: (1) How does environmental uncertainty directly impact KMC of NPOs; and (2) What is the role of SEO in the relationship between environmental uncertainty and KMC of NPOs?

2. Theoretical Background and Hypotheses Development

2.1 Definition of Key Concepts

Uncertainty is the basic characteristic of the organization's external environment. Environment uncertainty has become a core construct of the study on the relationship between organization and environment, which influences the structure, strategy and decision-making of the organization [3, 4]. The conceptualization of environmental uncertainty mainly involves two perspectives: the first is

information uncertainty perspective, which assumes environmental uncertainty is the result of lacking complete information of the external environment [5]; the second is resource dependence perspective, which attributes the environmental uncertainty to the reliance on the key resources in the organization's external environment [6]. Based on the above perspectives, scholars come with different ways to define environmental uncertainty. According to Duncan [7], environmental uncertainty is a situation in which, due to the lack of the information about the environment, the organization fails to forecast the external change and its possible influence on organization's decision-making.

Today's society is walking in the direction of knowledge as the basic economic resources, which will replace the capital, labor force and natural resources [8]. The goal of knowledge management is to seek for the long-term development of the enterprise through appropriate knowledge management by treating knowledge as the most important resource. The enterprise's ability to manage its implicit and explicit knowledge is critical to its sustainable development. Although varied in definition, the connotation of KMC is almost the same. Tierce et al. proposed KMC means the capability of creating, acquiring, integrating and allocating knowledge [9]. Tanriverdi summarized KMC into two aspects: the first is the ability to create, transfer and apply knowledge, and the second is the ability to integrate knowledge with other resources and capabilities [10]. Accordingly, this present study defines KMC of NPOs as the capability of acquisition, transmission, sharing and application of knowledge.

2.2 Influence of environment uncertainty on KMC of NPOs

Technology development and reduction in product life cycle require the enterprise to innovate and integrate technology and management innovation into the inherent organization structure and system for survival and development. And this innovation involves effective management of its knowledge. Due to the change in external environment, NPOs has been experiencing serious survival crisis which forces NPOs to manage their existing knowledge in a scientific and reasonable way while creating new knowledge continuously. As a result, environment uncertainty promotes the improvement in the KMC of NPOs.

Empirical studies also show that the higher level environment uncertainty brought about the higher requirement of the organization's KMC. Environment uncertainty poses higher demand for the enterprise's knowledge integration, which can only be reached though better knowledge management [11]. The swift-changing business environment demands the redefining of knowledge management of the enterprise while the improvement in KMC is the reaction to the dynamic and complex external environment [12]. It is therefore posited that:

H1: Environment uncertainty positively influences KMC of NPOs.

2.3 Influence of Environment Uncertainty on SEO of NPOs

Organization's decision depends not only on the values of the managers but more importantly on its strategic reaction towards the external environment. Many representative scholars have discussed the influence of external environment on corporate entrepreneurial orientation [13]. In empirical study, Yusuf [14] found that environment uncertainty has an obvious positive influence on entrepreneurial orientation while manufacturing enterprises appeared more entrepreneurial orientation compared with commercial enterprises. Taking the small and medium-sized enterprises as subjects, Sciacca et al. [15] analyzed the influence of different constitutional dimensions of environment uncertainty on entrepreneurial orientation and the results indicated that both environmental dynamism and complexity have positive effects on the entrepreneurial orientation of small and medium-sized enterprises. In the context of public sectors and NPOs, Carian et al. [16] investigated the Australian public sectors and found that environment uncertainty has an obvious positive influence on the entrepreneurial orientation of the public sector. Whereas, based on the samples of American NPOs, Morris et al. [17] found that environment dynamism do not have a significant influence on entrepreneurial orientation. Hence, it is posited that:

H2: Environment uncertainty positively influences SEO of NPOs.

2.4 Influence of SEO on KMC of NPOs

As an important form of strategic orientation for enterprises, entrepreneurial orientation emphasizes the utilization of new and existing knowledge to exploit and take advantage of emerging

market opportunities. Entrepreneurship-oriented companies support creative ideas and tend to develop new product and services which require a great deal of knowledge. In exploring the market opportunities and promoting innovation, highly entrepreneurship-oriented companies will face great risks and uncertainty. This requires organization's members to have more contact, and exchange and transmit implicit knowledge to solve problems and avoid mistakes. Entrepreneurship-oriented company will promote the utilization of knowledge and the level of innovation through encouraging learning and social integration.

Very little research has been done on the relationship between social entrepreneurship and knowledge management. As an important branch of entrepreneurship research, social entrepreneurship also has the behavioral characteristics of innovativeness, pro-activeness and risk-taking [18]. Hence, we can conclude that during the implementation of SEO strategy, NPO's staff generate, transmit, spread and apply knowledge actively which will not only decrease the uncertainty and improve the organization's ability to cope with risks but also promote the communication of knowledge and contribute to the generation of new non-redundant and heterogeneous knowledge within organization. Therefore, it is posited that:

H3: SEO positively influences of KMC of NPOs.

Based on the above analysis, the research model of this study is depicted in Figure 1. In the model, KMC is the independent variable and is positively related to environmental uncertainty, whereas SEO is the possible mediator.

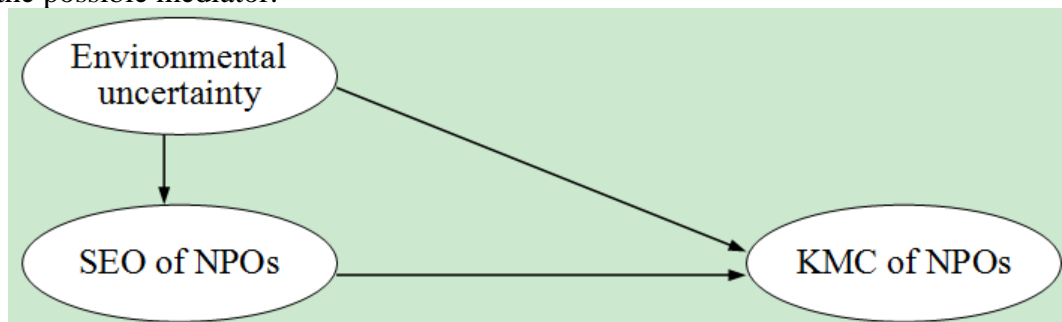


Fig. 1 Research model

3. Methods

3.1 Data and Measures

To test our research hypotheses, we conducted a survey of NPOs located in east China. The survey questionnaires were handed out to 500 NPOs and 158 valid surveys were returned.

This study used a six-point Likert scale with "1" indicating disagree completely and "6" indicating agree completely. Building on the work of Duncan [7], and Dress and Beard [19], this study adopted a five-item scale to measure environmental uncertainty, including two dimensions of environmental complexity and environmental dynamism. Building on the work of Liao et al. [12] and Letter et al. [20], this study adopted a four-item scale to measure KMC of NPOs. Building on the work of Helm and Anderson [21] and Chen and Hsu [22], this study designed an eleven-item scale to measure SEO of NPOs, including four dimensions: innovativeness, reactivity, risk-taking and reciprocity. Each scale item was judged by comparing the statement and the organization's actuality.

4. Results

4.1 Reliability and validity analysis

Cronbach's alpha allows examining the reliability of each construct. Hence, Cronbach's alpha coefficients for each of the dimensions and overall for the three variables were calculated. Results for innovativeness, reactivity, and risk-taking and reciprocity dimensions and for the entire SEO scale were 0.781, 0.729, 0.608, 0.626 and 0.837 respectively. Similarly, results of 0.736 and 0.665 were obtained for environmental complexity and environmental dynamism respectively and of 0.761 for the entire environmental uncertainty scale. The coefficient alpha obtained for the KMC items was

0.768. All alpha coefficients are greater than 0.60 and therefore acceptable, which indicate all the constructs have good reliability.

The validity of each variable was investigated using confirmatory factor analysis via statistical package LISREL 8.70. Table 1 provides excellent fit statistics for both the SEO and KMC constructs and a reasonable fit to the environmental uncertainty construct. The findings indicate all the constructs have good validity.

Table 1 Confirmatory factor analysis for variables in the study

Fit indices	Environmental uncertainty	SEO	KMC	Threshold level
<i>GFI</i>	0.97	0.93	0.98	>0.90
<i>CFI</i>	0.96	0.98	0.98	>0.90
<i>NFI</i>	0.95	0.94	0.97	>0.90
<i>NNFI</i>	0.90	0.96	0.94	>0.90
<i>RMR</i>	0.043	0.054	0.033	<0.08
χ^2/df	3.45	1.65	2.78	<3.0

SEO: social entrepreneurial orientation; KMC: knowledge management capability

4.2 Hypothesis Testing

Having established the reliability and validity of the measures, we tested the hypotheses using a path model via statistical package LISREL 8.70 and employing maximum likelihood estimation. As shown in Figure 2, the results indicated that the proposed model fit the data well ($\chi^2/df = 1.99$, Goodness of Fit Index (*GFI*) = 0.92, Root Mean Square Residual (*RMR*) = 0.071, Comparative Fit Index (*CFI*) = 0.97, Normed Fit Index (*NFI*) = 0.94, Non-Normed Fit Index (*NNFI*) = 0.95. Hence, the hypotheses were tested by examining the standardized path coefficients.

Environmental uncertainty has significantly positive effects on KMC ($\beta = 0.55$, $t = 4.71$, and $p < 0.01$) and SEO ($\beta = 0.52$, $t = 5.13$, and $p < 0.01$). SEO also has a significantly positive effect on KMC ($\beta = 0.40$, $t = 3.72$, and $p < 0.01$). These results indicated that environmental uncertainty promotes SEO and KMC of NPOs. In addition, the promotion of SEO could enhance KMC of NPOs. These analytical results support Hypotheses 1-3.

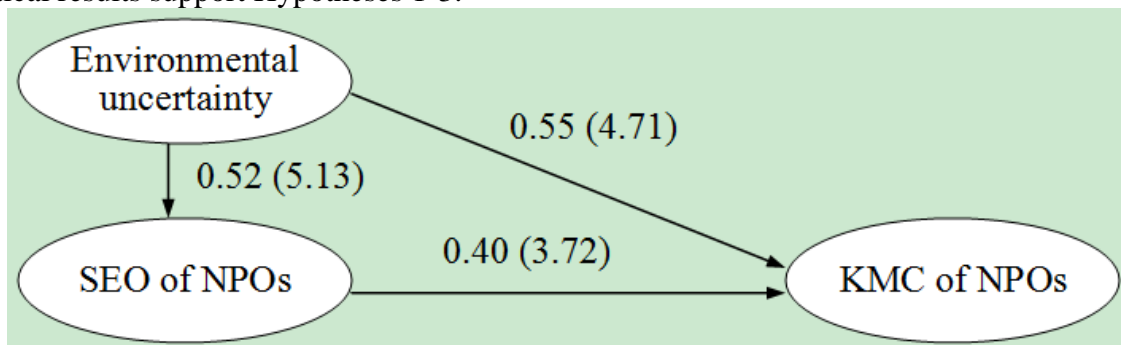


Fig. 2 Structural equation modeling results

5. Conclusions and implications

5.1 Conclusions and discussions

This present study has examined the linkages among environmental uncertainty, SEO and KMC in the nonprofit context. Firstly, the findings confirm that environmental uncertainty affects KMC positively. This result is consistent with the empirical findings by Liao et al. [12], which indicate environmental uncertainty tends to require firms to increase their KMC. Secondly, the results show that environmental uncertainty affects SEO positively. This result concurs with Sciacca et al. [15], which argued that the more dynamic and complex the environment, the more likely small and medium enterprises adopt an entrepreneurial approach to take advantage of emerging opportunities in the environment. Finally, taking into account that SEO also affects KMC; the results seem to reflect that SEO partially mediates the relationship between environmental uncertainty and KMC of NPOs.

5.2 Theoretical and managerial implications

This study does make some theoretical contributions. Firstly, in comparison with the previous studies that discuss the relationship between entrepreneurial orientation and KMC or between environmental uncertainty and KMC, this study attempts to explain how certain external and internal factors, independently and jointly influence KMC. Besides, from the resource-based view, this study contributes to verify how dynamic and complex contexts are most conducive for acquiring and applying knowledge resources. Further, given the relevant studies primarily focus on for-profit organizations, the contribution of this study is that entrepreneurial orientation theory and knowledge management theory have been extended to NPOs, which also provides inspiration for comparative study of NPOs and for-profit organizations.

The findings of this study also have many practical implications. Firstly, it is imperative for NPOs to devote more attention to embrace KMC as a vital management tool for coping with uncertain environment. In doing so, top management should make efforts to acquire new knowledge, impart knowledge to staff and encourage the application of knowledge. Meanwhile, the results demonstrate the importance of engaging in entrepreneurial activities as a means to produce excellent KMC. Specifically, top management should ensure particular emphasis on the development of new services or programs, make a full use of the potential opportunities in the environment, and establish a broad partnership with other organizations etc.

5.3 Limitations and future research

As with most empirical survey based research, this study does have a number of limitations. Firstly, data in this study was collected from a single-informant, using of self-reported measures. Although this approach is commonly used and justified in previous studies, future studies may wish to consider collecting data from multiple informants with both perceptual and archival sources. Secondly, future research should extend the current model by linking environmental uncertainty, SEO and KMC to NPOs' performance, such as financial results, stakeholder trust, mission achievement and social reputation, which will yield more valuable managerial and theoretical implications for both policy-makers and practitioners.

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References

- [1] R.E. McDonald: An Investigation of Innovation in Nonprofit Organizations: The Role of Organizational Mission, *Nonprofit and Voluntary Sector Quarterly*, Vol. 36 (2007) No. 2, p. 256-281.
- [2] I. Nonaka, H. Takeuchi: *The Knowledge-creating Company* (Oxford University Press, New York 1995).
- [3] D. Miller: Relating Porter's Business Strategies to Environment and Structure: Analysis and Performance Implications, *Academy of Management Journal*, Vol. 31 (1998) No. 2, p. 280-308.
- [4] D. Miller, P.H. Friesen: Strategy-Making and the Environment: The Third Link, *Strategic Management Journal*, Vol. 4 (1983) No. 3, p. 221-235.
- [5] P. Kreiser, L. Marino: Analyzing the Historical Development of the Environmental Uncertainty Construct, *Management Decision*, Vol. 40 (2002) No. 9, p. 895-905.
- [6] J. Pfeffer, G. Salancik: *The External Control of Organizations: A Resource Dependence Perspective* (Harper & Row Publishers, New York 1978).
- [7] R.B. Duncan: Characteristics of Organizational Environments and Perceived Environmental Uncertainty, *Administrative Science Quarterly*, Vol. 17 (1972) No. 3, p. 313-327.
- [8] P. Drucker: *The Post-Capitalism* (Harper & Row Publishers, New York 1993).

- [9] D.J. Teece, G. Pisano, A. Shuen: Dynamic Capabilities and Strategic Management, *Strategic Management Journal*, Vol. 18 (1997) No. 7, p. 509-533.
- [10] H. Tanriverdi: Information Technology Relatedness, Knowledge Management Capability, and Performance of Multi Business Firm, *MIS Quarterly*, Vol. 29 (2005) No. 2, p. 311-334.
- [11] R. Grant: Prospering in Dynamically Competitive Environments: Organizational Capability as Knowledge Integration, *Organ Science*, Vol. 7 (1996) No. 3, p. 375-387.
- [12] C.C. Liao, S.H. Chuang, P.L. To: How Knowledge Management Mediates the Relationship Between Environment and Organizational Structure, *Journal of Business Research*, Vol. 64 (2011) No. 7, p. 728-736.
- [13] T.G. Lumpkin, G.G. Dess: Clarifying the Entrepreneurial Orientation Construct and Linking It to Performance, *Academy of Management Review*, Vol. 21 (1996) No. 1, p. 135-172.
- [14] A. Yusuf: Environmental Uncertainty, the Entrepreneurial Orientation of Business Ventures and Performance, *International Journal of Commerce and Management*, Vol. 12 (2002) No. 3/4, p. 83-103.
- [15] S. Sciascia, L. Naldi, E. Hunter: Market Orientation as Determinant of Entrepreneurship: An Empirical Investigation on SMEs, *The International Entrepreneurship and Management Journal*, Vol. 2 (2006) No. 1, p. 21-38.
- [16] A. Caruana, M.T. Ewing, B. Ramaseshan: Effects of some Environmental Challenges and Centralization on the Entrepreneurial Orientation and Performance of Public Sector Entities, *The Service Industries Journal*, Vol. 22 (2002) No. 2, p. 43-58.
- [17] M.H. Morris, S.M.T. Coombes, J. Allen, M. Schindehutte: Antecedents and Outcomes of Entrepreneurial and Market Orientations in a Non-profit Context: Theoretical and Empirical Insights, *Journal of Leadership and Organizational Studies*, Vol. 13 (2007) No. 4, p. 12-39.
- [18] J. Weerawardena, G.S. Mort: Investigating Social Entrepreneurship: A Multidimensional Model, *Journal of World Business*, Vol. 41 (2006) No. 1, p. 21-35.
- [19] G.G. Dess, D.W. Beard: Dimensions of Organizational Task Environments, *Administrative Science Quarterly*, Vol. 29 (1984) No. 1, p. 52-73.
- [20] E. Lettieri, F. Borga, A. Savoldelli: Knowledge Management in Non-profit Organizations, *Journal of Knowledge Management*, Vol. 8 (2004) No. 6, p. 16-30.
- [21] S.T. Helm, F.O. Andersson: Beyond Taxonomy: An Empirical Validation of Social Entrepreneurship in the Nonprofit Sector, *Nonprofit Management and Leadership*, Vol. 20 (2010) No. 3, p. 259-276.
- [22] H.L. Chen, C.H. Hsu: Entrepreneurial Orientation and Firm Performance in Non-profit Service Organizations: Contingent Effect of Market Orientation, *The Service Industries Journal*, Vol. 33 (2013) No. 5, p. 445-466.