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EURASIA Journal of Mathematics Science and Technology Education ISSN: 1305-8223 (online) 1305-8215 (print) 2017 13(8):4679-4687 DOI: 10.12973/eurasia.2017.00958a



# Environmental Education, Knowledge Management and Professional Performance in eco-tourism: The Impact relatedness

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Received 19 January 2017 • Revised 23 April 2017 • Accepted 12 July 2017

## ABSTRACT

Advanced technology enhances the rapid development of civilization. When the living standard is promoted, people start to pursue higher-quality material needs and mind contentment. The prevalence of leisure and entertainment has travel become an essential part of life. Along with the increasing tourist population, rural ecological environments and historical & cultural monuments are utilized for many tourist spots to cope with above needs as well as attract people who live in urban jungles leaving cities for scenery appreciation and local culture experiencing in countryside. Aiming at Yongchun Niumulin Ecological Tourism Zone, the supervisors and employees, with random sampling, are distributed 320 copies of questionnaire. Total 243 valid copies are retrieved, with the retrieval rate 76%. The research results reveal significant correlations between 1.knowledge management and environmental education, 2.environmental education and professional performance. According to the research results, suggestions are eventually proposed in this study, expecting to assist domestic eco-tourism in stable and continuous growth.

**Keywords:** eco-tourism, knowledge management, environmental education, professional performance

## INTRODUCTION

Since Industrial Revolution, the advance of technology has enhanced the rapid development of civilization. The promoted living standard and the cultivated high consumption habits have resulted in irrecoverable damage to the environment. Human beings and the environment are closely related, but the gradual damage is so broad and complicated that the caused problems are not immediately presented and are easily ignored. Environmental problems have getting worse in past years. Because of the prevalence of leisure and entertainment, the rich cultural monuments, and the planning of ecological environments and leisure facilities, people start to pursue higher-quality material needs and mind contentment along with the promotion of living standards. Nevertheless, environments suitable for living and activity are limited. People have largely increased the choices and frequency

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#### State of the literature

- Environmental problems have getting worse in past years. Because of the prevalence of leisure and entertainment, the rich cultural monuments, and the planning of ecological environments and leisure facilities, people start to pursue higher-quality material needs and mind contentment along with the promotion of living standards.
- Applying environmental education to reduce the impact of eco-tourism on natural environments and maintain the rights of descendants to enjoy natural resources and environments should be taken into account.

#### Contribution of this paper to the literature

- Course design for environmental education in eco-tourism enterprises should consider the logic arrangement of course objectives and teaching contents so that the environmental education is not simply the achievement of cognitive objectives.
- An eco-tourism enterprise is suggested to practice "employee mentorship" to promote the knowledge management, in which senior employees, as masters, are matched with junior ones.
- An eco-tourism enterprise is suggested to teach industry-related knowledge through intranet so that the employees could know new industrial dynamics and information at any time.

of leisure activity and recreational activity is the product under such time and space background. Moreover, "natural scenery appreciation" appears the highest proportion in the major recreational activity of public travel, followed by "culture experiencing".

To cope with above needs, rural ecological environments and historical & cultural monuments are utilized in many tourist spots for attracting people who live in urban jungles leaving cities for scenery appreciation and local culture experiencing in countryside. Nonetheless, not until the annually increasing tourist population and the overuse of ecological environments result in the ruthless counterattack of the nature are people aware of the importance of coexistence and common prosperity. For this reason, measures giving considerations to both are searched, and the idea of "green tourism" is then proposed. Green tourism, the travel pattern with the least impact on environments, insists on the spirit of energy saving and carbon reduction as well as the enjoyment of ecological and cultural experiences. Environmental protection measures are the practice of green tourism. In this case, applying environmental education to reduce the impact of eco-tourism on natural environments and maintain the rights of descendants to enjoy natural resources and environments should be taken into account.

## LITERATURE REVIEW

## **Knowledge Management**

Shah & Abualrob (2012) simply explained knowledge management as the process of effectively recording, classifying, storing, expanding, and updating experiences and knowledge in an organization. Furthermore, it was to develop and establish the technology (or procedure) for creating, protecting, and using known knowledge to design and create an environment or activity for discovering unknown knowledge. Finally, the objectives and essence of knowledge management were realized and implanted in the daily operation of the organization (Charkhabi et al., 2013). Colomeischia & Colomeischia (2014) covered the selection, acquisition, learning, creation, expansion, construction, and storage of knowledge in knowledge management to form the knowledge management system and further form the managerial culture system. Nesje (2015) defined knowledge management as planning, organizing, and classifying existing knowledge in an organization; such existing knowledge was "explicit knowledge", containing documentary data, work division details, traditional paper-based or electronic work records, manuals, reports, pictures, programs, images, and sound of the organization, which could effectively manage explicit knowledge from inside or outside the organization by setting up electronic database to transform knowledge into specific symbols for the systematic, handy, and clear understanding and application of the

organizational members. Lau & Lee (2015) indicated that "tacit knowledge" in members' mind, in addition to explicit knowledge, should be managed to induce the members' potentials to create and solve problems. For this reason, applying integration and application mechanisms to transform members' tacit knowledge into explicit knowledge would be a primary issue in knowledge management (Rush & Scherff, 2014). Willetts & Clarke (2013) described knowledge management as systematically classifying, selecting, and storing explicit knowledge in an organization, through the application of information technology, for the reference of the experience accumulation and operation of the organization. On the other hand, it was the learning, creation, integration, application, and action mechanism of the organization, through incentives and rewards to acquire the tacit knowledge of the organizational members. Finally, explicit and tacit knowledge was connected and organized to construct the organizational knowledge bank to cope with changes inside and outside the organization, expecting to provide the best service and grasp the competitive advantages to achieve the common vision of the organization.

Referring to Fenga et al. (2013), the definitions and dimensions of knowledge management in this study are proposed as below.

- (1) Knowledge acquisition: Stéger (2014) considered that "knowledge gap" would appear when an organization was lack of certain knowledge. It required dynamic learning to introduce or transfer knowledge in order to achieve the organizational goal of knowledge acquisition.
- (2) Knowledge sharing: Nesje (2015) indicated that knowledge sharing or transformation was not a special term, but occurred in the living environment. Either topic discussions or enquiry of colleagues about the application of budgets was the knowledge sharing process.
- (3) Knowledge transformation: Willetts & Clarke (2013) proposed the factor in the continuous operation of an organization as smoothly transforming tacit knowledge into applied explicit knowledge to further enhance the operation performance of the organization so as to cope with external impacts and challenges.
- (4) Knowledge creation: Shah & Abualrob (2012) indicated that an organization would not create knowledge, individual tacit knowledge was the basis of the knowledge creation in an organization, and such a knowledge creation process was "knowledge spiral".

## **Environmental Education**

Legood et al. (2016) proposed that environmental education was an education process involving in the relationship between people and the natural and the artificial environments, including population, pollution, resource distribution and exhaust, conservation, transportation, and technology, as well as the relationship between urban and rural plans and the entire human environment. Scannella & McCarthy (2014) regarded the philosophy of environmental education as to construct humans' good environmental literacy of environmental knowledge, skills, attitudes, and participation; and, environmental education essentially presented the characteristics of interdisciplinary integration, integrity, value, life, practice, lifelong, and universality. Corey (2012) pointed out the specific teaching objectives of environmental education as to establish environmental awareness, environmental concept knowledge, environmental attitudes, environmental action skills, and environmental action experiences. It revealed that environmental education was the educational philosophy aiming to establish environmental behavior capacity. Shao et al. (2015) mentioned that environmental education did not simply aim to delivery knowledge and establish skills; more importantly, it intended to change people's consumption-oriented mind to form the value of environmental sustainability. Bayar (2014) stated that the promotion of environmental education aimed to cultivate people's awareness and concern about economic, social, political, and ecological relationship in cities or countryside, to provide opportunities for people acquiring necessary knowledge, value, attitudes, commitment, and skills for protecting and improving the environment, and to create a new environmental behavior model for individuals and the society. Newton (2013) indicated that the enhancement of environmental protection knowledge and skills and the formation of attitudes and value could cultivate a responsible environmental citizen who could change personal life or put into actions to participate in environmental improvement and protection and further influence the change of social structure. Geoffrion (2015) pointed out the general objective of environmental education as to cultivate humans understanding and concerning about human environments and the relevant problems, to teach people of related knowledge, skills, attitudes, intention, and perseverance to solve current and prevent future environmental problems (Vardaman et al, 2014).

Referring to Chen & Tjosvold (2014), environmental education contains cognitive domain, affective domain, and psychomotor domain in this study, where cognitive domain covers environmental concept and knowledge, affective domain contain the cultivation of attitudes, value, and behaviors, and psychomotor domain includes the skills to solve environmental problems.

#### **Professional Performance**

Goroshit & Hen (2014) described profession as a group of people engaging in the occupation which required technical skills; profession was the occupation cultivated and completed with special intelligence (Wang & Fwu, 2014). Mcneil et al. (2013) differentiated profession from "occupation" or "trade" which could be engaged by following routines without profound theories and special training. Professional performance could be the good/bad degree or performance of a person completing the technical work or affairs in the professional work field (Nadelson & Finegan, 2014). In the research on the lifestyle of performance art viewers, Bobek et al. (2012) pointed out performance as the "good/bad" degree of a worker engaging in and thoroughly completing certain work. Kavanoz et al. (2015) also indicated that performance was the work practice, including individual, group, and organization, meaning the outcome, efficiency, influence, quantity, quality, limitation period, performance, and preference of the work. Rigelman & Ruben (2012) regarded performance as the impression of the work outcome and attitudes of an individual, a unit, or an organization. Professional performance was "professional affairs done by professional people", which was defined by Shoji et al. (2016) in the research on the professional capability and professional performance of human resource developers. Delvauxa et al. (2013) proposed that a person with more professional performance could become an "expert"; on the contrary, one without professional characteristics was regarded as a "novice". Sezgin & Erdogan (2015) pointed out professional performance as the good/bad degree or performance of an individual completing technical work or affairs.

Referring to Chen et al. (2013), the following definitions and dimensions of professional performance are proposed in this study.

- (1) General competency: Including cultural competency, common competency, and technological competency.
- (2) Professional competency: Containing professional knowledge, professional capacity, work capacity, and communication & presentation skills.
- (3) Professional attitudes: Covering work belief and work attitudes.

## **Research Hypothesis**

Burton et al. (2013) emphasized the importance of educational innovation for an organization in the rapidly changing society; especially, when knowledge largely participated in affecting organizational activity, i.e. the knowledge-based economy era, an organization could overcome challenges by rapid self-adaptation. Nesje (2015) explained that effective environmental education could foster the environmental knowledge management and rapid innovation in an organization and enhance the organizational members' constant learning and environmental education in an organization, in the knowledge-based economy era, could achieve effective environmental knowledge management to further enhance the intangible assets of the organization. The promotion of environmental education in an organization could assist the organizational members in the professional environmental knowledge development as well as promote the environmental attitudes and environmental professional performance. The following hypothesis is therefore proposed in this study.

H1: Environmental education presents significant correlations with knowledge management.

Geoffrion (2015) indicated that an organization proceeding environmental education could enhance the employees' comprehending of environmental protection and appear model transfer through knowledge sharing in

the organization. Employees' environmental professional performance could be enhanced by combining environmental knowledge with environmental awareness and transforming it into strong environmental belief to further generate continuous environmental actions (Chen & Tjosvold, 2014). Chen et al. (2012) proposed that the practice of environmental education and the provision of overall environmental education resources, information, and channels for organizational employees to enhance the environmental professional performance were the critical action at current stage. Jamal (2014) pointed out the core idea of environmental education as to provide humans with permanently sustainable development in the safe and stable earth environment. The promotion of environmental education in an organization could help the employees understand the ecological role in the natural environment and the influence on the environment to rationally adopt professional performance actions of prevention in advance or afterward handling when facing environmental problems. The following hypothesis is then proposed in this study.

H2: Environmental education shows remarkable correlations with professional performance.

Nadelson & Finegan (2014) indicated that efficient and creative knowledge could be organized by seeking for the best solutions for work affairs, self-controlling the environmental education, and improving the mental model to further solve all new problems at work and enhance professional performance on the work (Wang & Fwu, 2014). Kavanoz et al. (2015) mentioned that employees, in order to search for problem solutions, had to properly apply the research and discussion conclusions of knowledge management to the problem situation. It was the transformation of knowledge. With knowledge transformation and application, employees could constantly accept challenges, break through dilemmas and obstacles, and present professional performance to effectively achieve the work objectives (Sezgin & Erdogan, 2015). Accordingly, the following hypothesis is proposed in this study.

H3: Knowledge management reveals notable correlations with professional performance.

## **RESEARCH METHOD**

#### Method and Model

Generally speaking, the test for goodness-of-fit in the LISREL model could measure the overall model fit (i.e. the external quality of the model) and the internal quality of the model. In regard to the overall model fit, four evaluation indicators are often used. (1) " $\chi$ 2 ratio" (Chi-Square ratio) which stands for the difference between the actual theoretical model and the expected value is better smaller than 3. (2) The closer goodness of fit index (GFI) and adjusted goodness of fit index (AGFI) to 1 represents the better fit. (3) The root mean square residual (RMR) which reflects the "fit of residual variance/covariance mean" is better smaller than 0.05. (4) The incremental fit index (IFI) above 0.9 reveals the good model fit.

Internal quality evaluation indicators are often used in LISREL, including (1)SMC (square multiple correlation) of individual manifest variable, as R2 of manifest variables and latent variables should be larger than 0.5, (2)content reliability ( $\rho$ ) of latent variables, as the Cronbach's  $\alpha$  of the observation indicator of latent variables should be larger than 0.6, and (3)average variance extracted of latent variables, which is calculated by dividing the sum of R2 of manifest variables of a latent variable by the number of manifest variables, revealing that manifest variables could measure the percentage of latent variables, and the value should be larger than 0.5.

## **Research Sample and Object**

Aiming at Yongchun Niumulin Ecological Tourism Zone, the supervisors and employees, with random sampling, are distributed 320 copies of questionnaire, and 243 valid copies are retrieved, with the retrieval rate 76%. With the best and the most characteristic forest groups, Yongchun Niumulin Ecological Tourism Zone presents the reputation of "Xishuangbanna in southern Fujian". Located in Xiayang Township, Yongchun County, Quanzhou City, it is the national AAAA tourist spot in China, the provincial natural reserve, and the ecological education and science education base in Fujian Province.

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	Evaluation indicator	Judgment standard	Result
- - - Overall fit - -	<i>p</i> -value	<i>p</i> -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, lower than 0.025 Excellence	0.018
	RMSEA	0.05~0.08 Good 0.05 below Excellence	0.022
	NFI	> 0.9	0.925
	IFI	> 0.9	0.919

#### Table 2. SMC of variable to dimension

knowledge management								
knowledge acquisition	knowledge sharing	knowledge transformation	knowledge creation					
0.70	0.75	0.81	0.86					

## **Reliability and Validity Test**

Validity refers to the measuring scale being able to actually measure what a researcher intends to measure. The common types of validity contain "content validity" for qualitative proof, "criterion validity" with recognized external criterion and the correlation coefficient in the test, and "construct validity" used for evaluating the consistency of a measurement with other observable variables. Since the questionnaire contents in this study are designed based on past theories and referred to the actual situations of the studied object, it conforms to the content validity. Besides, Factor Analysis is utilized for the final common estimation and test the construct validity of questions that the validity value appears in 0.8~0.9, showing the good validity test of the questionnaire in this study.

## ANALYSIS OF EMPIRICAL RESULT

## **Test of Model Fit**

With the estimation of "Maximum Likelihood" (ML), the analysis results achieve convergence. Overall speaking, the indicators for the overall model fit in this study pass the test, **Table 1**, reflecting good external quality of the model.

## **Test of Path Relationship**

In regard to the test of internal quality of the model, the square multiple correlation (SMC) of manifest variables is larger than 0.5 (**Table 2**, **Table 3**), revealing good measuring indicators of latent variables. Furthermore, the content reliability of knowledge management, environmental education, and professional performance is larger than 0.6, and the average variance extracted of dimensions is larger than 0.5 (**Table 4**) that the internal quality of the model conforms to the test requirement.

According to the analysis results in **Table 5**, knowledge management and environmental education (0.846) show positively significant correlations, environmental education and professional performance (0.863) present positively remarkable correlations, and knowledge management and professional performance (0.871) also appear positively notable correlations that H1, H2, and H3 are supported. The hypothesis test results are shown in **Table 6**.

environn	nental education	professional performance			
cognitive domain	affective domain	psychomotor domain	general competency	professional competency	professional attitudes
0.74	0.78	0.83	0.79	0.85	0.88
Table 4. Content reliability	and average varia	nce extracted of va	riable		
ltem	knowledge ma	anagement	environmental		professional
nem	α		education β	I	performance
content reliability	0.846		0.821		0.873
average variance extracted	0.82		0.83		0.88
Evaluation item	environmental e man	raluation standard ducation→knowled agement lucation→profession	lge	0.846	<b>t</b> 18.67**
	environmental education→professional performance		Jilai	0.863	26.46**
internal fit		-		0.005	20.40
internal fit	perf knowledge mana	-		0.871	28.35**
internal fit	perf knowledge mana	ormance gement→professio			
	perf knowledge mana	ormance gement→professio	onal		
Table 6. Hypothesis test	perf knowledge mana perf	ormance gement→professio ormance	onal sult	0.871	28.35**
Table 6. Hypothesis test Research hypothesis	perf knowledge mana perf correlation	ormance gement→professio ormance Empirical re	onal sult	0.871 P	28.35** result

## CONCLUSION

The research results show that the practice of environmental education in eco-tourism enterprises could have the employees positively acquire, transform, and apply environmental knowledge, reinforce the environmental professional knowledge and environmental professional skills, as well as have the employees show good professional environmental attitudes. It also reveals that employees in eco-tourism enterprises stress on the acquisition, transformation, application, and mutual sharing of environmental knowledge to constantly accumulate the environmental knowledge, reinforce the environmental professional capacity and performance. Besides, the higher knowledge management would have employees in eco-tourism enterprises more actively cooperate with the promotion of knowledge management and share experiences with the colleagues. In this case, employees in eco-tourism enterprises could present good knowledge efficacy by well applying environmental professional performance. Employees in eco-tourism with professional knowledge, professional skills, and professional performance. Employees in eco-tourism with professional skills, and professional attitudes would show better professional capacity that the generated knowledge quality would be better. Employees in eco-tourism enterprises with better knowledge would desire to enhance the professional capacity and performance.

## SUGGESTION

Aiming at the important results and findings, practical suggestions are proposed in this study.

1. Course design for environmental education in eco-tourism enterprises should consider the logic arrangement of course objectives and teaching contents so that the environmental education is not simply the achievement of cognitive objectives. Most employees in eco-tourism enterprises have basic

environmental competency that the environmental teaching could be enhanced to "skill" and "action" to encourage employees in eco-tourism enterprises actively concerning about the surrounding environments. To cope with the knowledge-based era, the learning of employees in eco-tourism enterprises cannot simply focus on certain environmental education, but should reinforce and cultivate various learning abilities to devote to the expansion of environmental education so as to develop the competence when facing distinct environmental knowledge fields to achieve the all-round learning.

- 2. An eco-tourism enterprise is suggested to practice "employee mentorship" to promote the knowledge management, in which senior employees, as masters, are matched with junior ones. The masters transfer the knowledge of and experiences in eco-tourism to apprentices and set incentive objectives for rewarding both masters and apprentices when the apprentices achieve such objectives. As a result, the professional knowledge, skills, and service enthusiasm of employees in eco-tourism enterprises could be enhanced, and the work performance and professional performance could be promoted.
- 3. An eco-tourism enterprise is suggested to teach industry-related knowledge through intranet so that the employees could know new industrial dynamics and information at any time. Besides, emerging tools, like Facebook, could be used for establishing the learning community in the company to share company knowledge and have the colleagues actively participate in the promotion of knowledge management. In the professional learning community, the interaction among members is not the top-down authority that individualism should be discarded, but collaborative cooperation is emphasized to reflect personal professional performance under an open, positive, and respectful discussion environment, to positively communicate with sincere attitudes, to present tolerance in equal dialogues, to take impersonality, to give concerns to partners, and to enhance mutual trust and coherence. In this case, the professional capacity and performance of employees in eco-tourism enterprises would be promoted.

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