

Based on Analytics Hierarchy Process to Discuss Success Factors in Higher Education Schools' Promotion of Knowledge Management

Kuan-Hung Chen & Chien-Wen Wang

College of Tourism and Geography, Shaoguan University, Shaoguan 512005, China

Email: guan hong0224@sgu.edu.cn, 3346586525@qq.com

Abstract

The rapid change in social environment results in different ecology of education from it used to be. To seek for the environment adaptive to the new age, schools have to well apply the power of knowledge. In the educational organization system, schools play the role of knowledge driving force. A school should not simply be a place for knowledge accumulation and delivery, but the place for knowledge collection, organization, analysis, application, sharing, recreation, and delivery. For this reason, it is urgent to precede educational reform to implement the idea of "knowledge management" in the administrative organizations of schools to have schools get rid of general rigid image. Based on Delphi Method, the AHP dimensions are established in this study. Taking teachers and administrators of higher education schools in Taiwan as the research samples, the questionnaire is collected through mails. The research results are concluded as below. 1. Among the factors in higher education schools promoting knowledge management, culture is the mostly emphasized dimension. 2. Among 15 evaluation indicators, top five indicators are sequenced employee consensus, employee trust, communication infrastructure, high-level support, and communication channels. According to the results, suggestions are proposed, expecting to strengthen higher education school centered management ability through the guidance of knowledge management, during the promotion of educational reform, to promote school effectiveness and achieve the objective of educational reform.

Keywords: Higher education school, Knowledge management, Key success factor

1. Introduction

The rapid change in current social environment results in severe national competition. Localization, globalization, and informatization faced in education also have schools encounter rapid changes. Education is the key in national competitiveness. Due to the rapid change in social environment, the ecology of education is different from it in the past. To seek for the environment adaptable to the new age, schools have to well apply the power of knowledge. It is now the knowledge-based economic era. In the knowledge-based economic environment, the conclusion is directed to the importance of talents. In the school environment in the knowledge-based economic era, organizational knowledge is not simply the traditional text organization; the operation of knowledge becomes multiple and rich, and the collection and application of school knowledge could encounter the impact and direction of future trend. Knowledge is regarded as an important

organizational resource and the basis for sustainable development. Especially in the violently competitive environment or the environment with fundamentality and broad changes, innovation is considered as the key factor in an organization creating value and sustainable competitive advantage in the changing and complicated environment. In the rapidly changing environment, organizational leadership stressing on knowledge would appear higher success opportunities, and the practice of knowledge management could enhance organizational members' ability and promotion to have school organizations better adapt to the rapidly changing environment. In other words, in the rapidly changing era in the 21st century, organizational knowledge is a primary resource and the development basis. The development of organizational knowledge depends on organizational knowledge management; good organizational knowledge management could facilitate an organization to become a eurytopic organization and enhance organizational response ability for constant development. For this reason, organizational knowledge management is a key factor in organizational development. In the education organization system, schools play the role of knowledge driving force, and teachers (education professionals) are the knowledge workers with large amount of professional knowledge and should present management and innovation ability of knowledge. However, schools are generally considered as conservative and ideal, disassociated from society, and simply the place to accumulate and deliver knowledge. In fact, schools should not simply be the place to accumulate and deliver knowledge, but should be the place to collect, organize, analyze, apply, share, recreate, and deliver knowledge. For this reason, it is urgent to implement the idea of "knowledge management" in the administrative organizations of schools in the educational reform to have schools get rid of the general rigid image. Success factors in higher education schools promoting knowledge management are discussed in this study, expecting to reinforce higher education school based management ability through the guidance of knowledge management, during the promotion of educational reform, in order to promote school effectiveness and achieve the objective of educational reform.

2. Literature Review

2.1. Knowledge management

Saleem & Amin (2013) defined knowledge management as the systematic process of acquisition, creation, possession, integration, and learning. Chiu et al. (2015) pointed out the objective of knowledge management as to induce tacit knowledge, through knowledge spiral, to establish organizational knowledge assets and provide organizational members with the application of organizational knowledge resources to further internalize into the tacit knowledge. It would enhance decision quality as well as update and enrich organizational knowledge assets. To effectively manage organizational knowledge resources, an enterprise could utilize information and telecommunication technologies and new working organization as well as effectively manage

organizational knowledge assets (De Angelis, 2013). Broadly speaking, activity which could effectively enhance the value of knowledge assets was the content of knowledge management (Singh & Sharma, 2011). Lee & Chen (2011) defined it as the ability to manage knowledge creation, spread, and influence in order to practice organizational goals. It was further indicated that “knowledge management” was the set to present organizational design and business principle, process, organizational structure, and application technique, which could help knowledge workers present the creativity and ability with astonishing efficiency to create value for the enterprise.

Referring to Hu et al. (2014), knowledge management is regarded in this study as a business process to create and use the institutional or group knowledge, including four dimensions of leadership, culture, technology, and measurement.

2. 2. Key factors in knowledge management practice

Benjamin et al. (2011) concluded eight points to effectively promote organizational knowledge management. (1) To have organizational knowledge present obvious economic efficiency or closely correlate with corporate interests and competitive advantage. (2) To develop good technology and organizational infrastructure beneficial to knowledge management, including computer networks and information software beneficial to knowledge circulation, and departments or organization systems being able to promote knowledge management, e.g. CKO system (Dalal, 2014). (3) To develop proper and practicable organizational knowledge bank with standard systems and flexible structure. A proper and practicable organizational knowledge structure could assist in the promotion of projects related to knowledge development in an organization. (4) To form the knowledge-type organizational culture beneficial to knowledge circulation and innovation (Pavlou & El Sawy, 2011). (5) To provide definite objectives, definite definitions, and definite wording for organizational knowledge management. Different from information management, knowledge management should be able to precede definite communication and establish members’ consensus about the promoted project objectives and knowledge definitions in the organization (Nieves & Haller, 2014). (6) An organization should establish effective incentives for the members participating in and supporting knowledge management related activity. Incentives would be necessary to have the members be willing to support knowledge management and participate in sharing knowledge. The incentives should contain material and spiritual and be direct and effective, especially for the so-called intellectuals (Meenu, 2012). (7) Several channels beneficial to knowledge circulation in an organization could result in added value of knowledge in the knowledge flow process. (8) Support from high-level supervisors, including oral, action, and resource support. High-level supervisors did not necessarily participate in knowledge management activity, but the attitudinal support and agreement were essential.

Kurtessis et al. (2015) pointed out the important to systematically concern about knowledge management and pick out mistakes to avoid knowledge management becoming the management fever. Such problems contained the following mistakes. 1. Not developing a working definition of knowledge) (Jing,2012). 2. Emphasizing knowledge stock to the detriment of knowledge flow. 3. Viewing knowledge as exiting predominantly outside the heads of individuals. 4. Not understanding that a fundamental intermediate purpose of managing knowledge is to create shared context). 5. Paying little heed to the role and importance of tacit knowledge (Tero&Paivi,2013) . 6. Disentangling knowledge from its uses. 7. Downplaying thinking and reasoning. 8. Focusing on the past and the present and not the future. 9. Failing to recognize the importance of experimentation. 10. Substituting technological contact for human interface. 11. Seeking to develop direct measures of knowledge (Vladimir&Costin,2013).

3. 2. *Key success factor*

Lee (2011) regarded key success factors (KSF) as the primary factors in supporting or threatening the achievement of corporate goals and even the existence. Shinha & Sen (2011) indicated that analyses of KSF should cover three levels of macro-environment, industrial environment, and corporate environment, and opportunities and threats should be found out from macro-industrial environment and competitors for strategy confirmation and environment analyses. The advantages and disadvantages of the enterprise were then evaluated to analyze the resources and evaluate the distribution of limited resources to KSF so as to plan successful advantage strategies. KSF is defined in this study as the items with the priority being taken into account when analyzing the industry as well as the most important control variable in management. Cox et al. (2012) stated that searching for key success factors in industry could inspect the resources of an enterprise and analyze the opportunities and threats to make business operation and differentiation strategies which could not be easily followed or imitated by competitors. KSF presents four characteristics. (1) Any changes in the environment should be known to make dynamic adjustment along with changes in market, time, location, corporation, industry, or product life cycle. (2) To consider the future development of industry with prospective, it should focus on short-term goals and concern about medium- and long-term trend. (3) Managers should confirm KSFs in industry as the reference for making decisions and then concentrate corporate resources on the most important field to reduce resource displacement and develop the competitive advantage. (4) Capitals, manpower, and time are limited resources for an enterprise that managers should effectively apply such resources to the most critical field for the success of the enterprise (Walsh et al., 2011).

To sum up researchers' opinions about key success factors, there are various factors in the business performance of a company. Although such factors would be different with the property of

industries, the meanings were actually consistent to explain that key success factors essentially presented the competition conditions for companies acquiring competitive advantage and increasing business performance (Smith et al., 2014).

3. Research Method

Delphi Method. Delphi Method is applied to establish the AHP dimensions in this study. With Delphi Method, also named expert survey, problems which require solutions are separately sent to experts, through mails, for opinions, which are collected and organized the comprehensive opinions. The comprehensive opinions and predicted problems are feedback to the experts for further opinions. The experts would revise the original opinions according to the comprehensive opinions. With several runs of inquiry and opinion collection, the consistent prediction results are gradually acquired. According to the system program in Delphi Method, anonymous opinions are applied, i.e. no mutual discussion among experts. There is no horizontal contact, but simply the relationship with the surveyor. By surveying experts' opinions about the proposed problems for several times, the basically consistent opinions are organized through repeated inquiry, induction, and revision to become the prediction results. Such a method presents general representativeness and is more reliable.

Establishment of indicators. The questionnaire is sent to experts in various fields through emails. The first time expert feedback is calculated the considerations for factors in higher education schools promoting knowledge management. Such factors with similar properties are classified and mailed back to the experts for further opinions. The final categories are achieved through several runs of email. An expert meeting is then called to set the factors in higher education schools promoting knowledge management, including leadership, culture, technology, and measurement. Such key factors are used as the AHP dimensions, and the AHP questionnaire is established according to the correspondent categories. After the revision with Delphi Method, the evaluation factors in this study are organized as below. (1) Leadership (definite goal, specific unit, high-level support); (2) Culture (employee trust, employee consensus, communication channels, organizational culture); (3) Technology (communication infrastructure, file database, data mining, work process software); (4) Measurement (process ability, number of patents, quality yield, work efficiency).

Research object. Taking teachers and administrators of universities in Taiwan as the research samples, the questionnaire is collected through mail. A total of 250 copies of the questionnaire were distributed, and 211 valid copies were retrieved, with a retrieval rate 84%.

4. Finding and Discussion

After completing all hierarchical weights, the distribution is referred to the relative importance of indicators in different hierarchies to reveal the importance of hierarchical factors in the entire evaluation system. The overall weights of factors in higher education schools promoting knowledge management are organized in Table 1.

Table 1. Overall weights of factors in higher education schools promoting knowledge management

dimension	Hierarchy 2 weight	Hierarchy 2 sequence	indicator	Overall weight	Overall sequence
leadership	0.233	3	definite goal	0.036	14
			specific unit	0.071	7
			high-level support	0.085	4
culture	0.316	1	employee trust	0.102	2
			employee consensus	0.117	1
			communication channels	0.082	5
			organizational culture	0.058	10
technology	0.283	2	communication infrastructure	0.093	3
			document database	0.074	6
			data mining	0.050	11

			work process software	0.042	13
measurement	0.168	4	process ability	0.045	12
			number of patents	0.015	15
			quality yield	0.064	9
			work efficiency	0.066	8

5. Conclusion

According to the empirical result analysis, the following conclusion is acquired. “Culture”, weighted 0.316, is the mostly emphasized dimension in hierarchy 2, about 31.6% of overall weight, followed by “technology” (weighted 0.283), “leadership” (weighted 0.233), and “measurement” (weighted 0.168). According to the results, culture is considered as the mostly emphasized factor in higher education schools promoting knowledge management. (1) The evaluation indicators in hierarchy 3 are sequenced as following; (2) Under leadership, the indicators are sequenced high-level support, definite goal, and specific unit; (3) Under culture, the indicators are sequenced employee consensus, employee trust, communication channels, and organizational culture; (4) Under technology, the indicators are sequenced communication infrastructure, document database, data mining, and work process software; (5) Under measurement, the indicators are sequenced work efficiency, quality yield, process ability, and number of patents. By organizing the overall weights of the indicators of factors in higher education schools promoting knowledge management, top 5 indicators, among 15 evaluation indicators, contain employee consensus, employee trust, communication infrastructure, high-level support, and communication channels.

Teacher consensus is a key success factor in higher education schools promoting knowledge management and individual involvement in knowledge management that it is urgent to establish teachers’ correct cognition of knowledge management. In this case, higher education schools could regularly conduct knowledge management education and training to promote employees’ understanding of knowledge management and the importance. Besides, the importance of knowledge management could be constantly delivered in various meetings, with the participation of managers, to reinforce higher education school teachers’ consensus of knowledge management.

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Communication infrastructure shows decisive function on the success of higher education schools promoting knowledge management, as all dimensions covered in the knowledge management plan, including education and training, learning new knowledge, sharing knowledge, and establishment knowledge bank, could develop the effectiveness through the application of information technology. It is therefore suggested that higher education schools should jointly establish database system, document management system, and collaboration software to achieve the cross-platform integration and enhance the knowledge management efficiency.

High-level support is extremely important for higher education schools promoting knowledge management, because the promotion of knowledge management requires the entire organizational strength and large amount of money and manpower. Apparently, higher education schools would more or less encounter obstacles when promoting knowledge management. It is suggested that a department could be established by the high-level of higher education schools to specifically plan knowledge management, make standards, and provide proper assistance to avoid unnecessary exploration and waste. Furthermore, teachers with good performance should be properly rewarded.

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