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KEY FACTORS IN KNOWLEDGE MANAGEMENT OF HIGHER EDUCATION SCHOOLS

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Abstract

Quality education is one of the most important and effective ways to promote national competitiveness. Schools are education-oriented places, but the major resource is knowledge that teachers' effective knowledge management is related to the future development of schools. Being the first-line personnel in education, teachers are facing the role of education, students, and working for knowledge delivery. Knowledge management would not simply affect students' learning outcomes but also the effectiveness of running a school. Targeting higher education schools in the south of Taiwan, teachers and administrative staff were distributed 300 copies of a questionnaire usung with random sampling techniques. A total of 223 valid copies were retrieved, with the retrieval rate 74%. Based on the research results, suggestions are proposed, assisting higher education teachers present good knowledge management ability and promote teaching quality to make students' learning more effective and benefit the promotion of school effectiveness.

Keywords: higher education school, knowledge management, learning style, professional performance

Introduction

Quality education is one of the most important and effective ways to promote national competitiveness, and "pursuing excellence and promoting quality" is the ultimate goal of education (Nesje, 2015). A school is the major place to systematically promote education activity with plans that the management and development cannot be ignored. The establishment of effective school organizations and the provision of the best learning opportunity for each learner are the primary content of education research and reform. A knowledge-basic economic society, with knowledge as the major asset, is led by knowledge workers. In the knowledge-based society after capitalism, the application and production of knowledge are the power of economic growth. The concept of teachers' knowledge management comes from business, where the establishment and circulation of organizational members' knowledge could be enhanced through knowledge internalization and explicitness to further enhance the members' work effectiveness and school effectiveness (Nadelson & Finegan, 2014).

Teachers' knowledge management requires the development and establishment of database with information technology as well as the constant research and innovation through knowledge creation, confirmation, collection, organization, sharing, adjustment, and use to achieve the knowledge innovation and sharing and facilitate personal growth and organizational progress. Teachers' knowledge management is the management of knowledge applied in organizations, through knowledge collection, organization, save, transformation, spread, transfer, sharing, and application, to effective apply knowledge and innovate knowledge and further promote organizational effectiveness. In this case, effectively collecting, sorting, saving, sharing, and creating knowledge is the primary issue for higher education school organizations.

Schools are the education oriented places, while knowledge is the major resource of schools. For this reason, effective teachers' knowledge management is related to the future development of schools (Stéger, 2014). Teachers, being the first-line personnel in education, are facing the role of education, students, and preceding knowledge delivery. Knowledge management would not simply affect students' learning outcome, but also the effectiveness running a school.

Teachers' knowledge management therefore becomes more important. Being in the knowledge transformation time, teachers without enriching themselves, continuously preceding professional growth, and doing knowledge management would be eliminated by the time. The importance of teachers' knowledge management is apparent. The factors in knowledge management in higher education schools are therefore discussed in this study, expecting to assist higher education teachers present good knowledge management ability, enhance teaching quality, and make students' learning more effective to benefit the promotion of school effectiveness.

Literature Review And Hypothesis

Knowledge Management

Colomeischia & Colomeischia (2014) mentioned that knowledge management covered the selection, acquisition, learning, creation, spread, construction, and save of knowledge, which were then formed the knowledge management system to become the cultural system of management. Willetts & Clarke (2013) regarded knowledge management as the application of information technology to systematically classify, select, and save explicit knowledge in an organization as the reference for the experience accumulation and operation. On the other hand, incentives and encouragement were used for operating organizational learning, creation, integration, application, and movement in order to acquire the tacit knowledge of organizational members. Explicit and tacit knowledge was then connected and organized to construct the organizational knowledge bank to cope with internal and external changes of the organization. It was expected to provide the best service and grasp competitive advantage to achieve the common vision of the organization. Referring to Fenga et al. (2013), the definitions and dimensions for knowledge management are utilized in this study.

(1) Knowledge acquisition: Stéger (2014) considered that an organization, when lacking certain knowledge, would appear "knowledge gap". It would have to introduce or transform knowledge through dynamic learning to achieve the goal of knowledge acquisition.

(2) Knowledge sharing: Nesje (2015) indicated that knowledge sharing or transformation was not a special terminology, but occurred in

people's living environment. The discussion about problems or the enquiry about the filling of budget application forms was the process of knowledge sharing.

(3) Knowledge transformation: Willetts & Clarke (2013) pointed out the key factor in an organization remaining the operation as successfully transforming tacit knowledge into applied explicit knowledge to further enhance the operation performance and encounter external impact and challenge of the organization.

(4) Knowledge creation: Shah & Abualrob (2012) mentioned that an organization would not create knowledge, while individual tacit knowledge was the basis of organizational knowledge creation. The process of such knowledge creation was called "knowledge spiral".

Learning Styles

Shao et al. (2015) regarded individual unique learning methods as the learning preference, tendency, model, strategy, or method. Learning styles presented consistency and stability and was affected by individual past learning experience and the interaction with the environment. Bayar (2014) pointed out learning styles as the preference, habit, or tendency performed by an individual in different learning environment, including preference for certain learning materials, learning strategies to solve problems, and methods to certain reaction. Newton (2013) referred learning styles as the product of learners' comprehension of learning environment and the interaction with the environment, as each person had the learning methods; in order to enhance academic achievement, the best way was to match students' learning methods. Geoffrion (2015) considered that learning was used by learners in different learning situations; the styles would be affected by the interaction among cognitive, affective, social, and physiological factors and were the lasting reaction. Vardaman et al. (2014) stated that learning styles contained cognitive, emotional, social, and physiological factors, presented uniqueness, permanency, and consistency, were individual conventional methods used in the learning process, as well as the unique reaction to achieve effective learning.

Referring to Chen & Tjosvold (2014), cognitive, affective, and physiological traits are the lasting

indicators to observe, interact, and react in learning environment. The three dimensions of cognitive style, affective style, and physiological style are classified for learning styles.

Professional Performance

Mcneil et al. (2013) mentioned that profession was largely different from "occupation" or "trade" which could be engaged in according to regulations, without advanced academic interpretation and special training. Professional performance referred to the degree or the performance of an individual completing specific work or affairs in the professional working place (Nadelson & Finegan, 2014). In the research on performance arts audience's lifestyles, Bobek et al. (2012) pointed out performance as the degree of workers engaging in certain work. Kavanoz et al. (2015) also indicated that performance was the implementation of work, including three levels of individual, team, and organization, meaning the work outcome, efficiency, effect, quantity, quality, effectiveness, performance, and preference. Rigelman & Ruben (2012) considered that performance might be the impression of work result or attitude of individuals, units, or organizations. Professional performance as "professional things done by professionals" was defined by Shoji et al. (2016) in the research on human resource development personnel's professional ability and professional performance. Delvauxa et al. (2013) proposed that an individual with more professional performance might become an "expert"; on the contrary, a personal without professional characteristics might be a "novice". Sezgin & Erdogan (2015) pointed out professional performance as the degree or performance of an individual completing specific work or affairs in the professional workplace. Referring to Chen et al. (2013), the definitions and dimensions for professional performance, including (1) general literacy, (2) professional knowledge, and (3) professional attitude are used in this study.

Research Hypotheses

Burton et al. (2013) indicated that the involvement in knowledge management, such as knowledge sharing, knowledge transformation, knowledge communication, and knowledge innovation, would facilitate the operation of creative development learning, team learning, and self-learning. Nesje (2015) stated that the involvement in knowledge sharing was supplementary to team learning; to

exposure personal tacit knowledge and share knowledge to team members through team learning could enhance the acquisition of explicit knowledge as well as agitate the operation of tacit knowledge to promote employees' learning styles (Stéger, 2014). Gurung & Landrum (2012) concluded that the operation of knowledge management and learning styles could enhance employees' professional growth and performance. In this case, the following hypothesis is proposed in this study.

H1: Knowledge management presents significant correlations with learning styles.

Geoffrion (2015) mentioned that employees' knowledge acquired from learning could be expanded through save and spread functions in resource sharing zone to facilitate more criticism and correction opportunities and further enhance the practicability and effectiveness of knowledge, promote employees' professional growth, and enhance employees' professional performance. Chen et al. (2012) stated that professional growth and performance, aiming at the enhancement of work competence, general competence, and communicative competence, were innovative knowledge acquired through employees' learning styles.

The constant knowledge transformation and application could acquire the theoretical and practical experience which could be spread and saved through knowledge communication to update the sustainability of corporate knowledge and have the employees acquire more relevant competence. It would promote employees' professional performance (Chen & Tjosvold, 2014). Jamal (2014) concluded that the operation of knowledge management and learning styles could facilitate the effectiveness of professional performance. Accordingly, the following hypothesis is proposed in this study.

H2: Learning styles show remarkable correlations with professional performance.

Nadelson & Finegan (2014) mentioned that to constantly seek for the best processing method for work affairs relied on self-controlled learning styles and the creative development learning to improve the mental mode so as to effectively deduce effective and creative knowledge and further solve new problems encountered at work and promote job-related professional performance (Wang & Fwu, 2014).

Kavanoz et al. (2015) indicated that employees had to properly apply the research and discussion conclusion of knowledge management operation to the problem situations in order to seek for solutions. It was regarded as the transformation and application of knowledge, with which employees could constantly accept challenge, break through difficulties and obstacles, show professional performance, and effectively enhance the achievement of work goal (Sezgin & Erdogan, 2015). The following hypothesis is therefore proposed in this study.

H3: Knowledge management reveals notable correlations with professional performance.

Research Methods

Methods and Model

The frequently used evaluation indices for goodness-of-fit test in LISREL model contain (1) "$\chi 2$ ratio" (Chi-Square ratio), standing for the difference between real theoretical model and expected value, which is better smaller than 3, (2) goodness of fit index (GFI) and adjusted goodness of fit index (AGFI), which present the better fit when close to 1, (3) root mean square residual (RMR) of "fit residual variance/covariance mean", which is better smaller than 0.05, and (4) incremental fit index (IFI), showing excellent model fit when higher than 0.9.

The indices for the internal quality of model in LISREL include (1) SMC (square multiple correlation) of individual manifest variable, as R2 of manifest variables and latent variables, which should be higher than 0.5, (2) component reliability (ρ) of latent variables, as the Cronbach's α of observed index in the latent variable, which should be higher than 0.6, and (3) average variance extracted of latent variables, which is calculated by the R2 sum of manifest variables in a latent variable being divided by the number of manifest variables to show the percentage of latent variable being measured by manifest variables; it should be higher than 0.5.

Research Sample and Object

Aiming at higher education schools in Taiwan, the teachers and faculty are distributed 300 copies of questionnaire, with random sampling. Total 223 valid copies are retrieved, with the retrieval rate 74%. There are 22 public universities, 15 private universities, 10 public vocational colleges in south of Taiwan.

Reliability and Validity Tests

The content of this research questionnaire is based on previous theories, combined with the actual situation of the research object, to design a measurement tool that can truly express the essence of things and fully representative to ensure the validity of the content. The final commonality estimate of the factor analysis results is used to test the structural validity of the item, and the calculated validity appears between 0.8 and 0.9, indicating that the reliability of the questionnaire is good.

Empirical Results Analysis

Model Tit Test

The estimate with "Maximum Likelihood" (ML) is applied to this study, and the analysis results achieve the convergence. Overall speaking, the entire model fit indices pass the test, fully reflecting good external quality of the model.

Table 1. Model Analysis Results

	Evaluation index	Judgment standard	Result
Overall fit	*p* -value	*p* -value > 0.05	0.000
	χ2/d.f.	< 3	1.427
	GFI	> 0.9	0.982
	AGFI	> 0.9	0.915
	CFI	> 0.9	0.947
	RMR	< 0.05, < 0.025 excellent	0.018
	RMSEA	0.05~0.08 good < 0.05 excellent	0.022
	NFI	> 0.9	0.925
	IFI	> 0.9	0.919

Path Relation Test

In terms of the internal quality inspection of the model, the SMC of the explicit variables were all higher than 0.5 (Table 2 and Table 3), indicating that the latent variable indicators are good. In addition, the component reliability of latent variables such as knowledge management, learning style, and professional performance are all higher than 0.6, and the mean square deviation of the extracted dimensions

is higher than 0.5 (Table 4), which obviously meets the requirements of the inherent quality of the model.

The model analysis results, Table 5, reveal positive and notable correlations between knowledge management and learning styles (0.846), learning styles and professional performance (0.863), as well as knowledge management and professional performance (0.871) that H1, H2, and H3 are supported. The research hypothesis test results are shown in Table 6.

Table 2. SMC of variable to dimension

knowledge management			
knowledge acquisition	knowledge sharing	knowledge transformation	knowledge creation
0.82	0.87	0.79	0.78

Table 3. SMC of variable to dimension

learning styles			professional performance		
Cognitive style	Affective style	Physiological style	general literacy	professional knowledge	professional attitude
0.74	0.78	0.83	0.79	0.85	0.88

Table 4. Component reliability and average variance extracted of variables

item	knowledge management α	learning styles β	professional performance σ
component reliability	0.724	0.843	0.884
average variance extracted	0.86	0.87	0.82

Table 5. Linear structural model analysis result

Evaluation item	Parameter/evaluation standard	Result	t
Internal fit	knowledge management→learning	0.824	19.54**

	styles		
	learning styles→professional performance	0.795	27.43**
	knowledge management→professional performance	0.732	27.34**

Table 6. Hypothesis test

Research hypothesis	Correlation	Empirical result	P	Result
H1	+	0.824	0.00	Supported
H2	+	0.795	0.00	Supported
H3	+	0.732	0.00	Supported

Conclusions and Suggestions

The research results demonstrate the higher cognition of higher education school teachers' knowledge management, the more positive knowledge acquisition, knowledge transformation, and knowledge application to reinforce the professional knowledge and professional skills as well as to have higher education school teachers present good professional attitude. It also reveals that higher education school teachers stressing on knowledge acquisition, transformation, application, and sharing to constantly accumulate knowledge and reinforce professional ability would become more skilled in the professional ability and performance. Higher education school teachers with higher knowledge management would more positively promote knowledge management activity and share experience with colleagues. In this case, higher education school teachers being able to well apply learning styles to learn knowledge

would present good knowledge effectiveness and enhance the professional performance. Higher education school teachers' professional knowledge, professional skills, and good and professional attitude show better professional ability to generate better knowledge quality. Besides, higher education school teachers with better knowledge would enrich the professional ability to highlight the

excellent image of professional performance.

Looking at the research results, the following suggestions are proposed in this study.

1. Higher education schools are suggested to have the teachers understand the characteristics, suitable fields, and conditional limits of various learning styles, provide adaptable learning style training to assist higher education school teachers in making balanced development on learning styles.

2. Higher education schools are suggested to practice “mentorship” to promote knowledge management activity, with senior teachers being the mentors to be paired with junior teachers. Mentors would transform the knowledge of higher education schools and personal experience to protégés. The excitation goal could be established that both mentors and protégés could be rewarded when protégés achieve the goal. In this case, it could enhance higher education school teachers’ professional knowledge, skills, and service passion as well as promote the job performance.

3. Higher education schools are suggested to teach industry related knowledge through internal network so that the teachers could realize the industry dynamics and information at any time. Moreover, emerging tools, like Sina Weibo, could be utilized for establishing the learning network community for higher education schools sharing knowledge, positively participating in and promoting knowledge management among colleagues, and interacting among members in the professional learning community. Individualism therefore should be given up; instead, collaboration should be emphasized.

Implication for researchers and practitioners include the importance of knowledge management in the development of scholars in the school system. Limitations of the study include outcomes in selected geographical areas, and the authors suggest further research in other geographic areas.

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